Universities in the Making: Rankings, Performance Metrics and Control in Academia

by

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Abstract

People seldom question the work that goes into producing numbers and less often ask what work it is that numbers do to grab our attention, affect how we communicate, change our thinking, our work, and how this organizes society. In this dissertation I share results of my investigation into the production of university rankings and assessment in higher education. Higher education is empirically and theoretically interesting as a window to observe and understand cultures of measures and numbers, conflicting values and rationalities not only because universities intersect the economic, social, and political spheres, but also because they are regarded as temples of legitimate knowledge (Stevens, Armstrong, and Arum, 2008). By using insights from institutional ethnography and actor-network theory I conducted interviews with more than 60 individuals and drew on hundreds of documents and media to trace the network of relations that compose rankings and the university, entangling them in a global surveillant assemblage of control. By showing how these measures and tools coordinate activity I demonstrate how people working in universities actively position themselves as subjects of surveillance that coordinates their consciousness and collective identities, as well as ties them into global extralocal relations of control. Local systems of recognition and reward are bound to global economies that can benefit scholars and universities, create new risks, and also generate profits for distant corporations.

I advance five arguments throughout this thesis. First, rankings and related metrics are promoted as objective knowledge that relay an underlying truth regarding excellent scholarship, but are global assemblages made through extralocally coordinated work. Second, the global network of

rankings, metrics, and their relations are attractive for professors, students, and others within their assemblage, but are simultaneously dissonant with common academic values and approaches to assessment, they can operate as powerful threats to academic freedom. Third, while other authors have emphasized the disciplinary relations of rankings in local sites (Sauder and Espeland, 2009; Espeland and Sauder, 2016), I have argued that the global assemblage of higher education, rankings, and the publishing industry is best understood through notions of "control" (Foucault, 1977) or "societies of control" (Deleuze, 1992). Fourth, Espeland and Sauder (2016) have advanced the notion of reactivity as essential to understanding rankings and their effects. I have advanced *infrastructure*, through *infrastructural* and *data work* as important categories of reactivity that shape day-to-day routines within universities and bind local sites into extralocal networks. Fifth, to describe these conditions and their effects, and tying together my arguments above, I advance the notion of *diffuse judgment* as characteristic of the sort of judgment that can be observed in control society. In each chapter I demonstrate the work that goes into producing rankings, and ways that they define and sort diverse objects.

My research contributes to surveillance studies, organization studies, higher education studies, science and technology studies, and the sociology of knowledge by showing how infrastructural and data work organize and institutionalize categories of thought and processes that contribute to ranking and metric persistence in higher education.

Preface

The research upon which this dissertation is based was designed and entirely conducted by Gary RS Barron. The project was given research ethics approval at the University of Alberta throughout the duration of data collection.

Is this the year that we can see what's up ahead?
No I don't think so my dear.
Is this the year, that we proceed without a doubt?
No I don't think so my dear...

“The Winter Parade” by The Record Holder

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Introduction

"...a faith in objectivity tends to be associated with political democracy, or at least with systems in which bureaucratic actors are highly vulnerable to outsiders. The capacity to yield predictions or policy recommendations that seem to be vindicated by subsequent experience doubtless counts in favor of a method or procedure, but quantitative estimates sometimes are given considerable weight even when nobody defends their validity with real conviction."

Theodore M. Porter, *Trust in Numbers, p. 8.*

I sat in a cramped office much like those in which many academics work. On one side shelving full of books, to another a desk covered in files and papers, and in the center a small round table with more papers laid on it according to some obscure organizational system. My new boss stared at me from across the table, "Do you know the President's Eyes High Strategy?". His look was intense. I had recently been hired as the Scientific Advisor at the department of Family Medicine. It was my first day on the job and my first meeting with the Scholarship Director. My new role was to support and mentor faculty research. "Eyes High" is a play on the University of Calgary's Gaelic motto "mo shùile togam suas", or in English "I will lift up mine eyes". It is the name of the University's strategic plan that aims to make the institution one of the top 5 in Canada. I answered in the affirmative and my boss confirmed my suspicion as to where this conversation was going. I learned that our job was to "pump out" as many peer-reviewed publications as possible. It was January, 2015 and I

had more or less finished my own research into university rankings and performance metrics. This interaction with my new boss made me realize that I was no longer merely investigating the machinery of the University, rankings, and the publishing industry, but had become a very obvious part of it all.

Across the globe national governments are merging universities in order to leverage resources and increase their competitive edge (for numerous examples see Salmi, 2009; Mitchell, 2015; Mohdin and Mohdin, 2015; Salmi, 2017). Other higher education systems are becoming privatized in hopes to make universities more efficient and research more productive (Collins and Park, 2016). In all cases billions of dollars are being invested to create world class research universities that are competitive in global higher education and research. As countries across the globe have come to believe global university rankings are important, they have transformed their political, economic, and social infrastructure to make their higher education systems worthy of world class status. These have been referred to as "excellence initiatives"—such as the German exzellenzinitiative which was designed to promote cutting-edge research by increasing funding and promoting international visibility of some universities over others—which have completely transformed how universities are funded and research is undertaken (Siwinska, 2013). Similar excellence initiatives have also been noted in China, Denmark, Nigeria, Russia, South Korea, Spain, and Taiwan (Hazelkorn, 2011; Salmi, 2017). Further, none of the universities in France are listed in the top of the most popular international rankings and to address this a new mega-university named Paris-Saclay has been formed by uniting 19 institutions into a single structure and providing an

initial endowment of $9.3 billion (USD) to “compete with global giants like Harvard or the Massachusetts Institute of Technology” (Coughlan, 2014).

This is a thesis about rankings, performance metrics, related indicators, and the information infrastructure through which such knowledge is produced, but it is also about the people who do the work that make these things happen, the standards and value systems that they use to constitute this knowledge. This hybrid technology of flesh, silicon, and their enactments define the organizational and personal identities of universities and the people implicated within them. Such definitions are achieved through the coordination of local and extralocal activities—extralocal is a concept that describes practices and work that come to bear on people, but occur farther afield from the standpoint of local sites of inquiry (Rankin, 2017) —which exist on the periphery of awareness for many of the people entrenched in this machine. What I describe in the following chapters is how local work and consciousness are coordinated by notions of excellence promoted by rankings systems and kindred metrics to produce these numbers and create alignments between professorial, administrative, and national concerns. This is a study of how people across multiple sites are tied together through the work that they do with symbolic and material resources that are bookended by standards imposed by rankings on one side and the work that rankers and publishers do with data on the other.

As I traveled from the snowy streets of Edmonton Alberta, to the balmy ocean-front hotels of Miami Florida, and the bustling underground of London in the United Kingdom, I made new connections between each locale and learned how the day-to-day work of

professors and students relates to wealth generation for publishers and ranking organizations and the production of an international academic economy. My analysis describes the global organization of higher education institutions and the making of the contemporary university through intentionally and unintentionally coordinated work. This thesis shows how work at universities, within their faculties and departments, and by would-be-scholars such as myself are connected to ranking organization business practices and related economies of academic publishing. It is by following chains of action within everyday work that I was able to trace data flows and their effects in the form of coordinated activity, all of which I describe, analyze, and situate within other research on academic culture, surveillance, and quantification.

Rankings, Metrics, and Academic Economies

Each year academic publishers, news media, consulting firms, and other organizations release ordered lists of universities, professors, and academic journals. These lists create and impose a clear hierarchy upon a world of disparate, unorganized, and otherwise largely invisible field of objects. These hierarchies order their constituents from one—the best or most excellent—to 100, 200, or 500—to the least excellent. Ordering things in a numerical hierarchy with an associated interpretation of their quality is the basis of ranking (Townley, 1995). For universities the numerical order and interpretive frame refer to “excellence”, meaning world class status, or most research intensive. For journals and individual professors the rankings categorize according to which is of the highest quality or impact. Universities,

journals, and individual professors are often unique in terms of the social, economic, and political environments in which they exist and work. They are also often doing very different kinds of work on very different topics, or in different fields. However, many are left out of the lists. Of the approximately 20,000 universities that existed in the world during my research most rankings listed only 500 (2.5%) of the world's universities. As rankings are a technology of simplification, the work that goes into creating them requires that much information be junked. In the chapters that follow I describe the processes through which information is gathered and discarded in order to create rankings, the information infrastructure upon which these processes rely, how rankings enter into day-to-day university life, as well as the economies that are constituted with rankings and other practices within universities. Together the infrastructure, assessments, and flows of information constitute a symbolic and material economy through which reputation and quality are assigned, careers and profits are made.

Long before rankings became a major international object of interest people within universities engaged in performance measurement and assessment that took—and still does take—a variety of forms. Professors are assessed on an annual basis and at important stages of their careers. Departments, faculties, and universities as a whole are assessed as collective and individual administrative units. Such assessment requires considerable information gathering, much like rankings do, but the information is used in ways that establish a "pragmatic fairness" (Lamont, 2010), whereas rankings impose universal standards. As I proceeded with my interviews I realized that faculty assessment, university performance

measurement, and rankings are all connected through a discourse of evaluation, but also by a common information infrastructure upon which each relies. Having effective information infrastructure is essential to successful participation in rankings, and these practices facilitate personal and collective public identities.

The work of ranking and evaluation within universities facilitate investment, conversions, and exchange of symbolic and material capital. Such work makes up economies through which universities attempt to raise their prestige, increase their endowments, and attract talented students and professors. Professors and graduate students also create identities for themselves to win grants, attract students, secure jobs, and earn promotions. Such work ties academia into the publishing and ranking industry which generates considerable wealth for those businesses. In later chapters I show how university economic and organizational life is built through assembling disparate parts (see Du Gay and Pryke, 2002). For example, policies, databases, and the rules that define them are artifacts produced through much coordinated activity. They are also imbued with the values held by professors, administrators, and technical staff that build them from paper, ink, and coded electrical impulses that flow through computers and are written into memory devices to be called upon when reports must be produced for benchmarking or to send to ranking organizations. All of this work organizes the relations by which professors, students, and the public make sense of universities.

Why study universities, rankings and metrics?

Twenty-first century sociologists committed much energy to identifying and

labeling major trends in how people organize and live day-to-day, how inequalities are produced, or in defining topical areas to which social science should turn its attention. Such work relevant to university rankings and performance metrics include the risk society (Beck, 1992), the rule of emergency (Thrift, 2002), audit society (Power, 1997; 2000), surveillance society (Lyon, 2001), information society (Castells, 2000), and post-sociality (Knorr-Cetina and Bruegger, 2000); scholarly concern that we turn attention toward quantification (Espeland and Stevens, 1998), commensuration (Espeland and Stevens, 2008), values and evaluation (Lamont, 2012), and standards and standardization (Timmermans and Epstein, 2010). None of these "societies" or topics are mutually exclusive. Nor is this list exhaustive as the topic of this thesis could certainly be related to many other areas of study and conceptualizations of our contemporary world. In general, this list illustrates that a common —if not dominant—mode of thought and organization in our lives involve values, standards, categories, monitoring, quantifying, evaluating, and reporting on people and the world we inhabit. These also indicate that we now place substantial trust in numbers, the people and processes that produce them (Porter, 1995), and other forms of abstract information that are not generated from our direct personal experiences. Rather, in our "post-social" world, intermediary objects, data, and artifacts are now often the primary focus of attention and interest that stand-in for individuals who previously would have represented themselves in face-to-face interactions (Knorr-Cetina and Bruegger, 2000). Numbers, in particular, are increasingly used as tools to know and interpret oneself, captured in the concept of the quantified self (Lupton, 2016).

Numbers, as well as the categories, standards, and values upon which they are based inform our choices when we shop for vacations and household items; help us manage health conditions such as diabetes and body weight; determine whether or not we can gain access to important institutions such as health care, banks, insurance, housing, and schools; inform managerial decisions to hire, fire, promote or give raises to employees; monitor financial fraud and global economies for recession and growth. Most of this activity occurs beyond the realm of our immediate day-to-day experience, but can have lasting effects on our lives. These are all topics worthy of scholarly and public attention. Understanding how particular practices of assessment, surveillance, and quantification operate in specific contexts is a first step in understanding these phenomena across other realms (Sauder and Espeland, 2009). By learning from research we can be more thoughtful about how we work with numbers and engage with surveillance—to maintain, tweak, or resist them. In particular, Bowker and Star (1999) have argued that given the moral and political effects of infrastructure combined with its relative invisibility we ought to consider how, "to produce flexible classifications whose users are aware of their political and organizational dimensions and which explicitly retain traces of their construction." (p.326). My research may provide interested parties a means by which to think about how such work might be done.

Universities are a particularly interesting place to study such trends because they intersect, "the labor market and larger economy, the professions and the sciences, the philanthropic sector, the family, and the nation-state" (Stevens, Armstrong, and Arum, 2008:128), which are often considered as discrete domains of life. Another characteristic of

universities is what Smelser (2012) calls “structural accretion”, the increase and multiplication of organizational missions and functions. As society grows, universities do as well. How universities change will have implications for the domains of activity to which they are connected.

Importantly, many people also happen to live and work within universities. By this I mean that people, in their bodies, go about studying, socializing, or engaging in paid labor on university campuses; and also that university schedules and lessons coordinate and shape people's minds and activities. Education changes how people think and act in the world with lasting effects beyond graduation. Institutional schedules bring people together at particular times of year and stages of life, organize them according to specific interests (e.g., sociology, chemistry, business) thereby facilitating new relationships, and introducing barriers to others (e.g., between engineering and social science students; or between university students and technical school students; or university students and high school educated students that went directly into the workforce). More specifically, universities have been conceptualized as sieves that sort and stratify populations; incubators that develop people into “good” or “competent” citizens and workers; temples that are the source of legitimate knowledge; and hubs that join institutional domains (Stevens, Armstrong, and Arum, 2008). Universities are curious places for scholarly investigation, but also have effects on the daily lives of people with significant relevance for the world.

Arguments

In the following chapters I advance five arguments regarding the global assemblage of university rankings, performance measures, and their infrastructure. First, rankings and related metrics are promoted as objective knowledge that relay an underlying truth regarding excellent scholarship, but are a social construction. By this I mean they are assembled by human and non-human actors with symbolic and material resources. Such constructions are somewhat stabilized, but always shifting as a result of the ongoing negotiations between these components. That is, they are actor-networks (Callon and Latour, 1981; Callon, 1986; Latour, 1987; Latour, 2007; Law, 1994; Law, 2012). This interpretation of social construction raises questions of agency and structure. From an actor-network perspective agency does not require intentionality, nor is it located within an individual actor. Rather, it is a broader notion of agency that can involve resistances and effects that are embedded within, and are a product of networked relations (Sayes, 2013). There is not necessarily any "objective" truth to rankings, they are a product of assumptions and decisions made by specific individuals and organizations, and depend on actors across the globe who work in universities, publishing corporations, and other organizations to assemble and submit information for their calculation. I demonstrate the means by which rankings are produced and how their reality is strengthened through day-to-day work.

Second, the global network of rankings, metrics, and their relations are attractive for professors, students, and others within their networked relations, but are simultaneously dissonant with common academic values and approaches to assessment. Professor and

academic unit assessments involve disciplinary cultures which vary in criteria used to determine excellent work, including: clarity, quality, originality, significance, methods, and readability (Lamont, 2010). Professors determine excellence through “cognitive contextualization” of disciplinary cultures so that they can understand how standards should be applied to each discipline, and Lamont (2010) finds that overall peer review is an effective system of “pragmatic fairness”. In his history of academic freedom in Canada, Horn (1999) cites a report comparing academic and corporate values explaining that, “The university is oriented towards the extension and transmission of knowledge. Freedom of communication and publication are at the heart of the research process. The operating environment is intended to be creative and self-paced, and faculty members have some discretion over the selection and management of their research.” (p. 334). Academic freedom is a central university value and involves the disinterested pursuit of knowledge (in research, teaching, and learning), professorial self-governance, and academic free speech (Horn, 1999). Rankings alter the field, capital, and rules of the academic game (Bourdieu, 1980) while also “entrenching the potency” of existing hierarchies (Marginson, 2009). While rankings and metrics have impacts in many other settings, I focus on an analysis of their relations within and across universities to show how they are tied up in and affect the coordination of activity in a global network.

Third, while other authors have emphasized the disciplinary relations of rankings in local sites (Sauder and Espeland, 2009; Espeland and Sauder, 2016), I argue that the global assemblage of higher education, rankings, and the publishing industry is best understood

through notions of “control” (Foucault, 1977) or “societies of control” (Deleuze, 1992). Control is not merely disciplinary, as its subjects do not simply internalize concern for metrics and what they mean for their individual and collective identities; it shapes action, thought, and judgment without requiring subjective reflection or identification with its mechanisms. Importantly, control at once imposes inclusion, exclusion, moral judgment, punishment, and reward in its surveillance. In chapters two and three I describe routine workplace surveillance practices and in the following chapters demonstrate how these are tied to a far reaching assemblage coordinated through discourses of visibility that erode professional autonomy. Much of this control and the judgments that characterize it are the product of displaced subjective interests that appear objective, value-neutral and normative.

Fourth, Espeland and Sauder (2016) have advanced the notion of reactivity—that organizational and individual responses to numbers affect the reality to which they refer—as as essential to understanding rankings and their effects. I advance *infrastructural* and *data work* as important categories of reactivity that shape day-to-day routines within universities and bind local sites into extralocal networks. Infrastructural work consists of the cultures, practices, and processes of assembling the means to align disparate and distant components (e.g. standards, classifications, databases, academic units, workers) and to support the flow of information. Such work is necessary for organizational employees to conduct *data work* which is itself primary to knowing organizational performance. The notion of data work is intended to capture the concepts, strategies, and practices of producing, seeking, making sense of, and reporting data. Infrastructural work institutionalizes cultural and material

interests and meanings thereby giving them a degree of permanence. These insights support Power's (2015) propositions regarding accounting practices and infrastructure: that infrastructure is likely to be more durable than specific forms of accounting which lead to its creation; that with growth in infrastructure the importance of its related processes to subjectivization—how people come to regard themselves as they get involved with new symbolic and material relations—increases; and that with infrastructural accretion its routines shorten time horizons. It is through infrastructural and data work that structural accretion occurs and people become invested in the categories they involve and time in which they work becomes bounded.

Fifth, to describe these conditions and their effects, and tying together my arguments above, I advance the notion of *diffuse judgment* as characteristic of the sort of judgment that can be observed in control society. Diffuse judgment is the result of highly structured disaggregated components of assessment that occur across time and space and are recombined through multiple translations into a single statement of fact. Diffuse judgment facilitates or limits capacities through artifacts that structure negotiation, direct attention, and interest. The disaggregated components may include lists to be checked, standards to be followed, committees that debate, rankings to be observed. Individually and in aggregate these represent people and objects upon which a qualitative assessment must be made and action taken. In diffuse judgment assessments and representations of individuals and groups are highly mediated through the tools and artifacts used in the process of judging. These tools are most often the product of past judgment and as such are judgments in and of themselves,

they condition further judgments made through their use. Infrastructure and data work are precursors to such judgment and are illustrative of how judgments are assembled, constructed, and control comes to have effect.

I have thus far painted a rather bleak image of the conditions imposed by rankings and metrics. These conditions are not, however, totalizing and inescapable. Erving Goffman (1961) has explained how even in the face of total institutions, individuals continue to find means of self-expression. Other scholars have also documented how surveillance has multiple and often counter-intuitive effects leading people to respond in creative ways while under observation (Lyon, Haggerty, and Ball, 2012). My emphasis on control is directed toward the system of interconnected data flows. Within local sites where data are produced—such as in university institutional analysis departments—individuals often submit data based on local contingencies such as the limitations of their own infrastructure or organizational categories.

Hunting and Gathering Data

Early in my work as a graduate student I read a book that was the product of my doctoral program supervisor's own dissertation. In that book was the phrase “hunting and gathering data”- used to describe the work of creating official crime statistics in Canada (Haggerty, 2001). This is probably the best way of describing research methods that I have come across. Hunting and gathering certainly requires much skill, but it is also a matter of being in the right place at the right time. Sometimes finding a good meal—or good data—is a matter of

dumb luck. In hunting and gathering one relies on skillful others to demonstrate how and where to look for signs of the creature one is tracking, or where to find the fruit one wishes to pick. It also involves knowing what is edible and what is not. In research we rely on more experienced researchers to teach us how to understand our object of interest, where to find it, and how to track data that will help us analyze it. Just like the hunting and gathering of food, researchers do much preparation and digestion once an expedition has been completed. In what follows I clarify how I went about hunting and gathering data, and the theoretical interpretation of the world I used to guide my search.

Institutional Ethnography, Actor-network Theory

My approach to hunting and gathering information for this thesis was based upon lessons from reading two traditions in social science: institutional ethnography and actor-network theory. Here I provide a brief introduction to these perspectives, but provide more detail in Chapter 1.

Institutional ethnography (IE) is an approach for research into the organization of knowledge that takes cognition-orienting texts as objects of primary concern. Institutional ethnographers conceptualize institutions as a complex of text-mediated relations that are organized around a particular function, such as education or health care (Devault and McCoy, 2006). Institutional ethnographers engage in “problematization” - they begin investigations by considering everyday local experiences of people as problems to be understood and possibly solved. Beginning with people’s standpoint and problems, the institutional

ethnographer asks questions to examine how those problems and situations are organized through text-mediated sequences that they conceptualize as extralocal relations of ruling (Smith, 1987; Smith, 2005; Smith, 2006; Walby, 2007). That is, they are concerned with how people, rationales, technologies, and policies come to bear on the everyday lives of people who work and play at a distance from where decisions about such relations and practices are made. Ruling relations represent the everyday experience of individuals in local sites of work and play that order, direct, and organize conduct for specific purposes. For example, Nichols (2008) began an institutional ethnography with a problem faced by a young man in Toronto — his need for shelter. By following her informant to the social services that are ostensibly in place to help him secure employment and housing, she was able to demonstrate how the policies and practices of these organizations situated the young man in a continuing cycle of unemployment and homelessness despite his best efforts to the contrary.

By beginning with the standpoint of particular people located within organizational complexes institutional ethnography can demonstrate how everyday local experiences are shaped by extralocal practices. Institutional ethnography often shows how local experience and knowledge are made to disappear in objectified accounts such as texts including video footage, statistics, policy, and other managerial and discursive practices (Smith, 2005; Walby, 2005). Such objectivization produces particular facts as “truth” which truncates the everyday actuality of local practice (Walby, 2007). For example, a study of women’s calls to 911 as a result of domestic violence showed how detailed reports to the dispatchers and police were turned into a case number which erased important details. The case number was then sent to

workers across police departments and the legal system to determine sentences for the perpetrator. The result was that the justice system revictimized the woman, because details regarding the context of the violence were erased as the case moved through the system (Pence, 2001). By tracing these relations and how the victim's narrative was translated into an objective case, Pence was able to develop new practices for police, dispatchers, and courts to prevent further victimization.

Institutional ethnography researchers rely on informant experiences to understand their work and how it is coordinated. Work here is not to be confused with paid employment. Instead, work includes mundane everyday activities that are often overlooked or ignored by objectified knowledge to count as work of importance. Anything that people do which takes time and effort is considered work (Smith, 2005). The primary means to learn about such work that institutional ethnographers employ is to follow chains of text-mediated action. People working in organizations often refer to particular texts such as policies, reports, organizational hierarchies to do their work. By asking people about how they do their work and how they know how to do their work, we can follow how their activities are connected to those of others and how such relations are mediated by texts or other artifacts.

Understanding that organizations operate through text-coordinated activity helped me to identify research participants who were knowledgeable about their own day-to-day work and what it involves. As I identified potential participants I interviewed them regarding their work with texts—such as a professor's annual performance report—to clarify how the texts coordinate action. By asking respondents about how they work with texts the extra-local

institutional organization of their lives becomes visible (Walby, 2005). Sometimes our conversations were not focused on a single text; often one text implicated a mass of other texts that defined standards, procedures, or the operations of complex software and computer systems. As I went about my interviews I began to form a cognitive map of institutional processes and their connections across specific sites.

Institutional ethnography emphasizes that texts must be activated by people in order to have any effects. Activation of a text coordinates people's work and initiates further sequences of text mediated action. How a text is activated depends on a particular interpretive framework specific to the person activating the text and the institution in which they are embedded (Smith, 2005). Interpretation is a matter of what Alder (1997) conceptualizes as “technological life”, a concept that incorporates the cultural meanings, social values, politics, and organization of work among particular groups of people. Therefore institutional ethnography requires attention to texts, but also a study of institutional life more broadly. A potential limitation of institutional ethnography is that its emphasis on people and texts can lead one to ignore the possibilities of how non-humans might be involved in shaping institutions and coordinating the actions of its people (Walby, 2007). Institutional ethnography's notion of institutions as text-mediated action around a particular function may also limit the researcher's attention to the multiplicity of the components of an assemblage that becomes regarded as a specific institution. Recognizing the limitations of IE, my research also engages insights from actor-network theory. People, texts, assumptions, and cultural meanings may be important players in the production of facts and how they are taken

up in universities, but they can't do it alone. Within actor-network theory (ANT), the “social” is understood as being fashioned through ordering assemblages of people, devices, texts, and other disparate materials (Callon and Latour, 1981; Callon, 1986; Latour, 1987; Latour, 2007; Law, 1994; Law, 2012).

Actor-networks are composed of symbolic and material relations between people and things, it is these associations which we refer to as society (Latour, 2012). Actor-network theory is concerned with heterogeneous engineering that involves identification of particular identities that network components must adopt in order for a fact to emerge, the negotiation of particular processes and knowledge as necessary in order to ensure components adopt the new identities and roles, and efforts to stabilize such relationships so that they will persist (Callon, 1986). In Callon’s (1986) classic study of the domestication of scallops in France, three scientists were aware of dwindling stocks in St. Brieuc Bay, and had learned an aquaculture technique to sustain the scallop population, but could not implement it alone. The scientists identified and defined a problem that implicated three other actors: fisherman who were dwindling their stock, but had long-term economic interests in replenishing the scallops; scientific colleagues who knew little about scallops, but were interested in advancing knowledge; and a specific species of scallop that would accept shelter appropriate for them to proliferate and survive. The scientists then convinced representatives of fishing organizations and scientific colleagues through debates and presentations of data that their mutual interests would be met if they would accept particular roles advocated by the scientists. Then the scientists conducted an experiment wherein the scallops were willing to

anchor, their colleagues were convinced, and the fisherman waited to see the results. The network was seemed to be stabilized. Yet, the scallops did not cooperate. The scallops refusal is illustrative of another lesson from actor-network-theory: you can enroll some aspects of network components, but never completely dominate them, such associations are always full of potential, "...the social is only a tiny set of narrow, standardized connections..." which only occupies some of the actors some of the time before inevitably breaking up (Latour, 2012:124-125). New associations are always on the horizon.

Prior to the introduction of world university rankings there was no identity called "world university"—at least no explicit system of articulating, identifying, and applying that identity to an entity. Making university rankings salient involved creating the world university category; knowledge by which it could be identified such as counts of international awards, citations in specific journals, numbers of international students or scholars; tools such as reputation surveys that enroll professors and administrators into responding and identifying universities according to the world class category; and responses to concerns from ranking constituents such as feedback to adjust method, promotional events, seminars on how to rank well, and audits to make rankings appear transparent and legitimate. As the constituents of this network identify themselves and engage in practices according to the categories and alignments that rankings promote, they become stabilized and endure.

Transformations in components of the university, or how and whether they are enacted have implications for what we believe the University to be and how it operates. By making use of actor-network-theory I demonstrate the text-mediated work of people within a

"stabilized" institution, but also the assembly of that institution as a process of which text-mediated work is sometimes only one part. I conceptualize the university as always ordered in somewhat stabilized ways, but also always in a process of being ordered. To trace out the entire University, all rankings, and relations to all the networks in which they consist would have taken much more time and resources than a PhD student can muster. Recognizing this complexity, my objective was to assemble specific pieces of their networks and make their points of connection with other sites and processes visible (Haggerty, 2001; Devault and McCoy, 2006).

As a social scientist I was trained to begin any inquiry by posing research questions, and I began this project by asking: How are the work and practices of people transformed into numbers and how do those numbers then transform work and practices? Who decides these processes and for what purposes? How and through what work is this particular knowledge produced? What do the numbers conceal or make visible through such transformations? Why is it that despite the fact everyone seems to know that rankings are problematic do they continue to have such force? As I proceeded with my inquiry I began to realize that these questions also implied questions about value systems, desires, goals, strategies, standards, data, technologies, assessments of worthiness, and personal and organizational identity. I do not claim that the contents of this thesis have completely answered all of my questions, or those you may have, but I am certain they will be insightful, contribute to understanding complex organizations, higher education, and hopefully pique curiosity for further investigation into related topics.

Methods

I submitted a proposal for my doctoral research to the University of Alberta ethics review board and was given permission to interview humans, allowing them to choose to be anonymous or to have their names published. The majority were not concerned with anonymity. Where I use people's names in this thesis, it is their real names. In other instances I refer in general terms to a person's type of work and the type of organization with which they were associated. Much of my research involved speaking with people who work within universities. I interviewed 61 professors, deans, support staff, and people working at ranking organizations (47 hours) and observations at three rankings related conferences (56 hours). I was also hired as a research assistant to rate a university on its sustainability performance (180 hours) which involved working with a committee to negotiate definitions of what sustainability is, the types of academic work that count as such, gathering information that fell into these categories, reporting on findings, interpreting results and submitting them to the ratings organization. I participated on a number of university governing committees (93 hours) including general faculties council (which I describe in Chapter 2), and a subcommittee on standards for university academic assessment and related policies. I also attended several workshops on performance metrics and related practices in universities (10 hours); and read hundreds of news media articles and other documents related to rankings (>600)[1]. Most of my time was spent studying work and processes within the University of

[1] One of my first steps toward understanding rankings was to conduct a news media search through a library

Alberta (42 interviews), where I was registered in my doctoral program. Mount Royal University, also in Alberta, had transitioned from a teaching-only college to university status 6 years prior to the beginning of my study and was the other location where I conducted many interviews (11). I interviewed two other institutional analysis staff at the University of Calgary, and had one interview with an institutional analysis staff member at another Canadian university (this person wished to remain anonymous). I have illustrated categories of people I interviewed in Table 1.

Table 1: Research participants by employment category and frequency

Participant	Frequency
Board Chair	1
President	1
Provost	1
Vice-President	6
Dean	14
Department Chair	9
Professors	2
University Institutional Analysis	7
Recruiter (national/international)	6
Marketing Communications	2
Other University Staff	4
Ranking Editor	3
Ranking Sales/other	5
Total	61

database. I read 600 articles, but I also subscribed to many RSS feeds and daily newsletter updates on rankings and/or higher education more broadly.

Because I was starting from my own standpoint as a graduate student it made sense to begin my investigation with the University of Alberta. I chose Mount Royal University as an additional location for interviews as I believed that it's recent transition and the fact that it was not included in any rankings might provide an interesting comparison to ranked universities. Other organizations and sites were chosen primarily by convenience. I invited representatives of several ranking organizations to take part in interviews, but only Phil Baty of the Times Higher Education made himself available. The editor of the Maclean's Canadian University rankings had a brief phone conversation with me and answered some questions via email, while two individuals from the Shanghai Rankings Consultancy answered some questions by email. Convenience samples of this sort are a pragmatic matter, not purely methodological, in that they provide points of entry into examining and analyzing the networks in which each informant is embedded from their particular standpoints. The limitation here is that individuals at other points in the network may have a different experience and involvement with local contingencies that I cannot know from the standpoint of others. Using additional information such as news media, documentation regarding universities and related organizations from other countries, and conversations with people I met at rankings events helped provide some insight into whether my observations and interviews were relevant to people working in other places around the globe. For instance, in 2016 I was invited to an international roundtable on rankings and related topics where professors from Canada, Europe, India, Japan, Mexico, South Africa, Taiwan, and the United States, were in attendance. All of them had personal experience or spoke of collective

experiences that were similar to what I have documented in my research.

I also spoke informally with representatives who work in different roles at universities from across the globe when I attended international rankings related conferences and promotional events. I did not track all of these informal conversations and I do not include them in my interview count, but when they were particularly memorable or interesting I was sure to note them in my research diary. Actor-network theory alerts analysts to how actors are enrolled into networks, so I often asked why people were there, what the appeal of rankings was, and they would often speak about lack of data regarding universities in their country, interest in promoting their institution or forging partnerships. One such individual I met was an institutional analyst from the Czech Republic who was attending a rankings promotional event for these very reasons. Their lack of information infrastructure drew them to rankings and their databases for solutions. Two years after our meeting in I received an invitation to attend a similar ranking related event at this person's university — their enrollment into the rankings assemblage seems to have been completed. Indeed, when I spoke with data workers they were almost always seeking more efficient means of collecting and sorting data. Acorn[2], the University of Alberta's data warehouse which I describe in Chapter 5, was something that all of them said they were working on or desired to have.

Toward the end of my research for this project, I was hired at the University of Calgary and became immersed in the very institutional processes and culture I had been studying, first in my role as Scientific Advisor for Family Medicine then as a Research

[2] Acorn is a data warehouse that the University of Alberta developed. I describe it further in Chapter 5.

Associate in the School of Business. There I volunteered on a “top tier committee” to understand what “top tier” meant as well as to brainstorm performance metrics and indicators for tracking the school's progress toward such status. These experiences also shaped my understanding of the university, academic culture, and evaluation systems.

I audio recorded official proceedings at events, but also took notes when I attended meetings, conferences, and other observational activities, as I typically appeared to be a regular participant. Where I was unable to take notes at an event, I was sure to write my thoughts and observations within a day or so to prevent forgetting what had occurred. I not only transcribed the interviews, but wrote notes on my impressions of the interview shortly after each was completed. My interest was in the individual and group practices of actors and how they connected to those of others within and across organizations. As such, I saved extracts from interviews and other materials into a pre-determined coding scheme to track my topics of interest. This allowed me to map out how local practices are connected to and shaped by extralocal activities and how activities across sites were similar, different, or how they sometimes came into conflict.

Institutional ethnographers have developed approaches to interviews to investigate organizational and institutional processes (Devault and McCoy, 2006). Rather than use interviews as a means to glimpse an informant's inner experience, interviews can be used to study the relations between everyday life, local organization, and extralocal processes. The interviewer's objective is to elicit talk that deals with particular circumstances but also to reveal connections across many sites. While I conducted interviews that elicited specific

information regarding particular practices, some of the most important conversations were held while I observed people at work on committees, networking at conferences, or when I asked about their work and how they go about doing it (Devault and McCoy, 2006). Attentive observations allow the researcher to see what work is done, and how relations are performed, rather than make assumptions based on particular institutionalized accounts (Smith, 2005; Devault and McCoy, 2006). This allowed me to learn about relational chains, clarify my notions of specific processes, and generate new questions that needed to be addressed. Dorothy Smith has commented that it can be useful to plan interviews based on prior ones, but "....sometimes you don't know what you're after until you hear people telling you things... Discovering what you don't know—and don't know you don't know—is an important aspect of the process." Smith notes that, "The important thing is to think organizationally, recognizing you won't know at the beginning which threads to follow, knowing you won't follow all possible threads, but noting them along the way." (Devault and McCoy 2006:24). This was the way in which I proceeded with my interviews.

Other institutional ethnographers explain that rather than asking questions, they tell informants about the topics they would like to hear about and then let them tell their stories, asking questions as the story proceeds (Devaut and McCoy, 2006:26). This was also my primary approach in interviews. I would describe my interest in the university, rankings, performance metrics, and the work that the participant does on a day to day basis. Then ask them to tell me about their job. As participants described their job titles, I would ask who they work with, who they report to, who reports to them, how they communicate and get

information to complete their work. I listened for references to other processes and texts, asked how such items work, what purpose they serve, whether I could have a copy of an item of interest, whether I could observe the informant using the item or if they could describe how they were typically used. I also asked who I should speak with to learn more about the process or item in question. In this way, I was able to trace out the infrastructure that my participants create and use as they go about their daily work. I would then follow these relationships to the next person in the chain that could fill information gaps that appeared in earlier interviews. This process continued until I had established a sense that any further interviews would yield few new details.

Sorting data

In order to determine what was interesting or relevant to my project and sort through all the information that I gathered, I created a set of folders and notes in a bibliographic management application called Zotero. While the software is typically used to organize references to easily make bibliographies its ability to sort objects into folders, create notes, tabs and indicate related files makes it useful for organizing documents, extracts from transcribed interviews, websites, news articles, and other media. I created a folder for my analysis and created a series of notes with labels that included “conflict”, “data”, “data inputs”, “data flows”, “data/rankings”, “equivalences”, “identity”, “jobs, titles, roles”, “strategy”, “desires, goals, wants”, “connections between organizations”, and “judgment, assessment”, “values, evaluation”. These were all topics and themes I expected to track based on my reading of past research, an analysis of news media I did for a related project also

alerted me to some of these topics. When I began to read through my interview transcripts I copied and pasted extracts from the conversations into these Zotero notes, and where I found similar references in documents I would make a memo with a quote and a reference to the item of interest. As I undertook more interviews I continued the process of creating new themes such as “datawarehouse”, “strengths, weaknesses”, “standards”, “visibility, marketing”, as well as others. Related to this, as I read through my data and sorted it I kept notes to myself on my thoughts and ideas in a separate research diary within Zotero. I collected far more information than I could possibly convey in a single doctoral research project and rather than continue to elaborate or search for more themes and sub-themes I chose to focus on those which seemed most relevant to answering my research questions: How are the work and practices of people transformed into numbers and how do those numbers then transform work and practices? Who decides these processes and for what purposes? How and through what work is this particular knowledge produced? What do the numbers conceal or make visible through such transformations? The combination of the research diary and themes sorted in Zotero notes in several folders allowed me to sort all of the information I gathered and assemble an image of how practices within universities, interests among academics, data, and infrastructure among ranking and publishing organizations were connected in different ways.

Reflexivity/positionality

Institutional ethnography is said to proceed from a particular standpoint (Smith, 1987; Smith, 2005), which can be understood as local, particular, and embodied (Diamond,

2006). Taking a standpoint allows the researcher to work outward from that place in order to trace extralocal relations that coordinate local actuality. The standpoint I began with was my own, as a graduate student and would-be independent scholar, but I also tried to attend to the standpoint of others who participated in my research as I mapped the assemblage in which we were embedded. As my research progressed, I was able to take on new jobs within universities and, as I described in the opening paragraph to this chapter, often realized that I was taking part in the very activities and processes that I had set out to study. Doing observations of particular sites allows for more refined appreciation of "stories, authors, bodies, place, time, motion, how ruling relations work, and particular ways for seeing the social organization of the local" (Diamond, 2006:58). By going to specific locations to observe the work of university administrators, or ranking analysts I was able to better comprehend local and embodied practices, the pains, redundant work-a-day motions, and conversations specific to local sites that were shaped by and represented through objectifications and used for future ordering. My positions as scientific advisor, and as a research associate in the University of Calgary, also provided me with the opportunity to better understand the work of institutional analysis staff and research administrators, for example, I was once tasked to establish a list of "quality" academic journals in which associates of the Centre where I worked could publish.

My own journey through the maze of doctoral studies, the development of my own academic habitus and identity are also a part of this story. As I progressed through the web of academic production and its translation into various forms, the Ivory Tower began to lose its

luster. I found myself less caught up in what Bourdieu calls, the *illusio* of the academic game (Grenfell, 2008), and came to question whether it was worth playing at all. This led me to experience, what I can only describe as a *cleft habitus*. To be sure, I felt torn between the academic field and those I could see on the horizon from the ivory tower for quite some time[3], but my research intensified a sense of uncertainty as to whether I should continue to invest in academia—a field I began to see as moving in directions I sometimes found upsetting or contrary to the values I developed over more than ten years of university life—or to accept more immediate and clear rewards in a non-academic career path. This push and pull is also illustrative of the allure that enrolls individuals into different sorts of actor-networks. At the time of writing, I have still not resolved this tension. As Bauman (2000) has eloquently argued, sociology's expertise is to do the job of "restoring to view the lost link between the objective affliction and subjective experience" (p.86) of people. The work that produced this thesis has been shaped by me, but has also shaped me.

More than a sociology graduate student, I am a visibly white male[4] who has become fond of suits. When I started wearing suits for work I noticed that people were much nicer to me, smiling to me as I walked on the street, for example. I intentionally wore suits to my interviews because I was often moving between them and consulting work that I was doing,

[3] I dropped out of university in my first year. I was the first of my family to attend and didn't feel it 'fit' me. After working for a several years as an apprentice in a trade I returned to academia for undergraduate study and soon realized I was being separated from my friends and family in many ways. Then, during my masters degree I discovered that tenure track jobs were becoming scarce, so started to get experience as a consultant. I continued consulting throughout my doctoral studies. Lehmann (2007a; 2007b) and Haney (2015) have published some interesting work on people's experiences of class and transitions through academic life, and I have found some of their findings similar to my own experiences.

[4] For most of my life I have been regarded as descendant from white European heritage.

but also because I was typically engaging with professionals and wanted to convey a sense that I was also a professional and was taking the interviews seriously. Yet my journey to suit-wearing graduate student-consultant was not a clear path.

My parents were born in Newfoundland in the 1940s when formal education was not a common family priority. My mother left school to take care for her ailing grandmother and my father joined the army and became a mechanic. I was the first and only of five children to complete a university degree[5]. I likely would have not applied to university if not for a friend who informed me about the process and encouraged me to do so.I had always performed well in school, but the post-secondary system was entirely foreign to me.[6] I quit after my first year, or more accurately, was asked to leave when I did not go to final exams and earned a 0.7 GPA. While I liked some of the content, I didn't take it seriously; my close friends were all working in trades. I took a job as a mechanic. Eventually something spurred me to return to university. I worked nearly full-time while taking a full course load earning two degrees in four years while paying my tuition and a mortgage. For a period I slept in a crawl space in my basement in order to afford both. As a result of these early experiences I have continued to work multiple jobs—sometimes exceeding the number of weekly hours of work that would be recommended for anyone, let alone a full-time graduate student—as I completed my masters and doctoral studies.

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[5] Though since starting my doctoral studies one of my siblings had retired, returned to school, completed an undergraduate degree and a masters degree.

[6] My first introduction to research was in elementary school when I was one of several students in my grade selected to take part in an independent study and research program because we were "gifted". I'm not sure about that categorization, but this early experience with free inquiry certainly affected my future relationship to research.

While I have learned to take academic work seriously I have always felt torn between two worlds, one with friends I left behind as my time was occupied by study and my language and concerns became shaped into ones to which they could not relate; and the one toward which I found myself moving as I continued through academia. The negative notions of the Ivory Tower are some I held for much of my life, and which I have had applied to me in anger from cohorts of my youth—that I was an elitist, or a know it all, for example. This semi-biographical narrative is all to state my position in relation to the university and its culture, one fraught with mixed feelings and uncertainties as much as passionate interest.[7] An institutional ethnographer's primary concern with reflexivity is between the researcher and texts (Walby, 2013)—always trying to clarify that interpretations reflect the actuality and position of informants and relations within which they are embedded—these somewhat perfunctory details are part of how I relate to, move through, work within, and study the university.

Limitations

Beyond the limitations I have noted above, there is much of the university rankings assemblage I was unable to investigate. For example, I have not been privy to internal conversations held by ranking organizations and publishers like Elsevier; university dean and president's offices; hiring, tenure, and promotion committees; certain special committees such as SUMM, at the University of Alberta, which I mention in Chapter 2. I was also not

[7] See Bourdieu's *Sketch for a self-analysis* for a particularly well-done example of such reflections. One which has heavily influenced my own use of sociology in my day-to-day life.

privy to the numerous conversations and negotiations that were held among the progenitors of Acorn—the University of Alberta's data warehouse. These negotiations are important for the processes of translating interests, assigning identities, and enrolling actors into networks and creating the standards by which their action is more or less coordinated. They would also have been revealing of how actors interests were incorporated into infrastructure and continue to shape work into the future. Given that limitation, my research focuses on coordinated action between these points of work, though I was able to ask some participants in such negotiations to tell me about what they were like and how they affected their work and that of others.

Another important limitation is that I have investigated organizations at a particular point in time. Acorn for example was just being assembled and only a small part of it was operationalwhile I was doing my research. As such, I was not able to interview people about how it was being used, details of how it was actually integrating with rankings reporting, intaking metrics from sources such as SCOPUS (if at all), and the effects it was having on their work. I did interview several people involved in its creation and one person who was a part of the committees and was already using Acorn in its limited capacity. However, Acorn was exactly the sort of infrastructure that many other data workers (as well as deans, associated deans, for example) I met were trying to build on their own, for example, the person I met from Czech Republic. Another includes a Dean's office at the University of Calgary which had hired an engineer and an economist to create a performance measurement tracking system that was integrated with Google Scholar and other sources so that they could

create a dashboard and follow their Faculty's performance in real time. This constant data seeking to objectively know individual and collective situations is part of what allows the ranking surveillant assemblage to grow—I could not observe such growth over time, but was able to discuss some changes with my informants. For example, how it was a standard practice for universities in Canada to share large books of data with one another, which transitioned to posting the data as freely downloadable files on websites, to the organization of large data consortia that shared data in other ways.

I also could not observe changes in the influence of rankings and metrics in departments, faculties, or universities with contingencies such as changes in leadership. In my conversations with deans, department chairs, university student recruiters, it was clear that a change in leadership can affect the degree to which rankings and metrics mattered, or how they might be used. I could however observe how such variation occurred across different leaders in different faculties. For example, the deans at the University of Alberta School of Business and School of Medicine seemed to regard rankings largely as a rhetorical tool to sway audiences about the importance of their Faculties to the University and broader community. The leadership at another business school that I encountered were using rankings and journal lists to assign professors points—with monetary awards attached. Without having observed changes in leadership over time, I can say with some certainty that how rankings and metrics are enacted as tools of influence or strict systems of reward and punishment can vary with leadership.

Because rankings and metrics are entangled with academic culture and evaluation I

spent considerable time asking my informants about the standards by which their faculty were hired, tenured, and promoted. I read as much documentation as I could from the University of Alberta, University of Calgary, and Mount Royal University on related matters, but to have some idea of the degree to which these formal standards were applicable in other places I reviewed similar documents from a number of other universities in Canada and the United States. A review of 44 universities' standards for academic evaluation in tenure and promotion was also very helpful (Gravestock and Greenleaf, 2008) in finding that formal criteria and mechanisms for evaluation are largely similar across Canada. As such, my perspective on the formal standards and values of academic evaluation are based heavily on what I learned at my primary interview sites and corroborated largely by documentation from North American universities. However, I am aware that others have studied changes in the hiring and tenure decisions in other locations, such as in Taiwan, where performance has been reduced to the publication of English language papers in journals listed in the Social Science Citation Index (Chou, 2014). Where I discuss academic freedom and evaluation criteria my focus is largely on their formal criteria, though in Chapter 1, I provide some discussion of informal criteria as well.

Concerns with matters of race, gender, Indigeneity, and colonialism were not topics I set out to investigate in my research. However, there are numerous clues I came across as to how metrics erase those as matters of concern. For example, top global rankings are dominated by former imperial nations and it is rare to see schools from the Global South. As Lacroix and Maheu (2015) have noted, organizing in ways that align well with those found at

wealthy American universities—which themselves were historically adapted from British and German models of universities—is largely predictive of ranking performance. Further, academic disciplines are highly gendered and racialized and those that do not have high levels of representation from white males are under represented in global rankings (e.g., social work, nursing, Indigenous studies). In part, exclusion of certain groups and work from universities can be explained by the fact that universities were formed as places for wealthy, unattached, white men. In Canada the first non-white person hired at a university was in 1950 (Horn, 1999), and traces of that history remain a part of how universities are enacted today. Another possible explanation is that non-male dominated disciplines often value academic work that is not effectively captured by rankings or is antithetical to their focus on short-term, and discretely measurable outputs, such as community organizing, action-research, or work that focuses on application for development of local communities (see Henry, et al, 2017 for examples). Some of my informants did convey these concerns, such as a dean of Education whose interview I describe in Chapter 2, but to effectively examine race, gender, and other categories in relation to the infrastructure would be another project—one that would trace the gendered and racialized historical threads of the university and how these have been enacted and embedded within changing academic practices over time. The current project can only point toward such threads, rather than analyze them in detail.

Some readers may wonder whether my findings are generalizable. Many of my findings will be observable at many locations across the globe because universities are organized in more or less standardized ways and because rankings and the technologies they

rely upon follow a common logic and mechanism. What will differ are the anecdotal, cultural, and practical experiences of the people as they go about their work to deal with unique contingencies. Such variance is an empirical question to be left for further study. Moreover, institutional ethnography is concerned with examining institutionalized forms of social organization. By asking informants to provide accounts of the rankings, metrics, and assessment from their own perspectives I was able to view parts of the university in relation to these from each informant's standpoint. Integrating these views provides a more detailed image of how universities and rankings are organized, and it is the institution's general form which makes my findings generally applicable (Smith, 1995). My theoretical contributions will be useful for examining situated, coordinated action in other sites and related networks.

Chapter Overview

In Chapter One I provide some additional background to this project, describe prior research and theory I use for my analysis and build upon in this thesis. I also review research on rankings, universities, and notions of academic freedom, excellence, and self-governance. I emphasize how following infrastructure and the work done to assemble it facilitates analysis of how rankings and metrics coordinate action, constitute a networked system of surveillance, and are embedded within and yet can be dissonant with academic traditions.

In Chapter Two I discuss academic evaluation and its formal criteria through a reading of official hiring, tenure and promotion standards at universities as well as my interviews with deans, department chairs, and other university employees. Rankings and

metrics are associated with formal academic assessment in many ways and examining these criteria is important to an analysis of rankings and metrics. Starting from local interests and work related to assessment was a means for me to follow chains of action into extralocal activity. I argue that academic evaluation and benchmarking is a system that produces identities and can be enacted to support growth of diverse activities and interests. It also aligns universities with rankings and their logic in many ways. Indicators and metrics—sometimes rankings—are used to determine strong or weak academic areas in order to consider where investments should or should not be made. Generally speaking, weak appendages are amputated. While such practices can be used to implement university policies that will be destructive to particular disciplines and careers, they are primarily tools for orienting a diverse collective into a cohesive organization. Individual level systems of assessment based on broad and diverse values allow professors a wide berth to pursue their curiosity and the sorts of work appropriate to their personal interest and disciplinary traditions. Academic standards and the metrics used to show that one has met them coalesce to create institutional identities for individuals, not only in official titles such as assistant, associate, or full professor, but also in terms of whether one is a “strong”, “weak”, or a something in-between scholar. This heteronomous form of evaluation also sometimes conflicts with the university-level strategic vision causing frustration, conflict, and the need to do “double-work”. This is largely because what constitutes valuable or “excellent” performance varies across intra-institutional boundaries, definitions imposed in a top-down manner can cause much chafing. This discussion provides foundation for later chapters that

further demonstrate how academic work is coordinated with rankings and metrics.

In Chapter Three I analyze the world of university rankings and related devices, how they tie academic work into the publishing industry and new forms of evaluation and reflection. I continue to build on Chapter Two by comparing its findings in regard to formal academic criteria with ranking and metric based evaluative representations. I further demonstrate how ranking and metrics are dissonant with academic culture by creating forms of workplace surveillance that often imposes undesirable conditions for otherwise highly-autonomous university employees. In many cases, rankings and metrics can erode academic freedom to self-govern and determine what research is worthy of undertaking. Despite these differences, rankings also speak to some academic values such as desire for distinction and prestige making them a potentially legitimate goal for academic institutions.

Universities and those who work and study within them are increasingly subject to new surveillance that enroll these constituents into networked relations across organizational and national boundaries. These systems are also tied into symbolic and monetary economies. In Chapter Four I examine how information on professors is collected by large publishing firms that then use this data to sell products back to universities and professors to manage their individual and collective activities. Then, in Chapter Five I study the infrastructure on which much of the information flows described in prior chapters depends. This infrastructure binds day-to-day university life to the operations and profits of distant organizations such as rankers and publishing houses. It is also the infrastructure that allows provosts, deans and other administrative faculty to do their jobs with relative ease. Without effective

infrastructure these administrators are left to hunt and gather their own data, potentially at the expense of being able to portray their administrative unit in a favorable light within the University, and to the public more broadly. Information that comes to administrators piques curiosity, which often drives the acquisition of more infrastructure and information. Such infrastructure feeds information to rankings and other metric producing organizations, but also supports university staff, such as recruiters and marketers, to create promotional material and share information with the public. Chapters Four and Five advance my arguments regarding rankings as a form of control and workplace surveillance that subjects employers and employees to the interests of outside organizations. The sum of my analysis in Chapters One through Five describes academic cultural economies that rankings produce. They demonstrate how rankings position professors and universities in fragile networks that must be secured against risks that rankings and performance measures pose.

I conclude with a review of my primary findings, provide some reflections on what they mean for universities and society more broadly, and consider directions for further research. I also argue that research into organizations—higher education or otherwise—will benefit from studies that examine standards, values, and practices—infrastructural work—through intra and inter-organizational boundaries, following how these connect to form complex organizational systems that shape people's lives.

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Chapter 1: What is Contextualized Professional Judgment?

“Practice is larger, more complex, more messy than can be grasped within any particular logic. To be sure, the limits to discourses or narrative forms have been well rehearsed in the literatures of modernity. Reduction is not simply dangerous – as Zygmunt Bauman has so eloquently shown. It also, in the long run, experiences its limits.”

John Law, “Economics as Interference”, p.33

As a high school student I was ignorant of the University. One autumn day, midway through my undergraduate program, I was in the Calgary airport waiting for a flight to Vancouver. I stopped at the convenience store near the gate where passengers were sitting elbow to elbow, talking on the phone, sending emails, reading pocket books, and staring blankly into space. I browsed the store's half-octagon wall of magazines. The Maclean's annual university rankings caught my eye. How marvelous, I thought, I can discover the secrets of universities I never had the opportunity to explore. In that crowd of faces and printed words, the University was made accessible to me for the first time. Like other quantitative knowledge, rankings are useful because they simplify complex phenomena and are easily communicated in a nearly universal language (Porter, 1995).

Rankings make the academic field visible to people at far corners of the globe, but they also help to transform that field. Research into how rankings articulate and restructure the field to which they refer is important because these metrics may shape the work of university presidents, professors, and staff, as they have the potential to transform practices in education, the allocation of public funds, and personal choices of

parents and their children. Future employment may also be related to attending a high ranking school (Hazelkorn, 2011). For example, social media giant Twitter has required job applicants to have graduated from top 100 ranked universities (Tamburri, 2013). University rankings have consequences for individual experiences as well as long-term consequences for economies and populations.

The hierarchy of numbers that constitute rankings require interpretation by the people who create them as well as those who consume them. National governments, university presidents, deans, and students, all interpret and use rankings for their own purposes, from forming immigration policy to changing institutional strategic plans. Rankings are political in their production as well as their consumption. Similarly, universities are composed of many types of objects and people, involve much politics, and while something recognizable as "the university" of past periods tends to persist, it has changed and continues to change. How it changes and what it manifests as depends on how people—and the complex technologies they work with and are embedded in—enact the university. People individually, collectively, and in concert with metrics, policies, economic and political circumstances, by design or sometimes by accident, make universities.

To provide a foundation for my data and arguments in the chapters to come, I next discuss some of the common criticisms of rankings as well as their politics in relation to university culture. I then orient rankings to theories of surveillance, statistics, and quantification, demonstrating that rankings are not merely simple means for students to make decisions, but are a surveillance system that coordinates activity across higher

education, draws on academic tradition, and ties local work into international economies that generate massive profits for corporations. To be sure, these relations benefit some scholars, countries, and universities, but because rankings constitute an explicit system of stratification where visibility—conceptualized as reputation—is made into a scarce resource dispensed in a zero-sum game because some are defined as more deserving than others.

A Brief Overview of Rankings and Related Products

University rankings are part of a much broader cultural phenomenon. There are rankings for nearly everything: professors, students, climate change performance, inequality, health, athletes, ugliest animals, cutest animals, global cities, liveable cities, economic freedom, academic journals, innovation, celebrity, richest people, excrement, attractiveness, cars, resorts, restaurants, hospitals, political figures, wines, sustainability, and many more. The media website Buzzfeed, reportedly valued at $1.5 billion USD (Matthews, 2015), is an example of an enterprise that is based largely on our predilection for rankings and lists. This study of university rankings is a contribution to understanding a broader global cultural phenomenon of ranking almost everything that is brought to human attention.

Academic assessment has a long tradition directed toward ensuring that “is and ought will be brought into proper alignment and the best candidate will be declared Number One” (Strathern, 1997:307). Universities have engaged in some form of ranking since at least the eighteenth century where engineering school administrators quantified

and ranked student performance (Alder, 1997). Hazelkorn (2011) has documented three eras of university rankings beginning in 1910 with an “American Men of Science” ranking that examined schools based on the ratio of “star faculty” to all faculty, followed by regional reputation rankings, and global rankings. Rankings made by news media and other organizations have adopted academic assessment practices and made them their own. Their purpose, such outlets argue, is to aid decision making. Yet rankings create substantial profits for their producers and may increase costs for universities, since participation often requires universities to hire staff to build databases, gather and standardize data, and produce reports. Rankings have created numerous spin-off products for universities to track their own productivity in relation to competitors. They have also created an environment that requires significant spending by universities on marketing materials to increase reputation so as to attract certain types of students, though such marketing may not have desired effects (Sauder and Espeland, 2009).

University rankings come in many stripes, but all claim to measure and report on the degree to which universities achieve excellence—or sometimes in one aspect of university-related activity—as compared to others. The first notable national ranking system was published by the U.S. World and News Report in 1983. It provided a comparison of colleges and universities from across the United States. The first ranking of Canadian universities was published by Maclean's magazine in 1991. The public, professors, and university presidents enthusiastically and begrudgingly consumed both sets of rankings. For Maclean's and the U.S. News and World Report, the university ranking issues became annual best sellers. Ranking universities (and other organizations)

became a serious, and profitable, business. The early 2000s saw an explosion of global interest in rankings (Hazelkorn, 2011). The first major international rankings of note were the Academic Ranking of World Universities (ARWU), released in 2003 (Cheng and Liu, 2005). Since then, rankings have continued to increase in number, each varying their methods to give different proportions of weight to research outputs, journal article citations (regarded as a measure of impact), patents, reputation, research income, industry partnerships, teaching environment, or internationalization (Baty, 2014).

The Times Higher Education World University Rankings, Academic Ranking of World Universities, and Quacuarelli Symonds World University Rankings are now the three most well known international university rankings. In 2004 the Times Higher Education (THE) and Quacquarelli Symonds (QS) partnered to publish their own world ranking of universities. The partnership lasted only six years, when conflict over ranking methods resulted in each organization producing its own ranking bearing their respective names (Labi, 2010). THE reportedly wanted to respond to criticisms of their rankings by reducing use of reputation surveys and acquiring “more robust data” (Baty, 2009; Usher, 2011).

All rankings weight their indicators. The “Rankings Game” website (Stake, 2015) allows visitors to create their own law school rankings by allocating different weights to measures. Gladwell (2011) has generated a top 10 law schools list by equally weighting tuition price, academic reputation, LSAT (law school admissions test) scores at the 75th percentile, student-faculty ratio, and faculty law-review publishing. By giving a forty percent weight to price, forty percent to LSAT scores, twenty percent to publishing,

and removing the other measures the top 10 list changed dramatically. The University of Alabama suddenly appeared in the list sandwiched between the University of Colorado (ranked 7) and Stanford University (ranked 9). How particular measures are weighted will determine ranking results, this is illustrative of how changes in one component of a network can shift the reality that it enacts.

Many other ranking organizations exist and each produces multiple rankings. Some focus on particular regions or countries, such as the Perspektywy Rankings of Polish Universities (Perspektywy, 2015), but all use similar methods and business models. While my research focused primarily on THE, QS, ARWU, and Maclean's—since these were the rankings my participants dealt with most frequently, or were the organizations to which I was able to gain access—there are many other ranking systems. Rankings share common practices of defining universities according to particular criteria, having universities standardize their data and submit it to databases, then combine these with data from other sources to assess how each university fits with those criteria. As such, the discussion here will be applicable to most mainstream university rankings.

One important caveat regarding the effects of rankings is that the degree to which any single ranking is able to enforce its model may depend upon the number of other rankings that use similar measures and capture a specific field. Espeland and Sauder's (2016) study of law school rankings in the United States demonstrated that because there was only one ranking for legal education, there were fewer strategic options for law schools to buffer ranking effects. They surmise that this lack of flexibility partially explains the high degree of anxiety conveyed in their interviews with deans and

other law school employees. The existence of multiple rankings that come to bear on a specific institution can potentially reduce negative consequences as well as support audiences to question the legitimacy of all rankings. Business schools and whole universities have many rankings that they can use to portray themselves to audiences. My research supports Espeland and Sauder's claims in this regard as I found administrators and support staff would pick and choose rankings to suit their needs, often pointing out the arbitrariness of each (Barron, 2014). All rankings share similar limitations. Ranking organizations recognize this fact and some have organized to enforce principles on how ranking should be done.

The Berlin Principles on Ranking Higher Education Institutions are meant to guide ranking organizations and are the basis for an audit system used to verify ranker fidelity. While such work are primarily legitimizing practices in the face of criticism (Barron, 2017), such standards are illustrative of the limitations that rankings share. Standards promoted through rules like the Berlin Principles aim to reduce local contingencies. For example, if every government across the globe implemented the same traffic laws and enforcement then how people use cars around the world would become more predictable. Local contingencies would exist, but if one were to observe traffic in Canada and compare it to the UK one would make much more similar observations than one would in the absence of such standards.

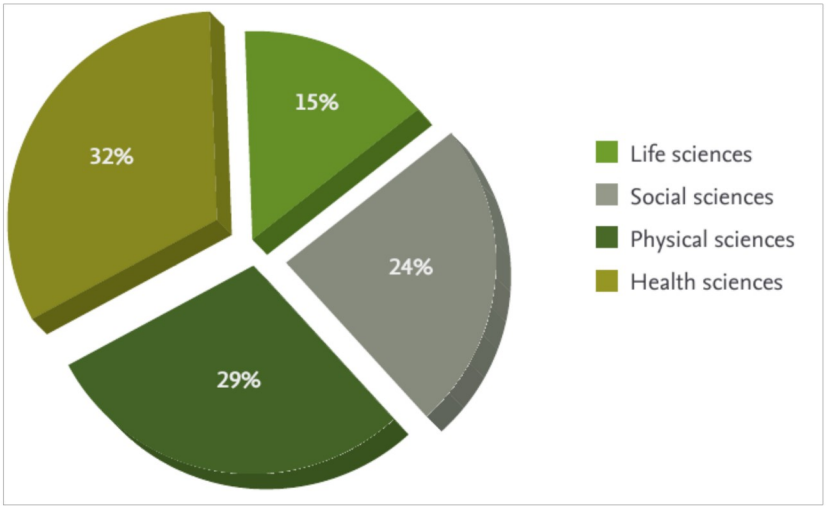
For the large international rankings the major publishing corporation databases are a primary data source; Elsevier and Thomson Reuters have been primary contributors.[8] Each of these publishing companies own masses of publications that are

8

sold to university libraries. In addition, they index academic journals and books, scraping them for metadata to acquire information such as author name, location of employment, and works cited. Elsevier's Scopus is the largest of such databases in the world and as of July 2015 has indexed more than 19,809 unique journal titles across the sciences, social sciences, and humanities (see Figure 1 for breakdown by broad disciplinary area). Thomson Reuter's equivalent database is called Web of Science and had indexed 12,311 titles as of the same date (JISC Collections, 2015). The overlap between the databases was 11,377 titles, with Scopus holding 8,432 unique titles and Web of Science indexing 934. In contrast a recent report stated that there are more than 28,100 active scientific peer reviewed journals in the world as of 2014 (Boon, 2016). This is a fraction of the number of academic book titles. A report from the American Academy of Arts and Sciences (2015) indicated that in 2013 there were 54, 273 new humanities book titles in North America alone, and that this had increased from 51, 789 new books the previous year. As of 2013 Elsevier announced that it had indexed 7,500 books in Scopus and would have 75,000 by 2015 (Elsevier, 2013); as of January 2016 they had indexed 120,000 books. Both databases are dominated by the sciences and severely under represent the social sciences and humanities (see Figure 1). The databases have only recently begun to incorporate books which are the traditional artifacts of these disciplines. This is an important observation because the majority of rankings are wholly or largely constituted from citation data derived from Scopus.

Since writing Thomson Reuters sold its academic data division to Onex Corporation and Baring Private Equity Asia for $3.55 billion USD (Thomson Reuters, 2016a), Clarivate Analytics now operates this data related business.

Figure 1: Scopus Subject Coverage, 2016



Source: Elsevier, 2016

I decided to test the extent to which Scopus misses work in sociology. To do so I used my university's library access to the database and searched for scholars I knew personally or prominent scholars that are widely recognized as highly influential figures in social science and sociology. I searched for Ulrich Beck and his Risk Society book, Zygmunt Bauman, Karl Marx, and Talcott Parsons. Risk Society did not appear, Beck didn't show up at all, Marx had 22 citations for a chapter on "the Communist Manifesto" and Parsons had around 150 citations for his paper on the role of the doctor. For comparison I did the same search in Google Scholar. Many of the searches turned up similarly named individuals in engineering and medical sciences. Beck's *Risk Society* had more than 30,000 citations since its publication in 1992; Bauman's *Liquid Modernity* which was published in 2013 was cited more than 9,600 times; Marx's *The German Ideology* was cited more than 8,000 times; and Talcott Parsons who had a full profile

page was cited more than 112,700 times and over 28,000 times since 2011. While Google's methods for calculating citations might well include errors that inflate the counts, the point is that data sources matter.

The consequences of publications missing from the database are not only that a single scholar's work will never be recognized, but also that their department and institution will be ranked lower or not ranked at all. The individual disciplinary traditions of publishing and personal choices as to what audience a professor wishes to engage with can lead individuals to be completely excluded from the system. In a world where these metrics are increasingly important to administrators, the consequences of this exclusion may be far reaching.

For those journals and books that are not included in the database, there is an application process to be incorporated into Scopus. For journals, the editor or a staff member must fill out a form and apply to a review committee that then determines whether the journal is of sufficient quality. Because there are so many books published each year, the sheer quantity poses a significant problem for publishers. As such, their solution has been to create a review committee to examine the quality of specific publishing houses, “The Scopus Content Selection and Advisory Board (CSAB) is an international group of scientists, researchers and librarians who represent the major scientific disciplines. The board members are responsible for reviewing all titles that are suggested to Scopus.” (Elsevier, 2015). If the applicant's books tend to be well edited and have a quality peer review process they can be indexed in Scopus. The degree to which these panels have a strong knowledge of each of the disciplinary traditions and autonomy

to freely include titles is crucial. For example, open access publishing has been regarded as a means of freeing academics and universities from inflating budgets due to the resale of publications back to universities once they have produced the work.

In recent years there has been a rise of journal editorial boards quitting publisher owned titles to start open access journals in order to ensure new knowledge is shared widely and freely. In 2015 the editorial board of Lingua, a well-reputed linguistics journal quit in protest after they asked that Elsevier make the journal more accessible and the request was denied. The disgruntled editorial board started a new open access journal, but in order to be cited and assessed for impact they will have to submit to the publisher's application process to be indexed in databases such as Scopus and Web of Science. Such metrics have become widely used as an indicator of journal legitimacy and influence which may make or break the journal's ability to attract the work of scholars who seek to earn merit, tenure and promotion in the face of increasing administrative interest in highly cited and impactful journals. In business schools, for example, specific journal lists are commonly used to determine merit and these lists often only include well established highly cited venues.

When a scholar references another scholar's work in their publications it is considered a citation. The sum of citations for a particular work is often used as an indicator of a scholar's influence, reputation, or impact. Citations are one of the most heavily weighted indicators in rankings and are increasingly used to derive additional metrics and measures of impact. For example, Thomspon Reuters owns the impact factor, which is a purported measure of prestige for academic journals and a marketing tool. The

impact factor is calculated based on the number of times a journal was cited in a given year (A) which is then expressed as a ratio to the number of articles published in the prior year (B), this number is divided by the number of articles published in the prior year (C) to arrive at B/C = D, where D is the impact factor (Thomson Reuters, 2016). The impact factor is a journal level metric that, “provides quantitative evidence for editors and publishers for positioning their journals in relating to the competition”, but Thomson Reuters notes that, “Perhaps the most important and recent use of impact is in the process of academic evaluation. The impact factor can be used to provide a gross approximation of the prestige of journals in which individuals have published.” (Thomson Reuters, 2016). Academics can use impact factors of journals in which they have published to acquire a form of prestige by association. Thomspon Reuters have noted that the impact factor should not be used to compare journals and scholarly work from different disciplines, because of varying traditions in publishing and state that “the impact factor should be used with informed peer review”. In order to provide more nuanced analysis of journal performance Thomson Reuters provides more comprehensive Journal Citation Reports (JCR) that must be purchased by contacting their sales associates.

Ratings are a system of categorization related to rankings that measure universities on particular criteria, but do not create a hierarchy. Instead, ratings may assign a letter grade, a number of stars out of five, or a spread of measures on specific characteristics. There are a plethora of other measures that either feed into rankings—such as bibliometric citation data—or which are derived from new online services such as Researchgate, Academia.edu, and Google Scholar. These platforms facilitate interactions

between academics so they can share and promote their work. As academics interact new analytic measures are derived and displayed so academics can reflect on their work and consider the degree to which they are having an impact.

Publishing corporations such as Elsevier and Thomson Reuters have used their databases of academic journals to create analytics that university administrators can subscribe to in order to observe and compare professors and academic units under their auspices with those at other institutions. These devices not only create new subjectivities for the academic world and act as technologies of the self (Foucault, 1978; Foucault, 1988; Foucault 1994), but also as a form of oversight for purposes of administrative governance with the aim of directing people's conduct toward particular ends (Foucault, 1997; Foucault, 2004; Dean, 2010; Rose and Miller, 1992; Rose, 2000). By showing how these measures and tools coordinate activity I demonstrate how people working in universities actively position themselves as subjects of surveillance that coordinates their consciousness and collective identities, as well as ties them into global extralocal relations of control. Local systems of recognition and reward are bound to global economies that can benefit scholars and universities, create new risks, and also generate profits for distant corporations.

Universities are involved in practices that promote and proliferate rankings as well, by boasting their rank-status on their websites and marketing materials. For example, the University of Alberta asks visitors “Why UAlberta?” and answers, “UAlberta is a Top 5 Canadian university and one of the Top 100 in the world...” (University of Alberta, 2013a). Despite repeated attempts by the University of Alberta's

President to make a case that rankings are flawed and should be resisted, the University seems unable to avoid appealing to rankings for self-promotion. However, resistance may escalate the consequences of rankings. When law school rankings were first introduced in the United States, some deans refused to submit data and attempted to organize a boycott. Unfortunately, because other deans did provide data voluntarily, the U.S. News and World Report used conservative estimates that resulted in lower rankings for boycott participants. Other efforts were made to define the law schools on their own terms and to denounce rankings by drawing attention to their flaws, but such criticism merely led to innovation in methods of data collection and analysis. Even the strongest critics of rankings have come to accept that they are “irrevocable” (Sauder and Espeland, 2009:76). Acceptance of rankings as a fact of life has led deans and others to engage in sometimes dubious work to increase their scores in such systems. For example, some law schools have admitted to encouraging applications from students they know they will reject in order to increase their selectivity rating. Such practices may improve a school's position in the rankings, but do not reflect what the system is intended to measure (Sauder and Espeland, 2009).

The above examples are illustrative of broad ambivalence toward rankings that many academics hold. I argue that this ambivalence is largely due to the bifurcated consciousness that rankings and measures produce for those within universities that have to work with them. Rankings create relations that position university workers under the watch of distant audiences in a manner that presumes to know their quality. People must then contend with the differences between their localized knowledge and objectified,

comparative, extralocal accounts. Academic recognition and reward become determined in reference to the metrics, or entirely based on them. These measures transform traditional academic assessments that use quality and quantity in a contextualized review of academic work to make quantity—citations, reputation scores, library holdings, numbers of awards—into quality and do so in ways that are opaque. All of these occurrences erode professional autonomy, create dissonance with local and collective academic values, and position universities in a fragile situation—in a system of control and subject to diffuse judgment.

Critiques of Ranking Methods and Effects

Rankings have been plagued with methodological problems from their inception and are critiqued regularly for their approaches to clustering, reliability, and validity (Page, 1998; Page and Cramer, 2000; Gingras, 2016), precision (Cheng, 2011), and how particular measures are weighted (Dehon, McCathie, and Verardi., 2010; Soh, 2013a; Soh, 2013b). Ranking methods have also been criticized for favoring universities from the English speaking world (Hazelkorn, 2011; Amsler and Bolsmann, 2012; Chou, 2014), and laboratory sciences and engineering at the expense of arts and social sciences (Cunningham, 2008; Hazelkorn, 2011; Usher and Jarvey, 2012). These methods are also denounced for focusing on research rather than incorporating measures that fit with diverse university activities and missions, such as teaching and community service (Billaut, Bouyssou, and Vincke, 2010; Cramer and Page, 2007; Cunningham, 2008; van Vught and Westerheijden, 2010; van Vught and Ziegele, 2012; Samarasekera and

Amrhein, 2010; Tamburri, 2013).

In a study of national higher education systems and rankings Lacroix and Maheu (2015) found that ranking outcomes are best explained by historical social, economic and political systems that have given rise to nationally specific university organizational forms. In particular, those countries with higher education systems and universities—including their local economic and political practices—modeled most closely to the American research university perform best because it is that model that rankings are designed to measure. This is well illustrated by the distribution of world class universities by country which I have taken from Lacroix and Maheu (2015) and illustrated in Table 2 below. In my description of infrastructural and evaluative work at universities I demonstrate how the active pursuit of rankings can transform academic work time and interests into those of rankings organizations.

Table 2: World Class University Distribution by Country, 2012

Table 3.1
Distribution of world-class universities by country, 2012

	Top 50		*Top 100*		*Top 200*		*Top 400*	
COUNTRY	THES	AWRU	THES	AWRU	THES	AWRU	THES	AWRU
United States	30	35	48	52	77	84	106	113
Germany	1	0	4	4	9	13	23	29
France	0	2	4	3	7	8	11	16
United Kingdom	7	5	10	9	31	19	48	32
Japan	1	2	2	3	5	8	12	15
Canada	3	2	5	5	8	8	18	16
Australia	2	0	6	4	8	7	18	15
TOTAL	44	46	79	80	146	147	236	236

Source: Lacroix and Maheu (2015)

As children many of us undoubtedly had embroiled debates with our peers about whose dad or mom was “the best”. Based on my own experience, such contests unfold like so. One of my friends would declare “my dad runs 5 kilometers a day”. To which I replied, “well my mom can swim 100 laps in an Olympic sized pool”. The match would have continued similarly until a conclusion was reached where I conceded that the other's parent was in fact “better”. After such a concession I experienced a shift in perspective, with my parent becoming a little less awe-inspiring. I and my friend each had our own points of reference, that is, our own parent. The assessment of that point of reference changed in relation to being presented with new knowledge, subsequent contests would be affected as a result of that first learning experience, but my response would inevitably still be weighted toward my own parent. The phenomenon where people make an assessment that begins with a particular point of reference and conservatively adjust subsequent assessments based on new information is called anchoring (Bowman and Bastedo, 2011; Dillman, Smyth, and Christian, 2014). University rankings demonstrate significant anchoring effects.

Reputation surveys are an important part of many university ranking systems and are conducted by asking university faculty, administrators and others deemed knowledgeable on the topic to assess the quality of universities. Using statistical methods, researchers have found that not only do participants assess their own institutions more favorably (Van Dyke, 2008), but prior rankings have effects on present and future assessments (Bastedo and Bowman, 2010). However, the effect is such that future assessments are anchored in the direction of the original response, adjustments in opinion

are conservative (Bowman and Bastedo, 2011). That is to say, I begin by believing my parent is better than yours, but when I'm given evidence to the contrary, the margin I perceive between our parents may decrease, but not in a way that significantly affects my view of my parent over time. My parent may not be “the best”, but your parent is only marginally better and the more evidence you marshal to prove otherwise the less of an effect each new piece of information has on my perspective over time. So university rankings have been criticized because respondent perceptions are biased, and that they also have effects (albeit diminishing) on respondent perceptions.

Studies using statistical methods have argued that there cannot be one single objective ranking (Rocki, 2005), and others have demonstrated how rankings create the world to which they refer as people take them seriously (Espeland and Sauder, 2016). Despite these criticisms rankings are still advocated by some as objective measures of quality (Jobbins, 2005). Notions of objectivity are often surrounded by much confusion. Stating that rankings are not objective or are social constructions is not a mere rhetorical move in attempt to destabilize them, there are good reasons for these assertions. Sayer (2000) identifies at least three distinct meanings for the concept of objectivity: 1) value neutral, indifferent or value-free; 2) searching for true or practically adequate knowledge; 3) referring to the nature of objects independent of what any person may think of them (p. 58). These interpretations of objectivity are often confused or conflated. For example, although it is presumed that we must first have value neutral inquiry to achieve adequate knowledge (objective 2), this assumption is false. We can find practically adequate knowledge from value-based inquiry (Sayer, 2000). The third form of objectivity requires

a question of whether we can know something independent from our thoughts about it—and of course we cannot—but we can distinguish between more or less adequate statements regarding the object of concern. This is to say that we can have knowledge that is constructed, practically adequate, and objective in the sense that it has effects on the world that are observable, but no knowledge will be free from people's values and interpretations.

In regard to university rankings and objectivity, they are conceptually and physically constructed classifications that are made through much heterogeneous engineering (Law and Hassard, 1999). The process begins with people developing a concept of a university and then seeking evidence that the university exists according to that concept. Such work necessarily involves processes of classification and categorization. Classification and categorization are primary to social life, they make up our identities, provide us with opportunities for complex thought, and facilitate practical tasks in day-to-day life. We use categories to identify ourselves and others. Most basically there are three forms of classification: the personal, interpersonal, and institutional, none of which is necessarily mutually exclusive (Jenkins, 2000). In daily face-to-face practices these may be negotiated. However, institutionalized categories may not be as flexible. The identities assigned to us by institutions are important because they may restrict our access to services such as the right to vote, health care, or education (Lyon, 2010; Fourcade and Healy, 2013). As a form of classification, rankings and measures are accomplished through statistics and quantification which are themselves built upon classifications. Decisions about what categories will be used for counts, and

how to go about counting are inherently political (Haggerty, 2001). Law school rankings, for example, have changed the distribution of professional opportunities, determining which students are recognized as worthy of access to legal education and jobs (Espeland and Sauder, 2016). In Chapters Three, Four, and Five I demonstrate how varying uses of rankings and measures impose differing degrees of change to how academics are categorized, and how their work can be done. One example is how a strict plan to improve rankings at a business school (which I discuss in detail in Chapter 4) also enrolls students as workers to improve faculty productivity by aiming to ensure students publish in top journals with their professors.

Rankings and the universities they measure are sites of production and the locations of their mutual enactment have effects on one another in the process. This is what social scientists refer to as "co-production" (Jasanoff, 2004; Shapin and Shaffer, 1985), the process through which knowledge and order are mutually constituted through the bringing together and performance of heterogeneous parts (Law, 2012; Law and Hassard, 1999). It also involves the coordination of people across many locations, building software and computer clusters, and promotion at international events. Such practices include idiosyncratic dispositions about what counts as knowledge and how best to produce it, what characteristics of a university matter, as well as bureaucratic, economic, or political interests that must be dealt with in daily work. Returning to Sayer's (2000) explanation of objectivity, rankings cannot be objective in the sense of being value-neutral. However, rankings have potential to be objective in the sense that they can be practically adequate knowledge—we can observe its effects and its discourse

is intelligible, and reliable. Importantly, once a particular form of knowledge has come to be objectified it has consequences for further organization of knowledge and human activity (Smith, 1987; Smith, 2005; Smith, 2006).

Institutional analysts who are often responsible for reporting local information to distant ranking organizations also build infrastructure and data for their own purposes based on locally and collectively negotiated meanings. Rankings create dissonance by having people transform their local knowledge into a new form for submission to be ranked. In contrast to the locally produced information, rankings do not provide any easy means to trace back additional transformations that are done by ranking organization staff. Locally meaningful and practically adequate knowledge becomes practically inadequate for most local purposes. In the face of such inadequacy people subject to rankings are not able to portray themselves publicly according to ways they would prefer —their interactions with audiences are mediated by numbers and their strategies for doing so are altered. This is illustrative of a common problem for classifications: they must be usable; demonstrate the political and social labor that goes into them; and clarify their consequences (Bowker and Star, 1999). In Chapter 5 I demonstrate how local infrastructural work supports academics to portray themselves in varying situations.

Academic Economies, Surveillance, Governance, and Reactivity

Readings (1996) has argued that the locus of the university is “excellence”, a mechanistic category through which the University understands itself in the terms of corporate administration. Excellence allows the University to adopt any activity without

considering its value (Readings, 1996). Excellence does not facilitate evaluation in terms of any form of justice or ethics because it has no particular orientation. However, excellence works well as a category for organizing a large institution like a university because it allows any activity to be evaluated as excellent to varying degrees. This can be useful for organizations with interest in supporting diversity, as relatively open and flexible standards of assessment do not foreclose what can be considered a worthwhile endeavor.

Veysey (1965) and Axelrod (2002) have explained that American and Canadian research universities have struggled with a tension between an aim toward public service and utilitarian ends, research and free pursuit of knowledge for its own sake, and the cultural cultivation of citizens. Unlike other organizations (e.g., private sector corporations) universities incorporate many units with diverse values and interests allowing each to exist, grow, and diverge into new disciplines with new values and interests. Smelser (2013) argues that the characteristic of changing and multiplying organizational missions and functions while maintaining traditional interests is unique to universities; he calls this “structural accretion”. Uniting such diversity can be problematic for administrators, a challenge which Stanley Fish (2005) has called “administering a university without an idea” because everyone seems to have a different idea of what a university is and ought to be. Diversity within universities has also been recognized as a primary challenge for individuals from other sectors who take on leadership positions within them, they rarely remain in those positions for extended periods of time (Paul, 2013). Given that it can foster diversity and growth, excellence need not be reduced to its

valueless and amoral forms. In many ways, excellence—and by extension rankings—are a forensic vocabulary by which people and groups can be held accountable, one that may be well suited to a diverse and global culture (Douglas, 1990).

Academic institutions have a history of promoting and valuing diversity, institutionalized in such endeavors as sociology, psychology, physics, chemistry, business, medicine, music, dance, fine art, philosophy, languages, and other disciplines into one organization. Each disciplinary tradition has its own realm of interest (e.g., relations and properties of subatomic particles, relations between people and things), it's own valued outputs (e.g., books, papers, art installations, plays), and its relatively idiosyncratic way of getting things done (e.g., lab experiments, living with foreign peoples for many months, population surveys, coordinated movement of human bodies through space). Over time academics have created standards and processes to recognize outstanding scholarly activity within each discipline upon its own terms, rather than imposing the values and standards of physicists on sociologists, humanists, and computer scientists. An empty category like “excellence” allows members from across the university to pursue their interests, but also maintain a form of organization.

When diverse cultures and values are organized into one institution it is referred to as a heterarchy (Lamont, 2012). Heterarchy is best explained in comparison to hierarchy, a clear system ordered from worst to best, bad to good, a leader and those who follow. While “excellence” may be a new discourse under which more traditional academic language has come to be recognized, as long as the underlying heteronomous system of valuation persists, universities can continue to foster diversity. Rankings and

measures narrow what can be considered excellent and impose their judgment, and as such are a risk to maintaining heteronomy. Rankings explicitly define what is or is not of value and can thereby eliminate any discussion by limiting worthwhile work to relative rank in a closed system (Readings, 1996). There can only be one “best” university and the others fall in line behind it. I describe such work in Chapter 2 and in Chapter 3 by showing how rankings and metrics can interfere with such traditional assessment.

With increasing social and physical distance there is decreasing personal knowledge and experience to make assessments and decisions. Numbers and rankings provide descriptions that either stand in the place of deeper knowledge or can be a point of departure for such knowledge to unfold. In the past, academic work would be brought to evaluators to discuss with colleagues. Numbers and rankings now simplify the process to a degree that detailed review can be made unnecessary. Rankings and their infrastructure impose constraints that can: i) prevent expert scholarly judgment; ii) restrict judgment; or iii) be incorporated into such judgment. For example, I interviewed a senior academic as he completed a reputation survey. In requesting his response the survey positioned him as an expert who is knowledgeable of universities and his discipline broadly, but the form he filled in limited his expertise to his memory of colleagues in his topical areas of interest, and to the ranking itself. His ability to examine detailed information regarding any specific university and its departments was removed and he found himself struggling to respond to the survey in an intellectually honest manner. A department chair also informed me that in tenure review cases the expectations that his professors publish in a specific list of highly ranked journals made it “a harder

sell" when professors did quality work, but published in other venues. Alternatively, some deans reported that while they liked to see metrics indicating their professors' work is being read and used, the metrics were not the sole means of evaluating professorial performance. Yet rankings and metrics become a point of reference for understanding personal and collective performance.

Dissonance created by rankings is evident in how academics and administrators repudiate rankings, but make use of them to determine where to publish, for self-promotion, and strategic planning. Such dissonance is an example of what institutional ethnographers refer to as bifurcated consciousness, the division of local, bodily, and experiential ways of knowing from institutionalized and objectified knowledge (Walby, 2005; Smith, 2006). Such bifurcation typically submits experiential knowledge to domination by the text-based institutional form. How people work with institutionalized forms of knowledge is contingent upon economic and political contexts in which they are embedded. Administrators at Mount Royal University, for example, recognized that an outstanding researcher at their institution would look different from one at an institution with a much lighter teaching expectation. Yet as performance measures become institutionalized they clearly recognize and reward some forms of work while excluding others.

Surveillance

Sewell (2012) explains that workplace surveillance allows employers absolute and relative information to determine whether employees meet their contractual obligations,

the degree of reward employees receive based on their contributions, and how employee work can be coordinated in time and space. While academics have always been subject to workplace surveillance, it has typically been of a kind that was collegial and contextualized, allowing universities and professors to individually and collectively pursue their interests. Academic freedom—professional autonomy and self-governance—has often been considered the "heart and soul of of the university" (see Horn, 1999:12). With the introduction of public measures and strategic plans based on them, the free pursuit of individual and collective interests has shifted. Sewell characterizes such workplace surveillance as exploitative—a situation where the interests of employees are subordinated to those of their employers. However, in the case of rankings the employers' interests can be further subordinated to those of outside parties, such as publishing houses, ranking organizations, and public audiences. Importantly, as academics increasingly aim to publish in high ranking journals, improve their citations and other performance measures they simultaneously institutionalize rankings as an important means to know scholarly quality.

Institutional ethnography has strongly influenced my research. IE is concerned with how people's consciousness and work are coordinated through text-mediated activity. In his classic institutional ethnography, George W. Smith (1998) examined what he termed "the ideology of fag", to conceptualize how gay teenagers day-to-day experiences in school were coordinated by broader gender relations and assumptions about sexuality. He demonstrated how youth appearances, public graffiti, and other forms of harassment constituted "fag" as an object which created and supported student

identities as a “fag” whether or not students identified as gay. By speaking with many youth regarding their view of “fag” within the school context, Smith was able to produce an integrated description of this otherwise opaque reality. Such descriptions positioned students in relation to wider conceptions and organizations of gender, allowing Smith to move from micro to macro-levels of analysis. The informants also described verbal abuse directed toward gay students. Such speech labels students and results in socially isolating or instigating physical violence toward the target. Smith’s work was a powerful illustration of how gendered categories and practices coordinate day-to-day student experience across locations.

While academics do not suffer marginalization as young gay men did in the 1980s, they are subject to relations coordinated by notions of excellence that are embedded in academic traditions as well as in other measures used across higher education. Just as words like “fag” can label and socially isolate individuals and groups, numbers similarly mark and perform actions (Espeland and Stevens, 2008). Rankings and performance measures are now used to identify and segregate universities across the world according to degrees of excellence, isolating lower ranked or unranked institutions. Citations and other performance measures that rankings are based upon organize the consciousness and work of deans, department chairs, professors, and university staff to think of themselves and one another in degrees of excellence on the terms of rankings and numbers. Academic performance measurement is a system where metrics are used to watch individuals and groups, assess their quality, and determine access to resources and rewards. Such knowledge also subjects otherwise hard-to-know activities to public

scrutiny based on selective accountability that emphasizes particular characteristics over others (Espeland and Sauder, 2016). These relations constitute a system of surveillance that are embedded in academic notions of excellence, but which also change how quality scholarship can be identified and valued.

Espeland and Sauder (2009; 2016) argue that the primary means by which rankings have their effects is reactivity—the fact that measures do not merely reflect a reality, but are active in making the phenomena to which they refer. They identify four forms of reactivity: commensuration, self-fulfilling prophecy, narrative, and reverse engineering. Commensuration is the comparison of different entities or transformation of different qualities into a common form (Espeland and Stevens, 1998). As quantified forms of assessment become used in academic evaluations, numbers of citations and publications in high ranking journals can be exchanged for promotion and access to honorary awards; or achieving a high university rank may come with access to full scholarships for students. Commensuration is also a means of discarding information and organizing the remaining information into new forms. Such a process most often transforms qualities into quantities, and differences into magnitude (Espeland and Stevens, 1998). Commensuration directs attention by simplifying relationships as well as creating new ones between entities.

Self-fulfilling prophecies confirm measures through one of two processes. First, people may react to predictions that the measures hold within themselves. For example, a respondent to a reputation survey may refer to the ranking in order to complete a response. Second, they may inspire behaviors that conform to them (Espeland and

Stevens, 2009). Using rankings to allocate funding and changing activities at schools to conform to ranking criteria are forms of self-fulfilling prophecy.

Most people are familiar with narratives in the form of engaging stories that organize people, places, time, and experiences into a form that conveys context, emotion, and makes sense of the world. Numbers can also be used to tell stories, but differ from narratives in that they are impersonal and remove context and emotion (Espeland and Sauder, 2016). When rankings are released administrators construct narratives to provide context and do rhetorical work to reassure their professors and students, or to do damage control. Narratives are a way that rankings indirectly affect bureaucratic practices, personal and collective senses of self (Espeland and Sauder, 2016). Administrative practices and interpretations are further co-produced with rankings as deans' work with other staff to deconstruct rank into its basic components in attempts to affect future ranking outcomes. As reverse engineering unfolds deans and staff come to think of themselves and their institutions in terms of the measures they disassemble and reassemble (Espeland and Sauder, 2016).

I argue that infrastructure—committees, working groups, templates, databases, strategic plans, reports, and marketing materials that facilitate information flows and coordinated activity—is also a form of reactivity. Reverse engineering, narratives, and commensuration may depend on existing infrastructure, but as these processes are undertaken they are often adapted in order to effectively report numbers and align interests across diverse university departments. As infrastructure is created or adapted to produce measures, the meanings and interests such measures promote become a part of

ongoing efforts to coordinate work and interpret university experiences. I*nfrastructure* and *data work* incorporate extralocal concepts and interests into routine local activity.

Infrastructural work consists of the cultures, practices, and processes of assembling means to align disparate and distant components (e.g. standards, classifications, databases, academic units, workers) to support the flow of information. When a committee meets to decide how to respond to rankings they are doing data work, but also a crucial part of the infrastructure that will facilitate data flows. Infrastructure work is necessary for organizational employees to conduct *data work* which is itself primary to knowing organizational performance. The notion of data work is intended to capture the concepts, strategies, and practices of producing, seeking, making sense of, and reporting data. Once the committee has made its decision about how to respond to rankings, others will create and transform data which is dependent upon further infrastructure, such as computer networks and databases. Lupton (2016) has described data work in her study of self-tracking and the quantified self-movement. She describes how people interested in quantified knowledge of their bodies must seek data then manage and discipline it so that it makes sense. Self-tracking is presumed to allow control over the data and the individual's body. Data work also indicates that data themselves do work, in orienting people's attention, informing on quality, identifying problems and implicating their solutions. Statistics are representations that involve an active technological process (Miller and Rose, 2008). My research sheds light on this process and in doing so demonstrates how power relations are made or realigned. People actively tie themselves into power relations as they engage in mundane workaday

activities such as generating solutions to problems, debating, and adopting new technologies and practices. By studying infrastructural work and data work in chains of mediated action, scholars can better understand how individuals and organizations are tied into extralocal relations that situate and structure opportunities for self and public knowledge, and the conditions that arise from these.

Infrastructure is also the foundation for systematic surveillance and governance of universities. Put most simply, governance is understood as the "conduct of conduct" and the "management of possibilities" (Foucault, 1994b:341). Analysis of governance is a solution to the problem of theorizing the state and state power which Michel Foucault called "an indigestible meal" (Lemke, 2007). Foucault considered the state an abstraction which had taken on a particular position within the field of government (Rose and Miller, 2010). Followers of Foucault recognize that power is not merely a relation of domination imposed or wielded by the state so much as a matter of relations that individuals actively create and take part in through their day-to-day activities (Rose and Miller, 2010). Analysis of government requires consideration of the rationalities that legitimize courses of action as well as the technologies that enact solutions to problems (Rose and Miller, 2010). Technologies used in governance may include mundane texts, mathematical calculations, or complex technological systems. For example, statistics render reality into a calculable form and represent their object in order to know its characteristics in specific ways and thereby act upon it.

In liberal democratic societies—such as those found in most developed nations—people are governed through their own freedom to make choices as they see fit. For

example, neoliberalism presumes that individuals are free to act rationally in their own governance (Haggerty, 2001; Dean, 2010). Under neoliberalism people are made responsible to secure themselves through activity in a market that provides them with options to suit their needs. Individuals who are unable or unwilling to meet their needs are left to their own devices. Liberal forms of governance intensify the need for expertise because the identification of particular objects and subjects to be governed, information pertaining to these, and technological solutions to problems become necessary. The proliferation of experts makes it seem as though decisions and action are matters outside of politics, isolated within the practices and calculations of doctors, social workers, planners, and scientists (Rose and Miller, 2010; Dean, 2010). In my research I have not emphasized governance so much as a global system of control wherein rationales are not necessarily contemplated by those caught up in the web of relations that enact control. Governance and disciplinary components of these relations are certainly observable in my analysis, but an in-depth examination of those characteristics of global ranking relations in higher education and the publishing industry are a different project.

My emphasis is on the relations between rankings, infrastructure, and people that work with them and I argue that these can be best understood as “control” (Foucault, 1977) or “control society” (Deleuze, 1992) within a global surveillant assemblage (Haggerty and Ericson, 2000). Control is a matter of monitoring and verifying conformity (Lianos, 2002), articulated in an immanent surveillant apparatus that subjectivizes its constituents through a constant seeking of the truth. As Foucault puts it: “There are two meanings of the word ‘subject’: subject to someone else by control and dependence, and

tied to his own identity by a conscience or self-knowledge." (Foucault, 1994: 331). Unlike disciplinary practices, control is not restricted to specific institutions, buildings, places or bound to enclosures—such as the school, hospital, prison—but is dispersed across locations (Deleuze, 1992). Control is a; "self-governing machine that not only subtly coerces subjects into docile states, but also integrates such subjects into the machinations of wider economies, including the circulation of information and objects." (Elmer, 2012:27). Importantly, the process of surveillance; "...itself produces or assigns a range of values to objects, it seeks to determine the meaningfulness of surveillant objects within the context of networked economies." (Elmer, 2012:27). The criterion that determines whether or not some phenomena can be considered control is not "the consciousness of the subject or the group involved, nor the will of those who produce the 'controlling' effect in question, but mainly the conditions that shape the interaction between those two parties." (Lianos, 2002:416). I show how metrics position administrators and academics in a state of constant comparison that incites concern for continuous improvement; and, through mediated relations, monitors and verifies conformity while also articulating it as a moving target. The global ranking control assemblage also hooks the academic symbolic economy into international financial economies.

In creating a zero sum game and because reputation can be a resource (Deephouse, 2000) rankings create a formal system whereby reputation becomes a visible possession of individuals and institutions, as well as the means by which reputation can be acquired. As a resource reputation is not a quantity of something that can be

accumulated but exists in the relational distance between universities as articulated in the ranking table. A university can potentially get more votes on reputation surveys, but this only matters to the degree that others do not get more votes and if one university begins increasing reputation, others lose reputation in the same moment. Rankings thereby create inequalities of condition and opportunity and with it, a formal system of stratification (see: Tilly, 2009). Those who have reputation will seek to protect it, and those who do not have it seek to acquire it. Reputation risk is a primary concern for many organizations (Power, Scheytt, Soin, and Sahlin, 2009) and rankings pose such risks by making reputation visible while simultaneously offering their metrics and products as a solution. Constructing reputation risk is primary to ranking business. Like Espeland and Sauder's (2016) observation that rankings are a form of "selective accountability" they also construct a selective excellence in that it is based on a few dimensions. Such fragility supports ranking businesses through product sales as academics become willing to pay for services to secure their excellence. Further to subjectivization, these tools become used as technologies of the self, "which permit individuals to effect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection or immortality" (Foucault, 1988:18). Rankings and measures are increasingly adopted as a means by which to understand one's own academic performance in relation to others.

The concept of diffuse judgment describes conditions under control society, it's proliferation of truth telling devices, markets, and visibility. Diffuse judgment also fits

well with Espeland and Sauder's (2016) concept of selective accountability. Where discipline emphasized the normalization of whole individuals, control emphasizes the *dividual* a subject that is, "partial, fragmented and incomplete" (Walters, 2006:191-192). That is, with concerns the attention and interest is selective of particular parts of its subjects. Processes in diffuse judgment emphasize the particular while potentially allowing everyone to have a say, but only in respect to some finite piece of the complete picture. Moreover, the degree to which any individual, group, or artifact can influence the final outcome is uneven, uncertain, and questionable as no one party involved at any single point in the processes leading to the final outcome knows what has happened, can unpack, reverse, or examine, other components of judgment that led to the outcome. Because judgment is made through many artifacts and people across a wide network, and their activities and interests opaque, selective accountability is often the only sort that is possible in such conditions. In each piece of judgment those who are contributing are themselves judged and the final judgment determines their quality in relation to all others involved. Each individual and process within in the broader system has potential effects on the others, though those at a distance may not be aware of the impact. The judgments set interrelated positions with consequences for each of them which may include access to, or denial of access to rewards, life chances, participation in activities. Representations of oneself, one's group, one's work, and so on are heavily mediated and judgments rarely involve direct interaction with that which is judged. Much of this control and the judgments that characterize it are the product of displaced subjective interests that appear objective, value-neutral and normative. Rather than a disapproving glance, or a personal

declaration from one person to another regarding the violation of a norm, inappropriate or under-performance of the individual's normative or non-normative activity is accepted into a system or not. Acceptance may mean further scrutiny, but rejection means total exclusion until some minimum threshold of compliance is met.

Chapter Summary

I have thus far reviewed prior research and criticisms of rankings and related metrics and some ways they fit well with academic culture, but can conflict with values of academic freedom. Situating rankings in relations to academic values provides a foundation for more detailed analysis in this regard in later chapters. I then situated rankings and metrics within research and theories of surveillance and quantification. Specifically, I have stated that my project is to examine rankings and their relations with universities between the points of ranking organization work to have data submitted to them and the work such organizations do with such data once they receive it. An investigation of the internal workings of rankings organizations is for another project. I have argued that these rankings relations are a global surveillant assemblage best understood as a form of control. I began to advance my notion of diffuse judgment as the sort of assessment that conditions situations within the global surveillant assemblage.

In Chapter 2 I further examine traditions in academic governance, strategic planning, and assessment in order to provide a point of comparison with the criteria, judgments, and infrastructure of the global rankings assemblage. In doing so I demonstrate how scholars promote one another based on relatively open standards of

excellence that allow determinations of worthy quality and quantity to be made on an individualized basis. These practices are also observable at the institutional level in benchmarking and strategic planning practices. Such traditions provide a contrast to what I share in Chapter Three, where I explain how rankings and metrics can change or stand in place of scholarly judgment.

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Chapter 2: Disciplinary Cultures and Assessment

"The Latin word academia refers to a community dedicated to higher learning. At its center are colleagues who are defined as "peers" or "equals", and whose opinions shape shared definitions of quality."

Michel Lamont, *How Professors Think*, p. 2.

"Indeed, the tacit admission underlying all peer review is that *there can be no single, definitive, objective assessment of the quality of new research*."

Derek Sayer, *Rank Hypocrisies: The Insult of the REF*, p. 13.

Academia may be understood as a community of peers, but the community is held together through an array of distinctions and hierarchies that are incorporated into complex valuation and recognition systems. Academic disciplines each value their own sorts of artifacts and forms of productivity. The politics by which this institution is held together take place largely through peer review and as the epigraph to this chapter suggests, by regarding diverse work as equally worthwhile endeavors. Individual professors are hierarchically organized by status and positions of prestige while diversity is supported by recognizing individual performance according to criteria that are contextualized around the individual's discipline, subject areas, and stage of career. That is to say, academic peer review and assessment is heteronomous, it allows numerous values to exist, diversify, and grow. This is why physicists, biologists, anthropologists, and fine arts professors can each be recognized as excellent—they are regarded as such in their own right. The physicist cannot impose her standard of excellence on the fine arts professor, nor can the biologist impose his expectations of performance on

the anthropologist. Instead, each must learn the context and standards of the other in order to make a fair evaluation and uphold the values of one another's disciplines.

Informally, some disciplines and work are often valued more than others. A striking example of how informal hierarchies affect academic work is in racialized and Indigenous faculty's skepticism toward the idea of universities as meritocracies, that their work is often undervalued, and that they regularly experience workplace racism (Henry, Dua, James, et al., 2017). The formal standards for evaluating academic work that Lamont (2010) has documented were also complemented by informal ones. While these informal criteria included a concern to recognize demographic diversity (e.g., institutional, geographic, gender, ethnicity) they also involved interest in indicators of cultural capital such as elegance, or moral concerns such as an applicant's determination and humility. Lamont notes that these latter criteria—cultural capital in particular given its association with class—may be antithetical to a merit based review system, but that they are "intrinsic to the process of evaluation in academia" (p.161). Universities were historically institutions for white, unattached men and the bachelors degree is an artifact of that history (Horn, 1999). While some universities are beginning to recognize traditional Indigenous knowledge and Elders as valuable contributors to academic knowledge, formal and informal systems often do not effectively recognize these (Henry, Dua, James, et al., 2017). Throughout my own time moving through university life I have been witness to or the subject of all sorts of informal discrimination. For example, when I told a professor where I grew up and the response was "Wow, I don't go to that part of town"; or being expected to wait for a computer to do lab assignments after class when I began as a computer science major during undergrad despite

having to work everyday after school to pay for my costs of living and tuition.[9] Similarly, I have often observed faculty refer to PhD graduates that went on to successful careers in applied research outside of the university as “failed academics”. While my research has largely emphasized formal criteria, values, and standards of academia, I am well aware that heteronomy at the University has its limits. I occasionally point to examples of those limits throughout this thesis, but at this juncture take the opportunity to advise the reader against an overly idealistic reading of my research.

In this chapter I discuss academic performance as understood and practiced by professors and administrators in universities in Canada. The discussion includes faculty tenure and promotion practices, but also how administrators engage in benchmarking and performance assessment for the university as a whole. I demonstrate how administrative benchmarking incorporates heteronomous assessment while at the same time allowing authorities, such as provosts or deans, to gain information for decision making. This approach facilitates recognition and promotion based on excellence while allowing administrators to identify strengths and weaknesses in order to determine resource allocations (e.g., funding for graduate students or a new professor). Administrators’ talk about their work demonstrates how lived realities within university are organized and the university itself is performed.

As a form of workplace surveillance, rankings shift the relations and dynamics of work within universities. Workplace surveillance can protect all involved from free riding, or exploitative conditions that coerce and subordinate employee interests to those of employers

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[9] I did not last long in the program.

(Sewell, 2012). Workplace surveillance can determine whether employees are fulfilling their contracts, the degree of reward they should receive and how to manage employees and their work in time and space. Scholars tend to be self-motivated, but there are concerns that some acquire tenure and then cease to fulfill their contract requirements. Professorial free riding causes much resentment among colleagues, creates workload inequities, and has broader political implications because professors have tenure and are paid with public tax money. Some professors have argued for greater accountability to ensure that responsibilities are met while recognizing that, “a one-size fits all approach is not equitable” (Walton, 2017) to ensure that systematic disadvantages are not created due to differences in research programs. Debates as to whether workplace surveillance is exploitative or prophylactic are likely to hinge upon whether the information derived from monitoring is considered accurate and objective; employee and employer’s perceived legitimacy of its purposes; and whether any intrusions fall within accepted standards of privacy (Sewell, 2012). Surveillance relations in academic environments are generally considered accurate and legitimate. Rankings can change perceptions of the accuracy, legitimacy and acceptability of privacy in workplace monitoring as local meanings and individual interests are displaced by those imposed by rankings.

Academic evaluations are organized at the individual, faculty, and university-levels to recognize diverse forms of excellence. Changing the means of assessment, rankings and metrics can reorient how and why academic work is undertaken. The means—numerical and quantified indicators to be used as one part of an assessment process—can easily become an end in themselves. This is an example of conflict between substantive and instrumental

rationalities described by Weber (1968). Substantive rationality involves taking action based on its intrinsic value, regardless of the outcome, whereas instrumental rationality is concerned with the evaluation of the means to a particular end. These competing orientations are irreconcilable as valuing a particular action necessarily does away with interest in doing it for its own sake (Espeland, 1998). As a means to an end becomes an end in itself, it is institutionalized. Rankings rely upon the infrastructures used in assessments across the university. As rankings and measures become used in formal assessments at universities, their infrastructures are adapted in order to more effectively produce such measures and as they do so, their logic becomes embedded in routine work.

Journal rankings and impact factors are tools for visibility that orient academics to the possibility that their work will be readily recognized. When used for administrative oversight such measures can transform academic work from a process to generate scholarly knowledge into one where the primary concern is to be cited. By describing university, faculty, and individual level processes of alignment and evaluation within universities, I provide a foundation for the following chapters that show how rankings and measures can be used to support or stand in place of contextualized professional judgment of scholars. This review of academic assessment also allows me to illustrate the how rankings and related metrics are enmeshed or conflict with academic values and practices. The degree to which deans and professors use such measures as formal means of assessment illustrates how these measures can become ends in themselves, changing academic work, subjectivities, and surveillance in the process. Where universities make rankings their explicitly planned goals they become more directly aligned with publisher and ranking interest in generating profit

and the control imposed by a global rankings assemblage.

University governance has implications for how actor's decisions can be limited and the kinds of information that is useful to decision makers. University priorities and performance evaluation are coordinated through infrastructure that includes strategic planning documents and policies that articulate expectations meant to align faculties and other academic units. Often the alignment occurs in the opposite direction. Strengths of the university are identified, priorities are set based on those strengths, financial and human resources are directed toward them and performance on achieving goals in those areas is evaluated against a baseline measure. Faculties and departments must then follow a similar process in order to compete for new resources and demonstrate they are contributing to organizational objectives. New financial resources are not always available with a new strategy, but while working as a research associate I took part in applying for one of five $200,000 grants dispersed through a Vice-President of Research Office as part of one such research strategy. Professors from across the university attended information sessions. Some found that the new strategy did not match well with their own interests, so did not bother competing for the new money. Also important to making alignments within and across universities are that as individual and organizational performance are reported by professors, their department chairs, deans, and institutional analysis staff, each unit is observed and measured against a particular set of standards. Such reporting builds organizational and individual professional identities and constitutes symbolic systems of reward. Heteronomous academic systems of performance evaluation simultaneously allow organization change and growth, while allowing strategic decisions such as making a case to nominate a professor for

a prestigious research chair, or to cut funding to an academic unit.

As a doctoral student, I became involved in university governance, serving on multiple department and university committees, attending the open portions of university board meetings, and serving as a member of the University of Alberta Senate. In these experiences with university governance I felt as though I was treated as a colleague, not a mere student, and my expertise with particular topics and information gathering were often sought to help with solving problems or to provide advice. For example, one of the Senate priorities was to engage with Albertans to understand their views of the university and their relationship to it. I helped with holding focus groups, summarizing the report, and determining the strategic actions based on our findings. Many of the concerns for equity and diversity I describe in academic evaluation processes were also evident in academic governance. I observed such concerns in documentation I collected for this research, but also in a variety of volunteer and paid positions I held during my doctoral studies A further example was in two committees I helped to form and coordinate, as well as one quality improvement project I completed for the Provost's Office. One committee was formed to inquire about online advertising on university and research program websites, and another was to oversee a crowd funding pilot project. The quality improvement project was to engage with professors and students to assess the state of graduate student mentorship and success on campus. In each of these roles I helped ensure committee composition and informants were representative of the university's diversity. These perspectives were to be incorporated into our report so that the provost could understand the implications for each faculty and the university as whole.

Other than submitting my work to academic review, being subject to student reviews of teaching, attending job talks and related student-faculty debriefs, I have not been involved in any professorial evaluation, departmental or faculty strategy and performance measurement. I approached my informants as experts who could teach me about criteria and processes for determining faculty merit. What follows is my analysis of academic assessment practices as they unfolded through my interviews and reading of policies, collective agreements, and related documentation. Academics who read what I have learned may find it matches well with their experience, or that it does not. Unfortunately there are limits to what one student investigating academic traditions can uncover, diversity across universities of different sizes and traditions make it impossible for one person to investigate completely. The criteria I discuss should be considered a version of ideal scenarios based on the standards of particular people in a particular place and time. It is quite possible that senior administrators manipulate information acquired through strategic planning focus groups, or that closed door tenure and promotion discussions are derailed from the procedures stated in official documentation. Professors do often convey that administrative decisions on hiring and tenure are often opaque (Henry, Dua, James, et al., 2017). I have also found reports of “fake interviews” for professorial positions, where candidates have already been hand-picked (Perimutter, 2015; Perimutter, 2016) and the rumor mill is full of stories of tenure or promotion cases that were denied despite candidates being highly qualified (see Epstein, 2005), the opposite scenario almost certainly occurs as well. The rumor mill also informed me that elite universities often deny tenure to qualified candidates as a matter of routine in order to maintain their status. Rather than treat my informants as suspects I took them at their

word. Based on consistency of my findings across departments, faculties, and institutions, I have no reason to do so after the fact.

How administrators talk of their work around rankings also demonstrates how rankings do not fully encompass academic values, nor provide useful information for decision making. Where rankings are used for decision making they also eliminate diversity by creating a zero sum game wherein only some kinds of work can be observed and valued: those that do not engage in such work are automatically disadvantaged. Some administrators also find the zero sum effects of rankings useful in resource allocation because they are based on apparently objective data while leaving the affected party little recourse.

University Governance

In Canada most universities are large public institutions that are governed by a Board composed of members of the public—typically business leaders and other professionals—with representation from a faculty association, non-academic staff, and student associations. The board has legislated oversight of the institution in regard to business concerns and long term planning. In addition to overseeing the long-term vision of a university the Board is responsible for appointing the President and Vice-Presidents. The President is the Chief Executive Officer and Vice-Chancellor of the university and has diverse responsibilities. How the president's work is realized varies by region, personal leadership style and approach to engaging with stakeholders who often have incommensurate expectations. In general a President is expected to create a vision for the institution and work collaboratively to ensure high academic standards in research, teaching and service (University of Alberta, 2016b).

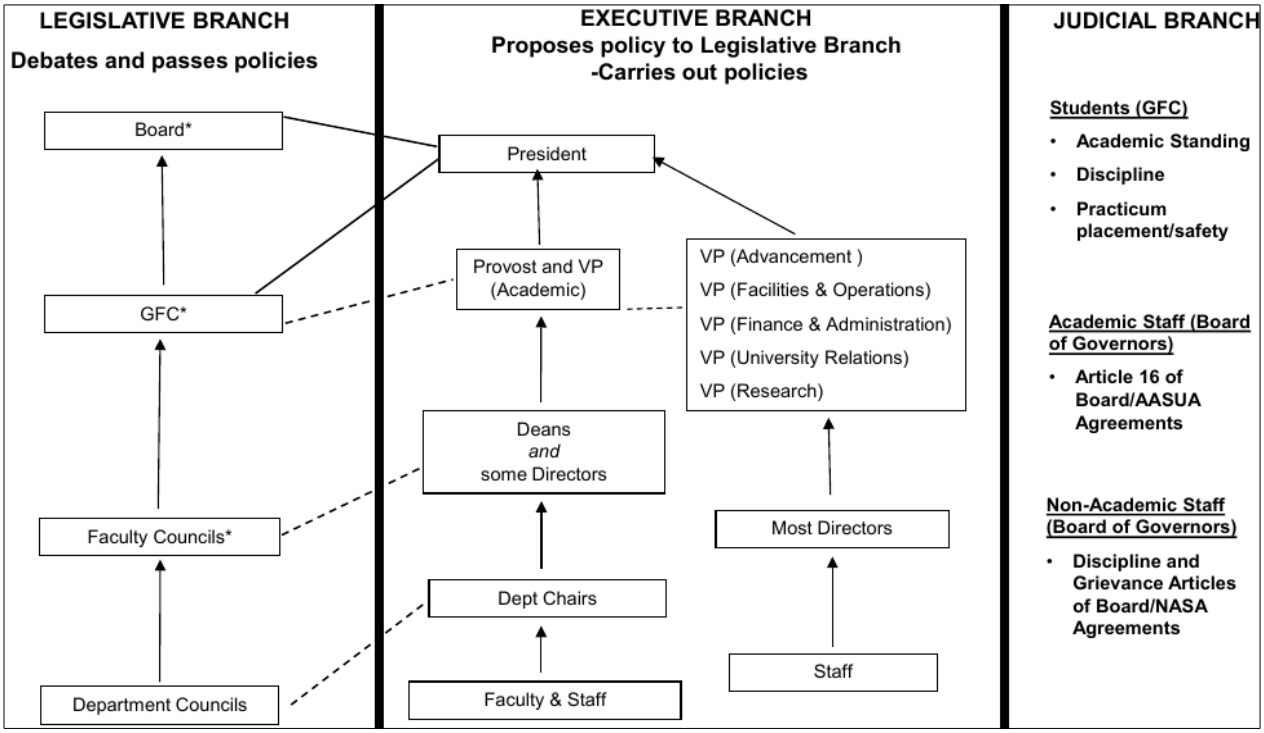
However, a President can be expected to be a fund raiser and reputation enhancer, a leader and manager, a role model for students and faculty, and an agent of change (Paul, 2011).

Another important role within the university governance structure is the provost and Vice-President Academic, the academic leader who develops and oversees an academic plan for the institution—the practical aspects of how to realize the vision created by the President—and overall institutional strategy (University of Alberta, 2016b). It is important for the board, president, and provost to communicate and work together effectively to realize a university's vision and strategy. When one of these elements does not work well with the others the institution often suffers and individuals who hold these positions often lose their jobs (Paul, 2011).

In Alberta, where much of my research was conducted, university academic affairs are overseen by the General Faculties Council (GFC). The equivalent body in other Canadian provinces are university Senates. The GFC is composed of faculty, students, and staff. Both the GFC and Board have subcommittees to investigate specific topics and accomplish work on assigned projects. The GFC Academic Standards Committee, for example, examines proposals for new academic programs, minimum grade requirements, and related topics. Once work at a subcommittee is completed a recommendation is taken to the higher level committee where debate and discussion occurs before any final action is taken. Faculties and Departments also have their own councils which deliberate on topics and send representatives to GFC. Figure 2 illustrates the overall governance structure, administrative hierarchy, and direction of reports for the University of Alberta. Other universities in Canada and abroad are not necessarily structured in exactly the same way, but generally have

positions and committees with similar roles and responsibilities.

Figure 2: Governing Structure, University of Alberta



(Haggerty-France, 2016)

When a Board hires a new President to lead their university, the President will typically begin earnest discussions with faculty, staff, deans, and students in order to build relationships and understand the institution. The President will also work with their senior leadership team and staff to develop the institution's vision and plan. Veysey (1965) has documented that this tradition of strategic planning has been used by administrators since the emergence of the research university at the turn of the 19th century, a period when presidents and deans became professionalized. Strategic reports were designed to demonstrate an administrator’s ability to be a leader who makes decisions while listening and incorporating

interests of their employees (Veysey, 1965). Once the plan is in place, the provost and other senior administrators, in consultation with offices of institutional analysis, develop metrics and indicators to assess the degree to which the plan is being realized. Some results are shared in public annual reports and certain administrative data are posted for download on websites.[10] Interest in metrics also dates back to the late 19th century when Presidents began to hire institutional analysts to collect data and compare their universities against others (Veysey, 1965).

Institutional Planning and Benchmarking

Strategic planning attempts to bring the future into the present and uses metrics to assess current alignment with that vision of the future. Progress reports heavily rely on metrics and these are sometimes rounded out with anecdotes of particularly engaging professors, outstanding student accomplishments, or unique partnerships. The Chair of the Board at the University of Alberta told me, "...the purpose of the strategic plan was to really identify where this university saw itself. Where it is, and where it sees itself going, because the other important job I have is to oversee the hiring of a president. And I firmly believed that if you're going to hire someone to take you somewhere, you're going to [need to] have a pretty good idea where you want to go." In the strategic planning process consultations supported the University of Alberta's vision of itself—a collective identity. The institution then uses metrics and indicators to promote its public identity and perform its notion of progress.

Wide consultation ensures that the Board and senior leadership team have a good

[10] I once used public data to look at the gender composition of professors and students across faculties at the University of Calgary. It was revealing that disciplines were highly gendered.

view of what is happening and where. The provost at University of Alberta explained that, "...there is no single central university, which just doesn't exist." He was explaining that while there is a central administrative body, the university itself has many components each of which has a great deal of autonomy. Performance measurement and strategic planning require the implementation of standards against which progress can be measured. The university is problematic because it has a decentralized structure with many constituents. Each constituent has its own vision that may overlap more or less with the desired institutional vision. This contrasts with rankings which impose their own vision and measures onto universities and faculties that may have no interest in the values and categories the ranking defines. The University of Alberta's approach allowed diverse faculty to represent themselves based on their own values.

For example, the dean of the faculty of Extension told me that their faculty members are committed to engaged scholarship that begins by asking communities what research they want or need, then designs research to address those needs. In the faculty of Science, the Dean informed me that all of his departments have different interests and concerns, and that these vary from other departments on campus: "Each department is different. Some are very similar but they're all different. And within a department, some areas are different. ...How you compare a chemistry professor with ten journal papers to somebody like a musician who had three performances. I don't know how you do it, but at least in science, it's publications [that] are the number one metric that is used..." Beyond counting published journal articles some scholars in science are concerned with patents and impact on industry. The Dean's own research in computer science is illustrative, "And so for some of the stuff I do, I really don't

care about other academics reading it. What I do care about is game companies reading it and taking my technology and deploying it in the game." These examples demonstrate that across the university there are diverse interests, expectations, and valued forms of work. In my conversations with deans and department chairs they regularly talked about the specificity of each discipline, subject areas within disciplines, and that performance review required understanding the context of each.

Professors across all faculties are required to teach, conduct research, and engage in service. Diversity in how academic work is done poses problems for measuring collective performance, as a single measure to compare everyone, like a ranking, would not be viewed as fair. Under such an approach to evaluation some research outputs might not even be counted because it is difficult to track how many software companies might have integrated a professor's research into their games; and each research area has its own temporal realities. The University of Alberta's solution to centralized benchmarking in the face of such diversity was to create a suite of standard metrics relating to service, teaching, and research that all faculties would have to report and that would also be more or less agreeable to them given the requirements of their jobs. In addition to these standard metrics, each faculty could choose three more indicators that reflect their unique character and the specific commitments of their professors' work. In the words of a U of A Board Chair, "...if you're looking at a faculty, they should be able to tell you what they can support and how they are going to measure it. This can't work if you're telling them what to do, they need to buy in." An important part of achieving buy-in is to recognize diversity across the university.

The concern for contextualized performance review is not unique to the University

of Alberta. Mount Royal University (MRU), a small teaching focused university that recently became engaged in research, emphasized contextualized review of individuals and academic units. The President of MRU expressed his interest in recognizing diversity across disciplinary areas by voicing a concern with rankings, "...they tend to be...from an institutional perspective generic across the institution, whereas from a major [degree or program major] perspective, they vary by department." That is, rankings consider departments comparable, when they are different. The dean of Science and Technology at MRU expressed the approach his Faculty designed in their strategic planning process, "It's a check and balance, that I'm representing—we have chemistry, computing science, and physics...and very disparate areas—that I'm applying standards in a fair and consistent way... And we have developed a framework of what that looks like in terms of presentations and publications...what we call at this university, research outcomes." University administrators work with professors and staff to create a framework that recognizes all of the different types of research outcomes in order to ensure that evaluation is fair.

Later in the interview the Dean articulated that he learned the differences in disciplinary cultures across the sciences over the course of his career, "So I have sat around the table, an enormous amount in my career working through different disciplinary cultures even on a grant selection committee at NSERC. Even if it's a sub-area of science of course in my area, somewhat related to my expertise, you still are representing several disciplines and different cultures and nuances in those disciplines and it's the exact same process. So that aspect wasn't hard." Here the Dean explains that the annual review process is to reflect peer review—which I discuss further below—and in doing so articulates the primary challenge for

institution-level performance measurement. That is, imposing a universal standard on an unstandardized set of people, cultures, and values misrepresents them all. The dean was able to understand diverse values and cultures over many years of academic work. By imposing a single standard on diverse groups, rankings conflict with this academic concern for equity in recognition.

A further difference across disciplines and research areas that is important in performance review, and of which Dean's and department chairs were keenly aware, is that of timing. The Dean and CEO of the University of Alberta, Augustana Campus—a teaching focused campus—emphasized his concern in evaluations is that professors have research programs that show progress over time and that, “one of the problems with the FEC [faculty evaluation committee] cycle, evaluating merit every single year, is that it doesn't respect the rhythms of academic work.” His concern was also based on the fact that his professors had higher teaching loads than those at the main U of A campus. The rhythms of research also vary by discipline: the dean of Science at U of A mentioned that, “the average person in chemistry is probably producing seven journal papers a year. The average person in math is probably producing one, many people will be zero, because these papers take time. And then they'll get their one.” Presuming that a mathematician would produce as much in a year as a chemist is considered unreasonable. There are differences in the amount of work that each paper takes to be published. Engaged research also takes time. In the words of the dean of Extension at U of A in regard to research with Aboriginal communities, “...it takes years, and years, and years, to build up trust and relationships.” Despite years of work, she made it clear that “impact doesn't show up in like 8 months very often.” The unique temporal and political

commitments in a Faculty where professors are concerned with engaged scholarship means that it takes time to build trust, time to engage the community, and time to see the kind of impact they value. After all of that they do the “double work” of making their research publishable so that, in the Dean's words, it counts in the “traditional university game”. By releasing rankings on an annual basis and incorporating all disciplines into a single measure, diverse temporal dimensions of research are ignored. Ranking based evaluation not only imposes a standard on what can be valued, but also the time in which it is accomplished. Administrators’ talk of their performance reporting demonstrates a general respect for how the temporality of research varies.

Every year, a typical Alberta university undertakes a review process in order to support Board oversight, accountability, and the senior leadership team's decision making. Professors complete reports on their activities over the past year, department chairs submit reports to deans, and deans report to the provost. The institution level report is then shared publicly on the university's website and submitted to the provincial government through the Ministry of Advanced Education. The institutional annual report is also reviewed by the Board of Governors who is tasked with oversight of the entire institution. All of these reports incorporate the concern for diversity that I have articulated above by accompanying standard mandatory metrics with those chosen by faculties and narratives that provide context that metrics exclude. In what follows, I discuss the faculty-level reports, institutional report, and annual professor review processes in regard to how each provides contextual information that ensures assessments are fair—the sort of pragmatic fairness that Lamont (2010) has described—while allowing administrators to make decisions and convey the university’s

performance to the public.

Faculty Annual Reports

Just as the university-level strategic plans and reports attempt to reflect campus diversity, so does faculty-level performance reporting. Such assessment is also reflected at the individual level for tenure and promotion. As Espeland and Sauder (2016) have explained, numbers can tell stories, but differ from narratives in that they are impersonal and remove context and emotion. Administrators' descriptions of criteria for performance reporting demonstrates how heteronomous values orient academic assessment across the university and contrasts with ranking based evaluation and how external measures can strip local contexts and meanings from assessment practices.

At the University of Alberta the dean of each faculty must report to the provost. The reports consist of narratives and anecdotes of particular achievements, but metrics are primary to inform the provost's thinking around the institution's activities. All deans must report on a set of standard metrics that include undergraduate and graduate enrollment, research revenue, revenue generated through fund raising, and student teaching evaluations. One dean articulated that, "they're all important, but none of them are revealing of the quality of the undergraduate experience", and another dean also explained that these metrics do not speak to the quality of a faculty's activities but that, "each faculty has the right to use other metrics to illustrate the quality of what they're doing". These reports also typically included narratives to provide additional context to metrics and to relay the contributions made by each faculty in relation to their unique interests.

Definitions of quality are subjective and contingent on personal or organizational values. How quality is defined and who it is defined by can have significant consequences for those to whom they are applied. Deans and other administrators frequently spoke about identifying strengths and weaknesses. The subjective nature of such definitions was not lost on seasoned academics. The chair of Pharmacology at the University of Alberta, asked, “How do you define a strong department and a weak department on the basis, the amount of research dollars that it brings in? Or do you define it based on the quality of the students that it puts out from its educational programs?”. His point was that definitions of quality are the basis upon which assessment rests and that these can be used to damaging effect. He had previously witnessed how particular definitions of quality were introduced with competitive funding mechanisms which led to the gradual decline of some departments, “There was a 3% cut every year whether it was necessary or not and it went into a separate pool, and the departments had to compete for those funds. What it did do is pit departments against each other, and so the strong departments got stronger, the weak departments faded away.” He was clear that sometimes departments should fade away, but that creating a system whereby some are disadvantaged, or guaranteed to lose because of a subjective definition of quality was not appropriate. Rankings do not directly impose a competition for operating funds upon universities—though they may be used by governments and administrators to do so—but construct a visible system whereby reputation resources are distributed in a zero sum game according to predetermined criteria. Both rankings and the budget competition coordinate professors’ consciousness and work, aligning interests with those of administrators or other authorities. The pharmacology chair viewed rankings and the budget competition as similarly

illegitimate.

In my conversation with the provost he explained to me that he would sometimes use rankings for “macro resource allocations” as an additional piece of information to contextualize his judgements between departments. He provided an example of his thought process, “Is department X critical, but not doing so well? So we want to build it up?”. He explained that some rankings are more useful for certain purposes than others, but he needed ones that would allow him to compare departments, “apple-to-apple kind of comparisons”, ones that are “not as susceptible to wild swings due to aggregating methodologies”. He believed that quantitative measures like citations were more legitimate and that these might also inform him as to whether past investments have paid off in terms of a change in ranking. Though he stressed that he would not allocate money based on the rankings alone as it would, “create perverse outcomes”. In Chapter 1, I reviewed some databases through which citation counts are created and illustrated how these are often not good sources for “apples-to-apples” comparisons in that they leave out reams of academic work from particular disciplinary areas. Making comparisons between departments based on citation or ranking data alone would structure the provost’s judgment with the same exclusions. Yet incorporating citation rankings into assessments made with faculty and departmental reports to understand their global context similarly reduces the global context to what is included in the database. His general approach to reviewing reports and rankings was to, “look at things to see anomalies” and then he would work with the institutional analysis department to explain things to their satisfaction. He said he would have concerns and consider disinvesting in a department if a number of conditions arose, “...a department with few students, few

graduate students who do not get decent jobs, little or no peer reviewed research money, and a lot of internal strife. These are trigger conditions for eliminating a department." He had never done so at the time of our interview.

Deans were able to represent themselves meaningfully and help the provost understand the context of their work by providing indicators based on their own faculty's values. In the faculty of Education, the dean reported on community engagement, digital learning and technology, and work in Aboriginal education. The dean of Science was interested in the sorts of awards his professors were winning and whether they were provincial, national or international. The dean of Nursing said that they report on global citizenship, bibliometrics for faculty publications, and community engagement. At the U of A's Augustana Campus, the dean's concern was with experiential learning, community service learning, and Aboriginal education. How each of these areas of interest are reported matters to their identity and affects their expressions of quality. For example, the faculty of Education annual report included their work to deliver a Bachelor of Education degree through eight tribal and provincial colleges to Aboriginal students across the province. The dean was concerned with describing the details of the program, their number of graduates, and student retention rates. She explained that the one year review period would not have been sufficient or detailed enough to clarify the importance of the program. Her faculty had just completed a ten year study of their Aboriginal teacher education program to demonstrate what their graduates had been doing and the effects they have had on their communities. If the provost had imposed strict reporting rules that only allow specific time periods the unique context and values of each faculty would have been lost in the research dollars, student

enrollments, and teaching evaluations. Imposing tight reporting deadlines that do not recognize work in progress might have made the faculty of Education work with Aboriginal communities irrelevant, as they waited for results of their ten year study. Rankings and performance metrics cannot capture these interests. This echoes the concerns that Sayer (2016) and Power (2015) have expressed in regard to new regimes of assessment in the UK. Specifically, new assessments are likely to affect the future of academic work as they impose an expectation of "impact" in specific units of time, rather than allow professors freedom to work at the pace of their own disciplinary and research programs.

Faculty-level reporting at the University of Alberta is not as heavily contextualized and detailed as other forms of assessment within the university. As the dean of Education told me, the "faculty evaluation committee is perhaps where you would see our more natural evaluation criteria", these criteria are written in documents and performed in practices of peer review which are also oriented to contextualizing assessment around specific scholar disciplinary traditions and personal interests.

Faculty Evaluation Committees: Peer Review, Tenure, Promotion, and Merit

A Faculty Evaluation Committee (FEC) composed of academics from across campus meets annually to evaluate individual professorial performance. The committee also reviews cases for merit, pay raises, tenure or promotion to full professor, though these decisions are not based on the annual reviews. Rather, when a professor has completed a probationary period or has had a sufficiently productive career, the professor submits a special application to be reviewed by FEC. All of these reviews are heavily contextualized and rely on expert

judgment exercised through negotiation to understand a professor's performance in relation to their discipline, research topics, and stage of career. My insights into this process are based on department chair talk about criteria for evaluating professor performance and strategies to represent them during FEC negotiations. Department chair talk is oriented around the formal criteria for peer review that they learned through years working as professors and administrators, but is also in reference to formal documentation that articulates the requirements for tenure and promotion.[11]

Tenure and Promotion

Faculty are evaluated on criteria that emphasize quality and quantity of work and these are the building blocks for their reputation and prestige. That is, reputation conveys status of having achieved sufficient quality and quantity of work. Concerns with reputation and prestige are further reinforced at the institutional level through strategic plans and benchmarking practices. Professors are assessed for tenure and promotion based on increasing reputation and reach of their work. At the University of Alberta,[12] the first stage of promotion is when tenure is granted and the rank of associate professor is awarded (from assistant professor), while the second stage involves promotion to full professor.

Tenure is typically awarded on the promise of things to come as evidenced by the total work over a professor's career to the date of application for tenure and as determined by peer review.[13] In the faculty of Arts at the University of Alberta, “Tenure is justifiably

[11] References for tenure, promotion, and merit standards that I reviewed are in Appendix B. Derek Sayer (2016) also reviewed a number of such documents at other universities in North America as a point of comparison against the UK Research Excellence Framework, his findings were similar to my own.

[12] Some Canadian universities make tenure decisions independently of promotion.

[13] While pre-hire publications and work are considered, particular attention is paid to the work completed form the date of hire to submission of the tenure or promotion application.

awarded only where it can be demonstrated that a staff member has research programs of clearly recognized promise and concrete scholarly achievements, in the form of published research or publicly performed or exhibited creative work, of a magnitude and quality that makes it highly probable that there will be continuing significant contributions to the staff member's discipline through a whole career." (University of Alberta, Faculty of Arts, 2014:12). This is more or less consistent across the faculties including Science where their standards state that for tenure "The individual is expected to take an active part in research and scholarly activities, as evidenced by research publications in refereed venues of international repute..." (University of Alberta, Faculty of Science, 2012:5). In this case journals must have international reputation. By publishing in internationally reputed venues the candidate is recognized of achieving tenure-worthy status. A journal's reputation is in part conveyed from the journal to the professor. Global university rankings incorporate this interest in reputation with their reputation surveys, but are in themselves they conveyors of reputation to their audiences.

Performance standards position reputation as something professors work toward. Publishing in well reputed journals is an indicator of quality work, having one's work recognized as such makes the professor well reputed and an individual that promises to make continuing significant contributions. Reputation coordinates academic work, but also circulates through it as a means to acquire rewards such as promotion. Impact factor was originally created by Thomson Reuters as an indicator for librarians to use in deciding which journals to acquire for their collections, but journal citations and impact factors were adopted as a means to assess journal and professorial quality. The practice has been so common that

some universities and academics across disciplines and the world have signed a declaration condemning it and to promote appropriate evaluation that recognizes diversity within and across disciplines (San Francisco Declaration on Research Assessment, 2012). Yet impact factor and similar measures continue to multiply and are used in personal and collective evaluations of quality and reputation, just as the University of Alberta provost used them to create context.

For promotion to full professor the importance of reputation and prestige is more clearly articulated, again from the faculty of Arts, “Promotion on the primary criterion of research or creative work requires prominence in the applicant's scholarly or creative community as that community might extend...it must be demonstrated that the applicant has produced a substantial body of published scholarship or creative work which meets high international standards, and that he or she is engaged in a continuing program...of sufficient scope and intensity to maintain the prominence already achieved.” (University of Alberta, Faculty of Arts, 2014:13). For promotion to full professor in Science, “The individual must demonstrate high quality and mature scholarship as evidenced by international recognition of research contributions.” (University of Alberta, Faculty of Science, 2012:6), and for promotion at the University of Toronto, “The successful candidate for promotion will be expected to have established a wide reputation in his or her field of interest, to be deeply engaged in scholarly work, and to have shown himself or herself to be an effective teacher.” (University of Toronto, 2016). These criteria are also used at many North American Universities (Sayer, 2016) and elsewhere. Scholarly excellence operates as an international symbolic economy through which reputation can circulate in exchange for rewards. Rankings

align with these interests, using many similar indicators such as quantity of publications which are measured by citations.

Academic standards for promotion and tenure are based on recognition of national and international excellence, but these are articulated around each professor's own discipline and work. For example, a department chair shared the story of a professor in Sociology who had not produced a traditional peer reviewed publication in the year in question, but had put on several art exhibitions which caused some uncertainty for the FEC members. He explained that in his discipline, “we do a little bit of everything. So at FEC when somebody has done three exhibitions in a studio and somebody asks what that's all about I can point to Art and Design and say this person does cultural studies and if we are recommending that people in design who put together cool book covers and design a website to go with it, and they're arguing that is equivalent to a publication, I'll buy that, but this is too.” By explaining how sociology is very diverse and referring to FEC decisions on academics in other disciplinary areas who had done similar work, the chair was able to negotiate the exhibitions as equivalent to a publication, the more traditional product of sociologists.

Unexpected types of work generate debate at FEC as deans and faculty from other departments seek to understand why a candidate deserves tenure or promotion. Oncology, for example, is an area within medicine that involves both traditional lab-based research as well as clinical and policy oriented work. The chair described a situation where one of his clinical professors was up for promotion. She was recognized internationally for her research in writing guidelines, setting policy, and had millions of dollars in contract-related work: “her CV had reports on these contracts, had reports on which policy was based, had policy issues

and documents that she had written. She was at promotion and the vice-dean of research got up and said 'I have seen nothing in these that justifies promotion, she has no grounds in the publications'." The professor had been engaged in research and scholarly activity that the dean could not commensurate with a view that scholarly work and merit should be based on peer reviewed publications. Further clarifying, the chair said, "the clinical chairs just went en masse for this guy, but she got promoted, and it was appropriate. She has an international reputation. The basic science chairs were a little more dubious, but this guy [the vice-dean] is a lot, like, from the 1980's where he is fixed in the 1980's mentality." These narratives illustrate what Lamont (2010) has called "cognitive contextualization" in the production of a pragmatic fairness. Citations and rankings do not capture guidelines, plenary talks, or art exhibits, and do not allow any space for negotiating their inclusion. Rather, rankings and citations impose their judgment that such items do not matter. At the University of Alberta, standard procedures required negotiations that facilitate work excluded by rankings and metrics to be included. Despite the vice-dean's resistance the case for the oncology professor's promotion was successful through a process of negotiation that focused on her individual body of work and what an "international reputation" meant with regard to it.

Academic assessment is designed to recognize diverse forms of excellence and that professors will be promoted through a ladder of prestige by growing their reputations. The academic assessment process involves filling in templates, building portfolios, and having dialogue that adds detail that templates and written statements miss. Templates coordinate assessment work with the broad standards of peer review. Preparation for face-to-face meetings like FEC provide opportunities for candidates to be mentored by department

chairs, department chairs to learn the context of their professor's work, and for chairs to represent candidates to the committees where standards of excellence are given content. Assessments are a heavily contextualized and individualized peer review process that involves negotiating uncertainty based on agreed standards that allow a professor's work to be understood with regard to their discipline, research area, and personal interests. Rankings and related metrics have their own standards and presumptions about academic disciplines and are often imposed without broad consent from the individuals they refer to and whose work they affect. Imposition without consent or conformity to academic standards generally makes rankings and metrics an illegitimate form of workplace surveillance (Sewell, 2012).

Despite cognitive contextualization, professors are occasionally denied tenure or promotion and the rejected candidate either has to seek employment elsewhere or do more work to build a higher status profile. Academic assessments do not begin from a point of agreement that guarantees that every candidate will be successful. Each candidate is presented to a committee of scholars with varying values and interests that must learn how and what the others are interested in and value. Alternative means of valuation might ensure that many scholars would not be successful in their career growth. For example, more traditional scientists could deny the worthiness of policy work, or artists condemn keynote lectures and peer reviewed publications in favor of performances and exhibitions. My review of formal peer review processes is largely supportive of Lamont's (2010) findings that negotiations and criteria used in academic assessment are effective at sorting professors who are more and less deserving of recognition and rewards. The processes I have described are also illustrative of academic freedom in professorial self-governance and pursuit of their

work (Horn, 1999).

Reputation, Risk, and Worthy Work

Imposing risk is an important part of the ranking business. The hierarchy that rankings create makes institutional reputations visible and becomes an important means by which reputation is conveyed. Threats come from new institutions entering the ranking, or lower institutions moving up, because each can cause an institution to be displaced. Ranking businesses produce products that professors and institutions can purchase in order to follow their collective and individual performance, impose new expectations for productivity, reverse engineer their rank, or to market themselves as excellent in non-ranked categories that matter to them. All such activity are forms of infrastructure and data work that connects, aligns, or attempts to shape an individual or organization's position in the broader network of data-based reputation relations. I deal with these products in more detail in the following chapters where I further illustrate how recognition of quality and attribution of rewards are locally and extralocally coordinated by notions of excellence. At the local level, excellence is given content by active processes of negotiating uncertainty around personal and disciplinary practices.

Rankings, citations, and impact factors can be useful tools for understanding socially and physically distant phenomena. For example, toward the end of my doctoral research I was hired at a real estate studies research centre. I and the director were sociologists with some experience in urban development consulting, but we were not familiar with the theories, methods, and journals by which real estate studies and business scholars

might complete research and publish their results. I was aware that business schools are fond of journal ratings and rankings—particularly the ABS Journal Guide and FT45 (which I describe in more detail in Chapter 3)—so turned to those lists for guidance. I also conducted a search in Scopus for real estate studies, noted the journals in which many of the publications appeared and cross referenced this with the journal lists and an internal document regarding performance expectations—which dictated that the ABS and FT45 journals were the ones of value. I then used Scopus, Google Scholar, SciMago Journal Rank, and Thomson Reuters Impact Factor to order the list in terms of their metrics. From there I divided my list between the FT45 journals where I had found real estate studies papers and journals that were focused on real estate studies, but excluded from FT45. I then read about the journals on professional association websites, as well as articles that appeared in them in order to better understand their context and interests. I included brief narratives describing the journals so that the list would be usable in terms of knowing what might be published in each venue and why we might want to publish there. When my director mentioned this list to some colleagues and her own boss, she was told that all that matters is the FT45. On other occasions I had approached some junior faculty members about working with us in real estate topics, but they were not willing to do so unless I was able to provide data they could work with and which they knew would get them published in listed journals. This example is illustrative of how metrics and rankings are useful, but how they can also impose limitations on what work is considered worthy, that their salience in any set of relations is also dependent upon other actor's—they are not deterministic. Administrators' explanations of academic criteria and their work in academic assessment is illustrative of Power's (2000)

assertion that, “the very possibility of individual judgment is the product of many other factors, including training in institutionally accepted practices of evidence collection” (p.112). My findings also support Lamont (2010) in that they show how academic judgment requires the elaboration of disciplinary criteria in debate and negotiation toward learning one another's standards so that judgments involve a pragmatic fairness.

Heteronomous, descriptive, and contextualized peer review ensures that a variety of work can persist and that new demands of disciplines and society can be incorporated into future university and professorial goals, and support academic freedom. Through face-to-face negotiation and written testimonials based on the study of colleagues' work, academics are able to create understanding by unfolding the details that make up quality. Such heteronomy facilitates structural accretion and has wide implications, given the uniqueness of the university's position in the world. The university is closely tied to the labour market, the economy, the professions, the sciences, the non-profit and philanthropic sector, the family, and the nation state (Stevens, Armstrong, and Arum, 2008). How academics are assessed and organized to do their work has potential consequences on all of these domains. How professors and administrators are able to assess one another has implications for what they know and what they can do in their work. Organizational texts orient people in their day to day lives (Smith, 2006), rankings and related metrics can impose a narrow regime of assessment to affect how local texts and criteria are enacted. Extralocally determined meanings and interests can incorporate their judgment and work into local judgments dissonant with local values.

The history of the university is one of conflicting views regarding its purpose. The

research university as we know it today grew from theological colleges in the United States. These colleges had a concern for disciplining the mind through mastery of its faculties, but this aim was gradually replaced by a concern for public service and usefulness, unfettered research to develop knowledge for its own sake, and cultural cultivation (Veysey, 1965; Axelrod, 2002). Even in its infancy the university faced controversies regarding its close ties to business and risks to academic freedom (Veysey, 1965). In the late 20th and early 21st centuries there continues to be concern for corporatization of the university in the face of neoliberalism that would bend it toward more utilitarian ends and threaten academic freedom to pursue research and self-governance. Heteronomous, contextualized, and descriptive assessments incorporate all three traditional missions of the university and allow it to respond to the changing needs and values of society and the economy.

Lamont (2012) has argued that having multiple matrices of evaluation is an important component of greater social resilience—the other being redistribution of resources—and that evaluative practices have increasingly been reduced to the use of quantitative metrics. Numerical representations can be used as markers that distinguish between individuals without quantifying, or they can commensurate by making equivalences (Espeland and Stevens, 2008). Rankings and related metrics are forms of quantification that reduce information and turns things—objects, people, animals, water, experiences, concepts—into numbers and arranging them into hierarchies with attributions of value that impose judgment regarding worthiness of resources. The micro-politics of judgment that go into each step of aggregation, each decision as to what data should be collected and how, are invisible to people who read the quantified results derived from commensuration. As rankings and

related metrics are translated through global networks of data flows they become incorporated into innumerable local practices—their judgment is diffuse. Little judgments aggregate across local sites affecting local relations based on contingencies such as provosts who use them more or less stringently to distribute resources.

Academic evaluation is oriented toward heteronomous values and notions of excellence that are locally and actively negotiated. These concerns also orient faculty and institution level planning, reporting, and governance practices. My emphasis has been on how evaluative work is coordinated through text-mediated actions—references to formal standards and reporting templates—that provide foundations for contextualized face-to-face discussions. Annual reporting periods—which may or may not conform to the temporality of academic work, as the dean of the University of Augustana had indicated—tenure, and promotion applications are determined by university policies. Such policies coordinated administrative reporting and the timing of these reports affected how context of a professor or department's academic work was interpreted and conveyed. At the University of Alberta, for example, professors fill in their templates and meet with department chairs for guidance or to provide further context to the template which mediates their discussions. The chair then brings the template to FEC where a dialogue with the template and as my informants explained, committee members elaborate the professor's quality and worthiness for merit, tenure, or promotion. The following chapters provide insight into how such practices are altered as rankings and metrics become incorporated into them and infrastructures are built to facilitate additional individual and institution level evaluations.

Chapter summary

I have described academic freedom as an important part of the university and academic values. Related to this are formal criteria for assessment of the university, its faculties, and professors which are based on broad standards and metrics that also incorporate narratives and context so create a pragmatic fairness similar to that which Lamont (2010) has identified in her study of peer review. As a form of workplace surveillance, rankings change the relations and dynamics of work by reorienting why and how it is done. For example, academic work may become more about being visible than about making a scholarly contribution to knowledge. Rankings and other measures can also be used to support or stand in place of contextualized professional judgment, as I will show in Chapter 3. My inclusion of an analysis of university governance, formal assessment criteria, and administers reflections on these is also intended to provide a basis for later analysis of how it does or does not align with rankings and related forms of judgment, how they enter into peer review and administrative decisions, shape and are shaped by data and infrastructure work at universities.

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Chapter 3: Rankings and Metrics as Performance and Judgment

"...committed to their version of excellence, and these commitments, too, obscured for them the limitations of their rationality and the shallowness of their democracy. It took time for some to recognize that their rational decision procedures were strategies that both included and excluded. And just as their own exclusion prompted them to reevaluate their relation to the agency, members of the[...]community reacted against what their framework left out."

Wendy Nelson Espeland, *The Struggle for Water*, p.136

The peer review system operates through formal and informal networks and expert scholarly knowledge to determine worthiness for symbolic and monetary awards. By building reputation networks, scholars know the best in their field, the departments where they want to send their students and children. With the rise of rankings and related devices, scholars and administrators now have alternative tools to assess one another and these can be used to shift expertise from peer review and specialized judgment to non-experts whose assessments are derived from reading numbers. Subjective interpretations are not erased with such measures, but displaced into apparently objective metrics (Porter, 1995). As people use metrics to make their own judgments, the subjective interests of distant others that are incorporated into metrics become a part of the judgment.

My analysis in Chapter 2 described some of the symbolic and material relations of surveillance (Walby, 2005), the values, reporting practices, and strategies used in determining academic performance. Academic surveillance based on rankings and metrics is not entirely aligned with broadly accepted and legitimate standards of academic oversight and assessment and can erode professional judgment and autonomy. Rankings have created numerous spin-off industries and products for universities to track their own productivity and that of competitors. How rankings and their kin are taken up varies according to the local needs and abilities of those who use them. Such devices are used differently by professors—and this also varies by department or discipline—students, recruiters, marketing staff, administrators, and department chairs. Calculative technologies resonate or create dissonance with academic cultures as they assign identities to people and organizational units that determine career outcomes, the work they do, and access to resources, while binding local practices to distant economies and organizations. Workplace surveillance becomes practiced by local colleagues, employers, and distant private organizations. With data work to understand metrics and rankings infrastructure is built or shifted and the metrics are incorporated into ongoing routines.

Related to university rankings, but less well known, are suites of metrics, indicators, devices, and representations that are produced by publishers and ranking businesses for many administrative applications and to generate profit. They are tools that presume numbers can be improved and are intended to facilitate ongoing truth-seeking about individual and organizational performance such as the degree to which they fit with

local categories, why one does not rank well or is not ranked at all, whether individual and collective interests can or should be interpreted in such a way. Contingencies that affect the degree to which such products affect local practices include existing actors and their relations within local networks including, administrative leaders, existing infrastructure, data and their categories.

Rankings, rankers, publishing corporations, data warehouses, spreadsheets, administrators, professors, students, parents, interpretive frameworks focused on prestige and reputation are all constitutive of networked control that performs the university and passes judgment on its quality and those working within it. In these relations of control, motives do not matter; one is included in the system and measures well, or one does not. There is no space for negotiation or debate (Foucault, 1978; Deleuze, 1992; Lianos, 2002; Lianos, 2012). This system uses the discourse of peer review and academic values as its point of departure to construct hierarchies that academics themselves often find foreign. Controlling relations' resonance and dissonance with academic concerns and interests at least partially give metrics and rankings their force. Academic interests in reputation building, student interests in learning about distant universities, and the resentment or concern of administrators in the face of ranking poorly all work to bind these constituents together. As rankings and metrics enter into and coordinate the day-to-day routines of academic work, conditions of possibility are set for what can be known, what can be imagined, and how we might understand ourselves and alternative conditions.

Beyond universities, academic journals and professors are also ranked and these

are generally based upon metrics such as the Thomson Reuters Impact Factor, citations that are generated from databases of academic journals that scrape meta data from articles to compose the metrics and analytics through which rankings are constituted. Publishing houses have also produced unique identifiers that scholars can sign up for so they can be more effectively tracked and counted in their databases. In addition, these publishers and ranking businesses often sell their aggregate data to one another and back to universities for administrators to use in their work.

This chapter further examines how rankings, metrics, and related tools enter into academic planning and assessment practices. The examples I share demonstrate the degrees to which rankings, metrics, and related tools like journal lists shape thought, affect work and the distribution of rewards. The most extreme is a system based on rankings and journal lists that assigns points to academic work like grant applications and journal publications, with rewards for completing the work within particular time periods. The proliferation of metrics and related tools has increased concerns with tracking these numbers and hooking up local infrastructures so they can incorporate data flowing inward from distance places. The examples I provide also illustrate how data work and infrastructure work interact with and hook into the extralocal global rankings assemblage.

Rankings and Metrics: Rationales at Work

Working with rankings and other metrics at the university-level, senior leadership make possible intra-and-inter-institutional comparisons. At the department and

faculty-level rankings, ratings, and other metrics are used for promotional purposes, to make comparisons that direct deans', or department chairs' attention to problems, orient professors toward publishing in particular venues, or to assess a candidate's worthiness for tenure and promotion. Marketing and recruiting staff also make use of rankings and metrics to attract the potential students and promote the university.

In my interview with a Board Chair he repeatedly mentioned his concern to compete with the best in the world and that, "We're looking at the best institutions in Canada and around the world and say where do we measure up." I asked him how he knows which are the best:

> Well, now you are starting to get into rankings...everything comes back to the rankings, though they are not the be all and end all... But presumably, while you're publishing more and more research papers and attracting more and more research donors because you've got great people doing great stuff. Our industry or the public sector wants to support it because they believe in what you're doing that does translate into more research done and, publications and, eventually you're going to start moving up the list as an institution that competes with the best public teaching research-intensive universities.

From an administrative perspective, rankings are a tool for making comparisons. For some administrators such comparisons may factor into decision making to allocate resources, as the provost I interviewed said:

> We do use rankings when we make macro-resource allocations because you

> need some frame of reference in order to answer the question where do you put scarce resources. Is department X critical but not doing so well so we want to build it up? Or is department X doing really well and we want to keep them there. Or is department X so bad that we don't really think it's critical to the university's overall strategy. And we'll just disinvest.

The comparative logic in the application of rankings allows the best to continue to grow and leads to disinvestment from those who do not compare well. I witnessed an extreme example of this at an International Ranking Expert Group conference where two scholars from South Korea presented a "curability index". The index was derived from rankings and used to compare academic units, those deemed incurable might be closed.

Deans work with rankings as concerns for reputation management, as objectives to be accomplished, and as strategies to orient people to their work. The National Survey of Student Engagement (NSSE)—commonly referred to as Nessie—for example, is a voluntary survey that compares universities and administrative units within them on indicators of student learning and engagement. The dean of Science and Technology at Mount Royal University reflected on how NSSE had been useful for him in a prior role:

> That NSSE work did cause me to be more intentional at the department-level about student retention and what could we do at year one. Where at the time the U of C was really—but U of A was at the same time too—together they were both struggling and really ranking low in student retention, abnormally low[…] And it really did have an impact and shape my thinking and intentionality[…]

> how can we make this first year better... So it did have impact...I hadn't thought about it enough, or very much.

This is exemplary of the text-mediated action that institutional ethnographers attend to in their research, but also how external measures can define situations with their judgment. Here the dean explains that he had not thought about retention and the student experience. Until the NSSE oriented his attention toward it, the student experience was not a problem. NSSE drew his attention to the topic of student experience and in comparing his institutions to others, informed him that retention in particular was a problem—his faculty was under performing in comparison to the other 13 comprehensive research universities in Canada. NSSE mediated his work to consider strategies for changing the first year experience for biology students. As action was taken, NSSE could be referenced to clarify whether there was any effect on retention rates.

Similarly, a senior administrator at the University of Alberta noted that the annual AASHE Stars sustainability ratings were useful, “In the sense that it does require some regular internal self-scrutiny...not so useful because in the end it says U of A is ranked second in Canada in sustainability, more useful in me being able to say how come our scores in curriculum development are not as strong as in Facilities and Operations? Does that mean we have more work to do, does it just mean we're more honest [than other universities taking part in the self-reports for the rating]? What does it mean?” Again, the AASHE rating mediates this administrator’s knowledge and action. This time, the concern is with sustainability performance between operational units at the university

and other universities. As he engaged with the text, he asked questions of it in a process of sense making regarding his institution's position and that of others.

There are several noteworthy points here. First, this administrator reinforces the observation made by the MRU Science dean that the overall aggregate rating is not useful. Instead, it motivates questioning for more specific information. Rankings and ratings instigate observers to ask further questions and seek out additional information. For many of the major international rankings—such as QS and THE—this provides an opportunity to sell more products. Second, the administrator articulates the sustainability rating as a ranking. AASHE explicitly describes itself as a rating and that it is not intended to be a ranking, but despite this assertion people can't seem to resist cognitively forming a ranking when presented with comparative information of this sort. When I attended an information session for U of A faculty regarding the sustainability rating, the manager in charge of the rating process also said, "it's not supposed to be a ranking, but we make it into one." NSSE is also not supposed to be used to create rankings, but the MRU dean also made the NSSE into a ranking of the G13 universities. Third, these text-reader conversations introduce new relationships between the administrator, their universities, units within them, and universities to which they make comparisons. All become bound together in questions and concerns related to the information that the rating or ranking provides. Fourth, as the administrators read the ratings and their component scores they exercise a degree of skepticism, but interpret the text in such a way that they believe something can be done about the numbers so that the relations

between their university and others can be altered. If their actions are successful they will read more favorable comparisons on further iterations of the rating.

Importantly, administrative concern with performance and reputation requires data that can be contextualized to create effective understanding so that something can be done. On several occasions administrators expressed interest in “objective” data that were meaningful to their institutions. For example, at the University of Alberta the President once created a Strategic University Measures and Metrics (SUMM) committee to examine ranking methodologies to clarify how the university might progress in them. One former committee member explained to me that at SUMM, “the rankings were one of many pieces that we discuss there because you know, we want to know from the deans what data they would find useful for measuring their success” SUMM is an example of how rankings coordinate action across the university. Multiple rankings exist and deans typically only know their rank. The committee meets to study and break down rankings, then shares that information with deans who then know something more and decide which rankings to attend to. The text-action-text chain is ranking-committee-ranking-committee-deans-ranking and so on. In forming the committee, the university produced an important part of the infrastructure by which rankings coordinate dean action. The ranking related information flows through the committee to deans who then orient to rankings that are now more understandable, but not necessarily useful.

For many administrators, rankings were not useful. Several believed they were no more than a rough indicator of one's reputation peer group. One department chair

stated that, “Yeah, I think what it does is it gives you an ability to do broad stratifications. If you take the top 50, they are probably doing something better than numbers 200, 250. They are probably doing something better than 50 to 100 as well as a grouping.” Here the ranking mediated relation between institutions is interpreted in terms of tiers. The differences between groups are considered to be indicators of a real qualitative difference, the higher tiers are doing something that the others are not. Moreover, the rankings notion of “best” is reified here, as those in the top 50 are “probably doing something better” than the others. Rankings oriented this dean’s awareness, but he did not believe they were useful beyond understanding these relative positions. The chain of mediated action did not continue.

One dean clarified that an issue is that comparative data are difficult to come by because universities are not organized in a standardized way, and that standards may not be desirable anyway:

> But there can’t be standardization. So like, faculty of Science say, what’s my faculty of Science compared to your faculty of Science? Oh our faculty of Science, we include Psychology, but most other faculties of science don’t. So, there’s an anomaly. How do you compare that? And some faculties of science are actually Faculties of Science and Arts. So how do I compare them? Or science and engineering. Again, you know, it’s not that there’s anything wrong with the system or how people are measuring. But they all have different models. And to do a fair comparison, you have to ask, you either have to do it

> yourself or you have to ask another group to extract data in a way that doesn't mean anything to them but might be slightly useful for you to be able to do a comparison. And so it turns out to be awkward.

Rankings standardize categories for aggregation, making them less useful for local administrative work such as performance measurement and benchmarking. Each university may be organized differently and each ranking has a different model. To make comparisons, deans have to transform data so that they might be "slightly" useful. Such work is "awkward". What rankings know and what deans know are at odds in terms of the categories by which each understand their universities, but also through rankings ignorance toward national contexts as they unify all countries into one ranking.

The dean of the Alberta School of Business described similar issues in regard to the Financial Times Master of Business Administration rankings. The dean explained to me that the MBA ranking indicator examines student salaries on entering their program as compared with their salary once employed after graduation. Salaries vary by national and regional contexts, so international comparisons are not meaningful but, "That said, I certainly recognize that salary increases are one of the objectives of a lot of people coming into an MBA program and if I looked at the U of A and the U of C, looking at the relative increase in salary and career progression, it might make sense to compare them. But when you talk about international rankings and you talk about universities in New York, Paris, Santiago, Mumbai, it's harder to argue in my mind that those simple measures actually give you a good evaluation of the quality of the program." This dean

agrees that the increased income metric may have a reasonable rationale in that many students complete MBA programs in order to increase their income, but what salary increases mean varies country to country. Comparing salary increases within one province or country might make sense, but comparisons across provinces and countries may not because of vastly different economic contexts.

His solution to getting contextually meaningful information for benchmarking was to hire a consulting firm:

> We use an external firm, a third party firm, to poll our graduating students on their experiences and that's something that we value because it's third party it's anonymous it's neutral, it gives us a good picture of how our students have enjoyed, or not, their experiences, where we can do better and that is much much more valuable in terms of the information… And you don't get that with the Maclean's ranking for instance of universities, which is a nice survey for some reasons, but it doesn't give you, or give me as the leader of this school as much information.

Administrators seek data that is strategically useful to them in their specific roles and meaningful for their institutional contexts so that they can act on it. Because action is context dependent and rankings do not fit with locally meaningful categories, rankings fail to appeal to administrators. Each of these deans however had several rankings and other data based options they could draw on. This is a stark contrast with law school deans in the United States who reorganized much work at their schools in response to the

single ranking of their field which had also become authoritative in the eyes of the public (Espeland and Sauder, 2016).

Often, the deans and department chairs I spoke with regarded rankings merely as rough indicators of their peer group, as a means to inform stakeholders of their standing, or to lobby for more resources. In these instances rankings are rhetorical resources for claims making to define situations (Potter, 1996; Spector and Kitsuse, 2001; Altheide, 2002). For example, the dean of Medicine at U of A argued that the medical school was the reputation anchor of the university, "If the university is 100 we are 50, if they are 120 we are 60. So we are the reputational anchor. So I've done a presentation to senate...and to community groups... But at the end of the day we are, I think, appropriately, the reputational anchor of the university and the city." Similarly, the dean of Arts tried to use rankings to demonstrate to the senior leadership team that many of her departments were particularly highly ranked, and so deserving of more—or at least stable—resources in the face of budget cuts. She explained that, "for two years in a row [English and Film Studies] has broken the top 50 in the QS ranking, and went up actually to 35th this last year. So the English scholars at U of A are 35th in the world. I will say that when a number of us tried to use that to argue that English should maybe get more resources or at least more credit or respect. And I learned that the President doesn't think the rankings are very important, which is news to me." Here rankings become a point of reference for self and collective interpretation of local realities, the faculty of Medicine is the anchor, the English department is 35th in the world. The ranking is the point from which collective

meanings of the university's quality are defined not only in the dean's minds—as I have said, they were often skeptical—but for the senate and community groups who do not have the same local knowledge that the deans do. The deans read the rankings to these groups and thereby orient the groups toward them as well. In doing so the rankings are enacted as a reality of local situations.

In my conversations with other administrators and support staff at the university I learned that the President had been concerned with rankings, having at various points in time assembling committees to examine rankings and had once assigned someone to research rankings as a tool to vet students applying to graduate programs. Around the time I conducted my interview with the dean of Arts, the president published an article on her blog and made comments in local news media criticizing the THE rankings and praising the QS rankings:

> Surveys of academics are an inadequate approach to evaluating teaching. As a result, we have seen our ranking go up and down between 100 and 120 every other year for the last five years. We are not alone in this; several other universities that ranked highly in the first two pure research rankings have also had unexpected swings in their position on the Times Higher Education rankings. Clearly, the methodology in the latter has not been ironed out. Neither has it been audited and approved by iREG Observatory, an international non-profit association of ranking organizations, as is the case with QS rankings. (Holiday, 2014; Samarasekera, 2014).

With multiple rankings to choose from, their salience as a rhetorical resource is enhanced in some ways—one may rank low in THE and high in QS—but limited in others, critics can argue the other ranking is more important or valid. In this instance the president chose to argue in favor of the QS rankings because they are audited. I have elsewhere argued that the IREG rankings audit is little more than a symbolic gesture by the rankings industry to legitimize and institutionalize their work (Barron, 2017; Free, Salterio, and Shearer, 2009). The audit also serves the purposes of administrators who want to legitimize their rhetoric. In the above quotation President Samarasekera argued that QS rankings are more legitimate because they rely less on reputation. Attention to how the rankings are made reveals the fact that QS relies the most heavily on reputation surveys when compared with their competitors, but details about each ranking were strategically chosen to argue in favor of a particular situation. Despite the President's ongoing interest in rankings, they did not play an explicit role in administrative policies, so when deans or department chairs used rankings in their budget cases they could be strategically dismissed, just as certain ranking characteristics were emphasized.

Such rhetorical work demonstrates how administrators are positioned as subjects in ranking-based relations. Rather than a totalizing and dominating regime wherein a specific model is imposed administrators can breakdown, compare, interpret themselves, and conceive possible strategies for budget and situational definitions in reference to rankings. There are no certainties, only ongoing interpretive and rhetorical work. These examples are also illustrative of how rankings coordinate work and consciousness, even

when attempts to use them fail. However, such uncertainty varies based on the degree to which explicit rankings based plans and policies are in place.

Rankings can also be aspirational targets. At the University of Alberta, there were no explicit rankings-driven targets in the institutional strategic plans, but deans would use university or faculty rankings as rough indicators of their reputation or to encourage their professors to publish in particular venues. The dean of Medicine said, “I think the rankings that include more objective information are valid... I think reputation should be a part of the mix, but I don't think it should be too heavily weighted and in some of the surveys I think the validity of the rankings is overly influenced by reputation. I prefer rankings that are objective, data driven, largely.” I have already conveyed Sayer’s (2000), critique of common beliefs regarding objectivity and my arguments herein illustrate how “objective” and “data driven” rankings are assemblages of social, political, economic, and personal concerns of multiple actors. Metrics and rankings appear objective, but carry the subjectivity of actors within their relational networks—they are displaced subjectivity (Porter, 1995).

Despite his concern that rankings were not objective, the dean also acknowledged that rankings were a piece of his strategic plan, “Well, it's in our strategic plan to increase our awareness in Alberta from, the current university measured number of 34% of Albertans recognize us easily. Also, our national, international rankings in these indices, we say we'd like to move into the top 50 from the top 100 in the next 3-4 years. They're in there, they're aspirational targets—we call them reputational targets.”

Department chairs within the faculty of Medicine confirmed to me that the rankings were on their radar and that the dean had interest in them, but they were not used prescriptively or to affect how professors and departments operated.

In the faculty of Nursing at the University of Alberta, an associate dean of research used journal rankings to encourage the professors in his faculty to target high impact journals in order to increase the faculty's visibility, but also because he considered journal impact to be an indicator of quality research:

> I think aspirational publication is a good way to frame to faculty to share the interest that exists between publishing impactfully and also publishing to maximize reach on audience, to reach the right audience. And I think there's mostly similarity there. With higher impact publications, I think there is good evidence that they will agree to be cited in our field...the impact of the journal is broadly taken for its norms with visibility and indicative of the same quality. I have concerns, for example, if a faculty member is consistently publishing in a journal that doesn't have an impact. That raises concern for me.

While he described his work to encourage professors to publish aspirationally as a matter of mentoring and to advocate, "good decision making around journals to maximize reach but to find the right audience." and that his assessments of professors were intended to determine, "the broad disciplinary sense of what constitutes an acceptable body of work." One of his concerns with quality was that he perceived faculty as traditionally oriented toward quantity and in an environment with predatory journals without peer review,

quantity could be a problem. He believed that, “the only way to really change that [interest in quantity of publications] in this institution is through FEC. I think it would be more decisive around your commitment to quality and visibility over quantity.” Journal rankings and metrics became a tool for this associate dean to direct his professors’ concerns toward quality and visibility rather than quantity, to cultivate an audience, and as a point of departure for conversations as to what constitutes an acceptable body of work. The journal rankings define quality—coupled to visibility—and orient mentoring, publication, and aspirations. Importantly, aspirations are not required targets. Here the rankings are made authoritative in matters of quality and visibility and orient professors to what constitutes an acceptable body of work, but do not explicitly foreclose on what kinds of work can be done.

I found that rankings were not particularly salient in terms of their bearing on the day-to-day work of most deans, department chairs and professors at the University of Alberta or Mount Royal University. However, at another university the institutional strategic plan explicitly aimed to be a top five Canadian research university. In order to align with this strategic plan this university’s business school developed a point system to create incentives for particular types of academic work. The system strictly details the degree to which each type of work is valued, aligns work with time, and enrolls students as resources in a system of production. I have created an edited version of the point matrix and illustrated it in Table 3.

The point system was implemented as part of a broader strategy to align with the

university's objectives by increasing faculty research output as well as to direct work toward specific highly ranked journals. The document also notes that, “At the core of this vision is a culture of research excellence”, emphasizing a research culture was also the focus of an accreditation process at the school and a unit review. The document cites a recent business school productivity ranking focused on research output from 2005 to 2009, “The School of Business had 62 top journal (based on FT40) articles over that period, resulting in an 8th place ranking. Unfortunately, since 2009, our productivity has

Table 3: Business School Point System

Business School Point System	
Journal Publications	**Points**
Publication in ABS 4* journal (that is also an FT45 journal)	1000
Publication in ABS 4 journal (that is also an FT45 journal)	700
Publication in ABS 4 or 4* journal (that is not an FT45 journal)	400
Publication in ABS 3 journal (that is also an FT45 journal)	400
Publication in ABS 3 journal (that is not an FT45 journal)	300
Publication in ABS 2 journal	100
Publication in ABS 1 journal	50
Publication in non-ABS journal (peer-reviewed)	25
Research monographs	50
Publication in professional/trade journal (not peer reviewed)	25
Best Paper Award	75
Book Publications	
Academic book, top tier publishing house*	400
Academic book, second tier publishing house*	300
Academic book, third tier publishing house*	100
Textbook, 1st edition	150
Instructor's manual	25
Textbook – subsequent edition	25
Book – (editor), top tier publishing house*	300

Book – (editor), second tier publishing house*	150
Book – (editor), third tier publishing house*	100
Book chapter (edited book)	50
Conference Proceedings	
Best paper in refereed proceedings from National/International academic conf.	75
Paper in refereed proceedings from National/International academic meeting	50
Paper in proceedings from other academic meeting	30
Publication in proceedings – practitioner-oriented/professional association	30
Conference Presentations	
Paper presented at National/International academic meeting	50
Presentation at National/International practitioner-oriented conference	25
Regional presentation (practitioner or academic)	25
Contributions to Practice or Teaching	
Published case with instructional materials (published in Ivey or equivalent)	50
Published case in textbook	15
Publicly available technical report on research project	25
Research Development	
Funded Research Grant Application (Tri-Council or similar)	250
Submission of Research Grant Application (4A)	150
Submission of Research Grant Application (unfunded)	100
Notes for calculating points	
Each contribution can count only once in each category, other than FT45 (which can be allocated over 4 years).	
Articles can be coutned as soon as they are accepted in writing.	
*Departments should develop their own lists of publishing houses that are acceptable in each category	

Source: Business School, 2014

been in decline... If the 2012 level were extended, we would drop to 11th place (assuming other school productivity stayed the same).” (School of Business, 2014). The strategy requires targets for the professors to collectively publish specific numbers of articles in each tier of a journal list. For example, the school planned to have 15 articles accepted to

FT45[14] journals for the year 2014-2015 and 20 articles by the university's 50th anniversary; as well as 40 articles in the ABS list of journals at the 3, 4, 4*, FT45 in 2014-2015 and 80 articles by 2015-2016.

The ABS journal guide was created by the Association of Business Schools (2015), and it rates journals according to "peer review, editorial and expert judgments following the evaluation of many hundreds of publications, and is informed by statistical information relating to citation." (p. 5). The journals are rated on a scale from 1 to 4, where a particularly exceptional journal receives a "4-star" (4*) rating. The ABS states that, "the primary motivation of the Editors...is to provide a level playing field. Emerging scholars will have greater clarity as to which journals to aim for, and where the best work in their field tends to be clustered." (p.5). The FT45 is the Financial Times list of 45 journals used to create their business school ranking and so is important not only because the journals are considered to be high quality, but also because increasing a school's publications in the FT45 list is presumed to increase the school's overall rank.

The business school ranking strategy also has its own temporality which is aligned with the ranking, "Each research focused faculty member should target to have at least 2 articles submitted for review in 2014, and another 2 to 3 articles in the pipeline for submission in 2015". To further align faculty with the targets they were expected to develop a 3-year research plan that indicates "how (what topic, methods, funding, collaborators, etc.) the faculty member will contribute to our research goals and fulfill the

[14] Occasionally the FT list is adjusted and new journals are included. The list was previously known as the FT40, then FT45, and at the time of writing became the FT50 because 50 journals are included.

workload projection for the plan period...” and the plan should account for the review time and acceptance rate of journals in each tier in which they aim to publish. In order to effectively track performance the school, “will establish a point system to measure research output”. While the strategy focuses on faculty productivity it also describes PhD students and MBA students as strategic resources, “It is critical that we have a growing and thriving PhD program, and that all PhD course instructors and supervisors support and guide PhD students to develop their summer research projects, course term papers, dissertation papers, etc. into publishable articles...”. Professors are expected to meet their own targets and ensure graduate students will be as productive as possible; “we need interested faculty members to work with and co-author with these MBA students.” Importantly the strategy imposes new work expectations and specific timing in which this work must be done. In the past, faculty could produce work according to their own research programs and personal preferences. Similarly, graduate students might have previously been expected to publish before their graduation dates, but are now viewed as critical to the overall productivity of the school. Summer research projects and term papers become potentially publishable outputs and their work is expected to continue beyond the traditional summer or single term time period.

The point system is also tied to rewards. A professor publishing in particular journals is awarded money for their research program, “1) $7,000 in research trust funds for ABS 4/4* (that are also FT45) publications, 2) $5,000 for ABS 4/4* (non FT45), and ABS 3 that are also FT45 publications, and 3) $2,000 for published cases (Ivey or

equivalent)...” The plan also describes support for conferences, that faculty will pursue, “tri-council, university, and Business School Research Centre grants.” Given these new targets, the plan stated that there would be a workload plan whereby a professor could request a change in workload to have less of a research expectation and more of a teaching expectation. Research and teaching expectations were varied according to stage of career and rank, whereby an assistant professor with a teaching to research to service work load of 4:4:2 should acquire 400 points per 2 years, associate and full professors with the same ratios were to have a minimum of 500 and 600 points during the same span of time. The plan presumes that as a career progresses one should be able to produce more research per unit of time. The rankings, lists, and point system are interconnected stratification systems through which symbolic and material exchanges occur. That is, the system sorts individuals and their work according to a valuation system and provides or denies access to rewards accordingly.

This strategy makes the values and objectives of the school visible, aligns faculty work with those values and objectives, and orients research time to ranking and strategy time, rewarding achievement to its ends. The point system is a clear articulation of what work is valued and the degree to which they are so. For example, an ABS 4* journal that is also listed in the FT45 earns a professor 1000 points, while a book from a “top tier publishing house” is worth 400, a funded Tri-Council grant is worth 250, and contributions to teaching are worth 50 points (published case with instructional materials in a top tier outlet), 15 points (published case in a textbook), and 25 points for a technical

report on a research project. Based on my experience publishing research papers—though never in one of these listed journals—and writing major grant applications, these points are not based on the degree of effort and time that one must exert in order to complete the products. The points are dispersed based on journal rankings which feed into the school's rank calculation. Because there are teaching-focused scholars and teaching is included in each professor's work plan, related outputs are included in the list, but are clearly undervalued in relation to effort. There are only three ways to earn points for teaching—there are 31 research related activities that can earn points—but the points assigned to them are relatively miniscule. Research outputs are also valued much more highly than major national grants, which are typically regarded as a means to produce such outputs, are calculated in the broader university rankings, and earn the university and professor prestige.

Beyond rewarding professors' work that falls within the list, by leaving out other types of work it punishes those who are not willing to align with the objectives and goals of the strategy. The list does not include any points for community engagement, service, classroom teaching, editorial work, non-publication or research grant-related work to which scholars may hold personal and professional commitments. The strategy and point system illustrate what the dean of Extension at the University of Alberta had told me regarding the double work that has to be done by those who are committed to activities beyond publishing. There is no recognition in this strategy for such commitments and the temporality of the strategy is such that the work of building connections in the

community, winning their trust, and collaboratively developing mutually beneficial projects is not impossible, but likely much more difficult.

Professors are aligned with the point system, which is aligned with the journal lists, which are aligned with the rankings, and the rankings align the university and business school strategic plans. Work is coordinated across individuals, academic units, organizations, space, and time. These alignments impose a rankings focused regime that coordinates professor consciousness, time, and work simultaneously through coercion and seduction while also redefining students as productive resources. The possibility of earning points and research money is seductive, while punishing interests outside of the table or not meeting time expectations is coercive. The journal lists and point system stand in place of expert scholarly judgment that is exercised in traditional peer review. The past autonomy of professors to pursue their interests, have diverse outputs, publish and cultivate audiences where they see fit are removed by the ordinal list of outputs and points coordinated in time. The work of creating the journal lists has been completed by others—the Association of Business Schools, the Financial Times ranking, and the data upon which these rely—and the number of points a professor has accumulated determines worthiness for rewards in the absence of peer review. The points articulate what work needs to be done and professors are left to contemplate how they can do so to meet targets and maintain or grow their careers. Career growth is structured within a realm of clearly articulated table borders beyond which is a blank space of uncharted territory. Old debates regarding the purpose of research—the pursuit of knowledge for its own sake, or

utility—have a new contender, as research becomes a matter of production for visibility, recognition, and marketing.

The concern with determining research and publications according to lists was also my experience working in a business school, where I had to drop projects that were perceived to be unworthy of making it into a listed journal and colleagues were not interested in collaborating due to uncertainty of project outcomes, or would recommend I alter my methods and article content to make them more interesting to editors of such journals. This system of production is curious given that the nature of research is such that one does not know the answer to questions at the outset, and the real value, impact, or scholarly contribution of research may not be known for decades after it was completed. The perniciousness of the point system may also well be a standard practice in business schools, a thorough examination of cultures across academic disciplines would contribute to better understanding the degree to which lists, rankings, and metrics are considered a legitimate form of workplace surveillance across disciplines. However, one should be cautious about presuming all disciplines are homogenous, for example, Malsch and Tessier (2015) are business professors and have argued against the use of such tools in academic assessment.

During my employment in a business school there was also an ongoing debate as to whether such lists should dominate judgments of merit. One scholar shared his views on the faculty and staff mail lists, “Alberta, Canada, and the world, are facing huge challenges all of which predominantly involve business and how business organizations

deal with these problems. I believe that as business researchers we should have a significant role in addressing these critical challenges. However, useful research needed to address these huge emerging issues may be messy and unpolished yet ultimately ground-breaking. Elite business journals rarely welcome research that is so comparatively unpolished. Thus, business researchers who might help address these issues have a disincentive in our journal list driven system to do so." These concerns are not unfounded as studies of journal list effects have demonstrated that their use can limit academic freedom and homogenize scholarship (Mingers and Willmott, 2013). Such translations of scholarly judgment and workplace surveillance are exemplary of exploitative surveillance described by Sewell (2012) wherein employee interests are submitted to those of employers, but also to distant others who construct lists and rankings.

Through such numerical surveillance expertise no longer need be situated in the contexts of FEC or other scholarly debates; instead, the numbers assess the quality of professor's work and each professor can judge others by observing how many publications they have placed in ranked journals, and the number of citations they have received. These conditions of surveillance are not merely vertical and horizontal—between employers and employees, and among employees—but are individualized and inward as each person is implicated in a comparative system that is instantaneous and reflective of the position of each with the measures at once passing judgment on others and oneself. Each professor can judge colleagues without knowing what constitutes their disciplinary or ethical obligations; as the rankings and lists have done away with these

concerns. Performance measures contain within them all sorts of moral judgments as to an individual's worth as a professor, citizen, or human being and because the numbers are individualized, the individual is responsible for their management (Espeland and Sauder, 2016; Lupton, 2016). These practices are also exemplary of reactivity and the constructed nature of rankings in that not only are judgments and alignments made, but their consequences reinforce their reality.

When I spoke with an accounting department chair about such lists and how they enter into Faculty Evaluation Committee work at the University of Alberta—where there is no point system, but where journal lists direct academic work—I asked about whether it would be impossible to make a case for tenure or promotion if someone was doing good work, but did not publish in the listed journals, "it's a harder sell, if it's in the list there's no questions, bang, bang done." The list can therefore stand in place of professional judgment, the traditional effort on the part of the committee to think and assess is done by the list. He was also concerned that such lists can stand in place of collective judgment, "Then you know on FEC, as a faculty evaluation committee we do worry about that, do we end up just mechanically giving people tenure and promotion based on some list that somebody else created. So in principle at least, we're committed that if people do stuff that's not on the list then at least we, the chair has to make the case. So again the chair becomes important, it becomes important that somebody understands your work in enough detail." The professors knew that the list can do their work for them so they would debate work that was not in listed venues as a matter of principle. As texts

that mediate individual and collective action, rankings, lists, and metrics coordinate work based on local contingencies such as individual and collective concerns.

In part, the point system, FEC deliberations, and the example of the mail list discussion, are about policing the quality of work. As the accounting chair above mentioned in my conversation with him, rankings make it easy to do so. But he perceived this to be lazy and that he and his colleagues were concerned about letting the list—and by proxy its creators—make up their minds for them. As Power (1996) has argued, "quality control procedures may function less to make quality observable and more to construct and define quality itself." (p.291). By constructing and defining quality, rankings and journal lists are able to stand in place of personal and collective judgments thereby imposing their own standards. Instead of debating and negotiating quality at meetings like FEC a journal list or point system could easily replace such practices and a quick review of a performance template alongside the list would determine a professor's fate. Yet in my experience, review of literature, and discussions with academics I have not observed poverty of thought and easy work as scholarly values. Rankings and journal lists were often viewed as points of reference for expert judgment, or indicators of visibility and reputation.

The business school strategy and point system also proliferate hierarchies. Where there was once a system of recognition and distinction based on intimate knowledge created through personal networks and peer review, there is now a ranking of business schools, a rating of business journals, and a ranking of scholarly outputs. Once

professors begin accumulating points they can be ranked to determine worthiness for research funds, and this stratifies academics and their work. Recognizing that experienced academics[15] know how to do their work, what journals to advise their students to publish in, and how to collectively determine excellent scholarship, the proliferation of lists and rankings appears to be driven by the administrative and academic interest in visibility articulated as distinctions of reputation. Deans rarely found rankings useful for their day to day work other than as a means to articulate their faculty's distinction from others. Businesses have observed academic practices and interests in such distinctions and created products to serve them. However, the means by which lists and rankings are constructed and implemented can be dissonant with how academics have traditionally advised and assessed one another, bifurcating their consciousness and reorienting their work. The point system is an exemplar of how a means—of knowing possible venues for publication and supporting academic judgment—have become an end in itself.

There is one caveat to my argument that is evident in the extract from my interview with the provost and the chair of Pharmacology. Senior leaders are often aware of the rhetorical power they can wield through metrics. By articulating the rules of resource allocation according to specific performance measures they can cut programs, faculty, and staff that they expect will not measure well. This was clearly the plan

[15] I am aware that some experienced academics can be unaware of standards of quality in their discipline, and terrible graduate student advisors. Close friends and I have worked with some and been subject to their tyranny. My work as a research assistant with the University of Alberta's Office of the Provost on graduate student supervision and mentorship also informed me of these realities through conversations with students, scholars, and a detailed review of literature on related topics.

implemented at the university where the pharmacology chair had been employed and may well have been the intention of the business school point system. However, this does not take away from my argument regarding overall concerns for increased visibility and distinctions as a driver of ranking and metric proliferation. It merely indicates that some administrators can individually, or collectively through strategic planning processes, implement a regime that selects measures to emphasize particular types of distinctions over others. As in any system of stratification, some will win and others will lose supporting old inequalities and creating new ones (Ball, 2010). The email list discussion is indicative of questions as to the legitimacy of using lists to do workplace surveillance. As these colleagues continue their claims-making, such questions will be resolved and the lists will have bound the professors into their alignments, or not.

Practices to delegitimize lists, rankings, and metrics also further perpetuate and diversify rankings in cases where they are determined to be necessary or unavoidable and concerns for supporting diversity are recognized. Mingers (2013) for example, has argued against journal lists because of their homogenizing effects, but recommends that if we must have such lists we ought to at least make many of them in order to recognize and support the diverse interests and work of academic pursuits. Systems of recognition and redistribution fundamentally create problems related to inequality as those who are not recognized and denied benefits in the system resent their perceived marginalization (Fraser, 1997). Many public concerns with rankings as articulated in news media are illustrative of this point. The response is typically to create new lists and rankings to

recognize those who were ignored in prior iterations, thereby proliferating these stratifications and systems of inclusion and exclusion. Rather than redistribution of resources towards greater recognition and equity for marginalized groups (Fraser, 1997), the new lists further separate them into an "other" category. In doing so, traditions of scholarly assessment and notions of fairness are transformed as professorial intersubjective negotiations are replaced by the subjective determinations made by distant others. This is not to say that local negotiations are perfect or do not reinforce inequalities, but that tight coupling to rankings and metrics alter possibilities for local concerns to be recognized and valued. As Lamont (2010) has described, peer review often involves horse trading, deference to others' expertise or status, and much compromise, but overall it works well enough as a pragmatic means for recognizing and valuing diverse interests.

Uncertain relations

Alignment between university, faculty, and individual strategic plans with metrics and rankings positions professors and graduate students in a system where they can and must be known through numbers. Administrators use metrics in comparative assessments of academic quality, but they are also used among professors to judge one another and oneself. Many metrics, rankings, lists and devices hold in them pre-made judgments that determine quality, and comparisons based on them are shaped by these. As such, metrics and rankings are not only technologies of governance (Rose and Miller,

1992; Dean, 2010) that make academics and universities legible to experts and authorities, but they are also technologies of the self (Foucault, 1978; Foucault, 1988) through which researchers can reflect upon themselves, others and their work in new ways and processes of constant comparison. Such constant comparison is based on the logic that one's numbers can always be improved upon and so the subject in this position must continuously do so. Tightly coupled with ranking and strategic plan temporality, the cultural economy of academia is less open to the ebbs and flows of traditional research that was not concerned with time so much as the contribution that would be made once the project was complete. Rather than promoting a research culture that is engaged in open inquiry and creative production, the journal lists, rankings and related devices support a prestige culture that becomes narrowly focused. Townley (1995; 1996) has explained that employee performance review is a form of accounting that involves classification and valuation systems that are paired with practices of self-reflection and confession and that these organize time, space, and control work. My analysis demonstrates that researchers interested in performance review should not limit their inquiry to organizational boundaries. Rather, where extralocally produced measures and criteria are incorporated into local work, space, time, and activity become bound to diffuse judgments and concerns within an assemblage beyond organizational boundaries.

As academic research time compresses to become strategic plan time, academics are positioned as fast subjects (Thrift, 2002) having the experience of, “fragile individuals” (Bauman, 2000: 84) who are in a race against their colleagues. In a race one

can only secure a position through speed, which is not conducive to thinking. As Bauman has well stated, “Thought calls for pause and rest, for 'taking one's time', recapitulating steps already taken, looking closely at the place reached and the wisdom (or imprudence, as the case may be) of reaching it. Thinking takes one's mind away from the task at hand, which is always running and keeping up speed, whatever else it may be. And in the absence of thought, the skating on thin ice which is the *fate* of fragile individuals in the porous world may well be mistaken for their *destiny*.” (p. 85). Deans and professors imbricated in rankings and metrics are fragile not only in terms of compressed time, but judgment is everywhere and always multiplying and as it does so their own professional experience and practices are shifted, eroded, or replaced. Identities are fragile as well. Malsch and Tessier (2015) are junior faculty members in business schools which have introduced an incentive-based journal list performance regime. In reflecting on their experiences they have argued that these cause identity fragmentation and politicization, marginalize, and discourage, but also increase awareness of self and stakes in the homogenizing force that lists and rankings impose.

However, the tenure system with the security it offers and the individualized peer review upon which it is based supports conditions wherein professors can safely reflect upon the differences between their fate and their destiny. While tenure does not ensure permanent career security or certainty in career growth—as peer review processes can prevent both—it provides conditions where pause and rest are possible. It is not so in academic contexts where tenure does not exist; to pause is to risk being left behind. These

are the conditions that the UK Research Excellence framework imposes upon professors and it is these conditions which Sayer (2016) fears will transform academic work for the worse.

In Korea, there has been a strong push by governments to turn universities into corporations in order to rank well. Since 2012, faculty hiring and compensation does not follow civil service procedures, and profit seeking is permitted (Collins and Park, 2016). In making this change universities became reconfigured from public serving institutions to corporations guided by global performance. The consequences according to one administrator of a business school are that they, “are now nurturing greed” (Collins and Park, 2016:127) because one of the primary measures of business school rankings is increased MBA student income. Another unintended consequence was that because there are so many rankings with different interests, good performance on one global ranking can mean poor performance on another and orientation to any global ranking risks the loss of an institution's reputation among its local and national citizenry (Collins and Park, 2016). This further demonstrates the fragility that rankings impose in their selective reputation building; focusing on one draws attention and interest away from others. The measures that matter to one group may not to the other, and so some constituents are always left out unless one can measure well on all the proliferating forms of quantification and hierarchy.

What I have described in this chapter also provides some opportunities to reflect on the pursuit of rankings as institutional strategies. First, rankings provide scripts as to

what performance means and how it should be undertaken. While scripts provide some room for creative interpretation, reading from one does not constitute strategy. Planning based on such scripts seems to be more about comfort and providing a sense of certainty or clarity where there is none (Martin, 2014). The ABS journal list is such a script that was designed for novices to read so that they can set plans to grow an academic career. Rankings do the work that academic leaders might otherwise be doing as they develop their institutional plans. Second, rankings-based strategies focus thinking on how to measure well, reducing the notion of strategy to measurement rather than on doing new and interesting things or actually improving quality. Espeland and Sauder (2008; 2016) found this was the case with administrators' work to game law school rankings. Collins and Park (2016) found that corporatized Korean universities also focused more on measurement than on quality research and student experiences. Third, rankings and related devices serve the interests of the publishing and ranking businesses which may be having adverse effects on university budgets and work. By formulating strategies based on university rankings, administrators may be making their financial situations more complicated as they bind themselves to the publishing companies which charge ever increasing prices for the publications that they sell back to universities after professors have created content. Fourth, pursuing rankings appears to be nonstrategic in that they provide the same map to many institutional actors thereby sending as many institutions as buy into the rankings in the same direction. When many institutions move in the same direction, it is difficult to pick any single one out from the crowd thereby ensuring that

the distinctions made in rankings are more important to set them apart. When I used to play rugby in high school, if I received the ball I did not tend to run in the same direction as everyone else, I found unoccupied spaces through which to push, and once I had begun moving everyone else would chase me. I would adjust my movement on the field according to that of other players, rather than thoughtlessly run head on into them. While universities have more constraints on their movement it is still possible to creatively imagine new directions. If rankings are the fate of universities, they need not be their destiny as well.

Chapter Summary

Rankings enter into academic work in many ways and with varying degrees of freedom: as rhetorical tools, flexible and relatively non-domineering aspirational materials, to strategies for stringently aligning and directing individual and collective work. All measures and metrics reorient and coordinate academic consciousness to new interpretations of individual and collective situations. These alignments constitute systems of recognition and reward that include some forms of work and exclude others. In the absence of lists and rankings, scholars have traditionally been able to assess work that is worthy of merit, tenure, and promotion through engaging with their colleagues' local and professional networks. Metrics and lists based on them have been created to distinguish quality scholarly work and to inform new professors of disciplinary standards. This stratification system is a means of surveillance that can change how academics

watch and judge one another, shifting their work, the time in which it is done, and the forms it takes. Importantly, old debates regarding the purpose of research—the pursuit of knowledge for its own sake, or utility—have a new contender, as research becomes a matter of production for visibility, recognition, and marketing.

What I have begun to attend to in this chapter is how local practices in performance review are tied up into distant assemblages of control so that an individual university's performance review practices are bound to those distant systems of organizing. Rather than a local administrator making a judgment regarding how time, space, and work should be organized, at least part of this work is done by the metrics and systems to which they are bound. Importantly, metrics emphasize particular traits based on past decisions that were made in their construction, thereby suggesting and influencing decisions with these interests wherever they are taken up. Administrators and professors then work and make their personal judgments within the interstices of these relations.

In chapter four I further describe means by which individual level measures are used to identify scholars and track them through databases to more effectively create metrics such as citations and other scores that quantify performance and facilitate comparisons. These metrics are aggregated to reflect the cumulative performance of universities and then used to create rankings and even more performance metrics. Academic concern with reputation and prestige supports the marketing and profits of publishers and ranking organizations as they use services to observe their own

performance, increase their visibility, manage their identities and work practices.

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Chapter 4: Quantified Selves, Grooming Digital Doubles

"As we are socialized to become that which can be measured by our increasingly sophisticated tools, the classifications increasingly naturalize across wider scope."

Geoffrey C. Bowker and Susan L. Star, *Sorting Things Out*, p. 326

"...many important classificatory systems are now embedded in markets. They are by nature private, even to the point of being trade secrets. They are oriented toward the extraction of profit and often manufactured and managed in a quasi-monopolistic manner."

Marion Fourcade and Kieran Healy, "Classification situations", p.561

Much of our lives are affected by numbers, but how they come to bear on us is typically opaque. Births, deaths, and productivity are tracked at an aggregate level to affect government policy and, distribution of resources to health, agriculture, infrastructure, and small and medium sized enterprises. Such quantification and calculation are governance technologies (Foucault, 2007; Rose, 1991; Rose and Miller, 1992; Dean, 2010) that make people and things knowable, thereby allowing them to be acted upon to achieve the objectives of interested parties. Surveillance systems translate local and specific information into extra-locally organized, general, and objectified knowledge that can be used from a distance. As these systems connect into one another, they comprise a global

surveillant assemblage that works upon our digital doubles with unknown consequences for our individual and collective lives (Haggerty and Ericson, 2000). These systems depend on experts and professionals to develop techniques of observation, reporting, interpretation, and strategies to take action. Who these professionals are, how they do their work—their theories, assumptions, strategies, and meanings—are invisible to us on a personal and local level. Yet their work and the knowledge that derives from it have immediate and long-term consequences for how people work and live.

Academic social media and tracking tools are new actors in the global ranking and metrics assemblage. These businesses often present themselves as facilitators of open access research and communication, but are aimed at monetizing those activities and do not meet the minimum recognized open access standards (Matthews, 2016). Academia.edu and Researchgate are independently owned and as of 2016 had reportedly attracted, respectively, $17.7 million (USD) and $35 million, from venture capitalist firms and the likes of Bill Gates. Mendeley, another networking, bibliographic management, and metric tracking tool was purchased by Elsevier in 2013 for £65 million (Matthews, 2016). None of these tools have generated a profit, but Ijad Madisch, has speculated that his platform Researchgate will soon begin to do so. Madisch says that he hopes to generate advertising revenue by targeting scientific product sales, “Imagine you could click on a microscope mentioned in a paper and buy it” (Matthews, 2016). Academia.edu has been criticized for one approach to generating profit that involved asking academics to pay for their papers to be recommended to others (Ruff, 2016).

Concerned with the effects that these networking sites might have on peer review and scholarly publishing a group of professors organized a conference titled, “Why are we not boycotting Academia.edu?”. Recognizing such platforms as a threat, these scholars make the overall point that “Building an ethical publishing system based on a distributed commons with shared governance is something to strive for.” (Adema, 2016). Despite these concerns, scientists were reported to be uploading 2.5 million publications per month to Researchgate (Lunden, 2017). Driven by more than just scholarly values and desires to share their work widely, much of the participation may be driven by a sense that it is necessary to get noticed, as one young scholar has said, “...I don’t feel like I can ignore them—I’m an early career researcher, and I need to make my work visible” (Matthews, 2016). Just as rankings have done, these new tools have begun to alter conditions of visibility and broader relations in which individual scholars and academic institutions think of themselves and go about their work.

In this chapter I intend to further explore individual situatedness in the rankings and metrics surveillance assemblage. I use several examples, including metrics pertaining to myself, to illustrate how individuals become enrolled in these assemblages and projects of digital self-care. The chapter is a foundation for potential future research into personal strategies and reflections upon metrics, their proliferation, and personal data work. Lupton (2016) has noted that very little sociological or anthropological research has been done on self-tracking and the quantified self to-date and most of what exists has been market research. Lupton (2016), Savage (2013), and Beer and Burrows (2013) have

also noted the “vitality of data”, that data have lives of their own in that they grow and change as they are worked with and flow through different locations. Digitization of data and the tools I discuss here have transformed what data mean and their relations to researchers and traditional positivist attempts at standardization which were presumed to be characteristics of data in the past. They now take on a “lively form which exceeds the straitjacket imposed by positivist statistical procedures” (Savage, 2013:6). These observations are also illustrative of my notion of diffuse judgment in that data flows carry with them the interests, concerns, and effects of others with whom they have come in contact in their past, or with whom they continue to be tied up with in their extralocal relations. Working with data in projects of the self or collective identity formation has implications for how all who are bound in these systems can know one another, the effects of which are empirical matters that must be investigated on a case-by-case basis.

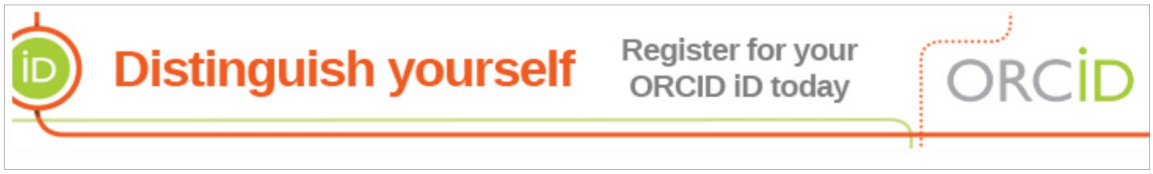
Increasingly, scholars themselves are doing the work to submit information to data systems and ensure that the data are “good”. In addition to rankings and journal lists other services have proliferated to give scholars and administrators quantified assessments of individual and collective reputation and influence. These include analytics suites based on the major publisher databases, self-tracking tools, and social networking platforms. In surveillance studies the notion of “digital doubles” conveys the fact that as we go about carrying cell phones, sending text messages, liking Facebook posts, and using debit or credit cards, we leave traces of ourselves—our interests, pleasures, habits, locations, physical performance, friends—that are increasingly transmitted to far away

locations and aggregated to be used for private interests with consequences we cannot know (Haggerty and Ericson, 2000). Many of the tools described in this chapter help scholars to track their digital doubles and groom them for purposes of self-promotion that supports publisher data work. In caring for the virtual self, professors are encouraged to maximize potentials and reduce risks. Unlike the care involved in preventing one's data from being taken up by others, as in identity theft prevention (Whitson and Haggerty, 2008), or peer to peer watching to prevent friends from posting unfavorable photos (Trottier, 2013), the implied risk of not engaging in care for one's scholarly digital double is to remain invisible. Maximizing the potential of one's data is a matter of connecting it to as many networks, trackers, media, and measures as possible in order to increase one's following, readers, and citations. While browsing a journal website to find references for this chapter, I came across an ORCID advertisement aptly describing that the point of all this is to "distinguish yourself" (See Figure 3). In doing so professors become incorporated into the ranking infrastructure, perform data work for the system, and groom their numbers.

Such tools can also be used in formal and informal workplace surveillance. Formally, they serve as indicators of productivity and quality as did the point system I previously described in Chapter 3. Informally, colleagues can monitor and assess one another, more so when they are encouraged or even required to be registered in these systems. While working at the business school I discovered that all professors were encouraged to create Google Scholar profiles. I already had a profile, but spent time

browsing the professors' history, citations, and collaborators to get an idea of their individual interests as well as the general social landscape I had entered at the business school. These records sometimes also appeared in water cooler conversations with colleagues about who were under performing, which departments were most productive, or in attempts to understand why someone was denied an award or a position. Such conversations were also illustrative of informal hierarchies and inequalities that existed at the school.

Figure 3: ORCID ID Advertisement



Source: (ORCID, 2017)

When I set out to do this research I had not intended to delve into academic social media or analytics software as I had been unaware of their connections to academia, ranking, and metric proliferation. Rather, I followed information flows along chains of action and was led to such tools as I noticed their connections to centralized data sources such as Scopus. To better understand the tools I attended workshops, used my university library to access and explore those that required institutional licenses, and registered for all of the social media and individual record management platforms of

which I became aware. It was often fun to explore metrics and compare universities, faculties, or professors I knew—despite the fact that I was aware that such comparisons were often unfair—and even enjoyed engaging with a few people who contacted me as they found some of my own work through these tools. However, the work of constantly updating each profile when I published an article or book review became incredibly burdensome. The curiosity-driven fun of browsing and comparing eventually provoked anxiety as I began to feel compelled to check my numerous profiles for new interactions. I had one friend who was also using several platforms; he decided to delete all of his accounts because they were causing him too much stress. It was not just the work of grooming these profiles, but the constant comparison and positioning of ourselves in relation to our numbers and those of others that provoked our anxiety. It was the belief that the numbers should increase over time, that others at our career stage had better numbers, that senior scholars had numbers that appeared to be unachievable, and as such, that our own careers were quite possibly doomed to fail if we could not increase our publications and citations. I must confess that these concerns and related anxiety are not unusual for a doctoral student and aspiring scholar, but the degree to which I was wasting time and emotional energy on these concerns felt significantly amplified while working regularly with these tools. In her study of self-trackers, Lupton (2016) documents that this is not a unique experience. Individuals who had engaged in using digital devices to track bodily data in order to change behavior and optimize themselves occasionally became incredibly anxious, focused on the data rather than sights they had paid to see on

vacation, or exhausted from the constant self-monitoring.

Self-tracking—the purposive acquisition and monitoring of personal data—is not a new phenomenon. Lupton (2016) traces interest in using technology to enhance human memory back to 1945 and practices in doing so to the early days of personal computing. Recording one's day-to-day experiences in diaries or journals have long histories of their own. What is new is the emergence of communities and technology that have simplified the collection and sharing of one's data. The tools I discuss here are also indicative of control society, networked systems in which you are included or excluded, you measure well or you don't. While not all of these technologies connect, many feed into others and increasingly do so as businesses that produce them buy competing technologies to include in their own systems. These technologies align business and academic interests. They also mediate relationships between colleagues and subordinates so that rather than engaging directly with one another they can just interact with numerical representations that can now stand in for the person. For example, when I arrived at the business school I could have gone office-to-office to introduce myself. Instead, Google Scholar saved me much of the trouble. These tools are also examples of means to govern from a distance (Latour, 1987), of informing authorities about regularities in terms of production and affiliations, and helping them make decisions about the dispersion of resources, and possibilities for intervention.

Standards, Self-tracking, and Constant Comparison

I previously described publication databases—Scopus and Web of Science—upon which the major university and journal rankings are based. Elsevier has developed a visualization and analytics suite called SciVal that universities can be licensed to use in order to examine each of its academic units and individual professors. Thomson Reuters' equivalent is InCites. Each of these tools respectively make use of Scopus and Web of Science to manipulate and visualize data on universities and the professors that work within them. For example, Figure 4, Figure 5, and Figure 6 illustrate some of the analyses and visualizations that Scopus allows (note that they have been modified to fit on a printed page). Figure 4 illustrates my PhD supervisor's citations per year, Figure 5 illustrates his outputs by venue, and Figure 6 is the University of Alberta institutional profile. The university profile shows other institutions with which publications are most often produced in collaboration, the journals where professors most frequently publish, and the percent of publications by disciplinary area. The Scopus analyses are similar to the detailed analyses included in the SciVal and InCites packages which support more detailed examination.

While working as a research associate at the University of Calgary I became involved with a group of research facilitators across the campus who worked for Associate Deans of Research and whose job it was to track and report on their professors' performance. As a result I was able to attend promotional workshops for each of these tools and learned the basics of how InCites and SciVal work. One of the primary limitations of these tools is how disciplinary and topical areas are standardized and

defined by publishers. Standardized definitions are necessary to aggregate data and make comparisons across institutions, but how each university organizes its disciplines is unstandardized. So when the research facilitators I worked with attended the SciVal demonstration, they were disappointed with how broad the tool's categorizations were and how they were defined. Specifically, the categories were not meaningful to the University of Calgary and how it organized its academic units. There was no way to specify each unit according to their definitions and so this made analyses meaningless at the local level, while at the broader institutional level the tool was merely useful for broad generalizations about institutional partners, and publication venues.

Standards impose structure in order to contain that to which they pertain and presume that this one size fits all to which they are applied (Lampland and Star, 2009). Diversity is an inherent problem for anyone wishing to impose standards and engage in aggregation. Epstein (2007) has shown how diverse groups rallying for recognition create “niche standardization” that makes human populations more amenable to scrutiny, administration, and marketing by standardizing according to social groups. Instead of including diverse groups into existing standards and categories, niche standardization is a matter of making new categories particular to diverse groups who would otherwise be left out. Such standardization simultaneously denies universalism and individualism—it is ignorant of diversity within groups and commonalities between them—leading to what Busch (2011) has referred to as standardized differentiation. Rather than an increasingly homogeneous social world, differentiations proliferate endlessly. In part, this is why new

rankings and measures continue to appear over time. Not only do publishers and ranking

Figure 4: Scopus Author Analysis, Citations by Year (Source: Scopus, 2015a)

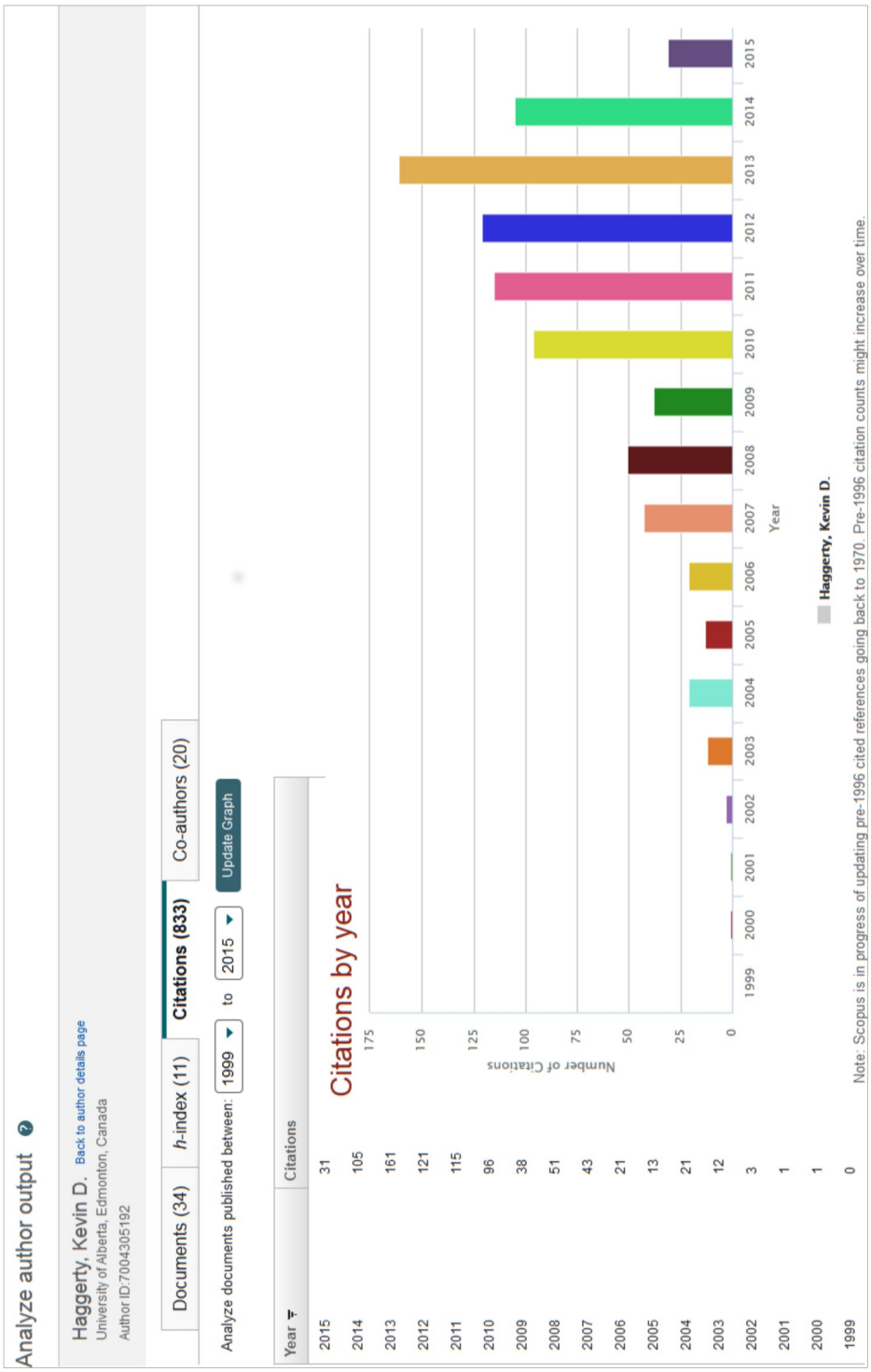

Analyze author output
Haggerty, Kevin D. Back to author details page
University of Alberta, Edmonton, Canada
Author ID:7004305192
Documents (34)
h-index (11)
Citations (833)
Co-authors (20)
Analyze documents published between: 1999 to 2015 Update Graph
Year
Citations
2015 31
2014 105
2013 161
2012 121
2011 115
2010 96
2009 38
2008 51
2007 43
2006 21
2005 13
2004 21
2003 12
2002 3
2001 1
2000 1
1999 0
Citations by year
Number of Citations
0
25
50
75
100
125
150
175
1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015
Year
Haggerty, Kevin D.
Note: Scopus is in progress of updating pre-1996 cited references going back to 1970. Pre-1996 citation counts might increase over time.

Figure 5: Scopus Author Analysis, Output (Source: Scopus, 2015b)

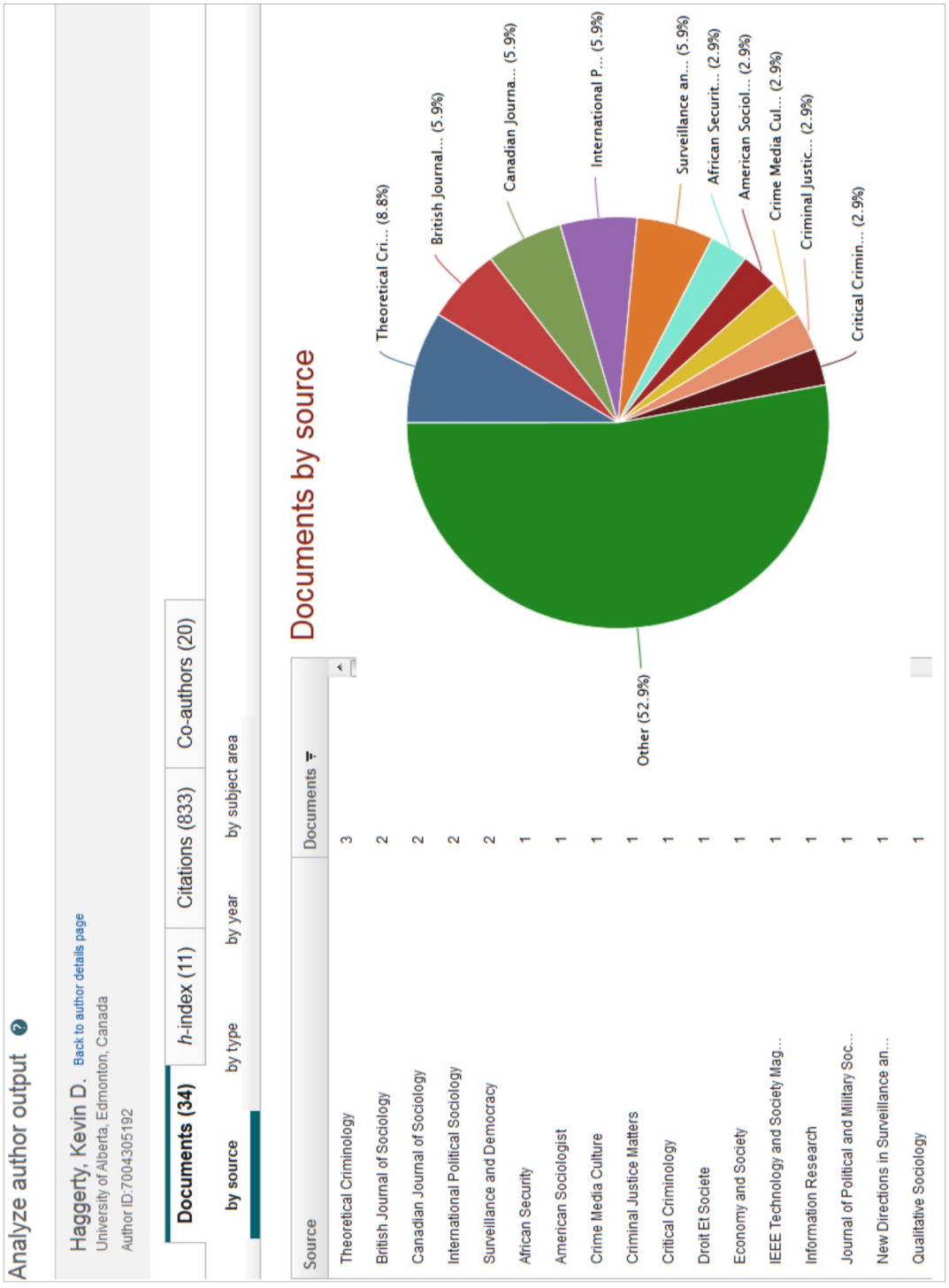
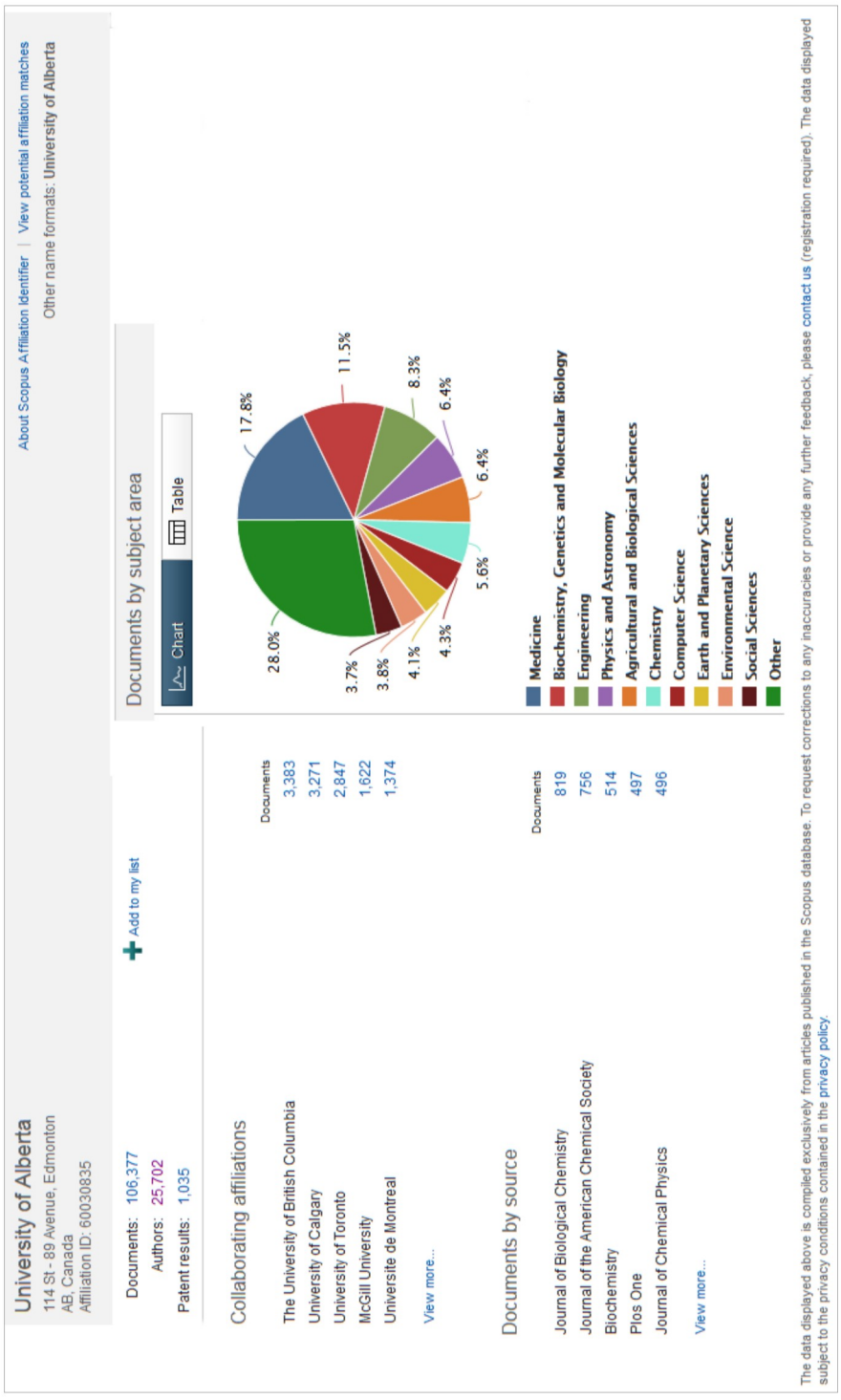


Figure 6: Scopus Institution Profile, University of Alberta (Source: Scopus, 2015c)



businesses create new products to meet diverse interests, academics and support staff seek the right technologies that align with their interests and categories that they also believe to hold objective, valid, or "good" data.

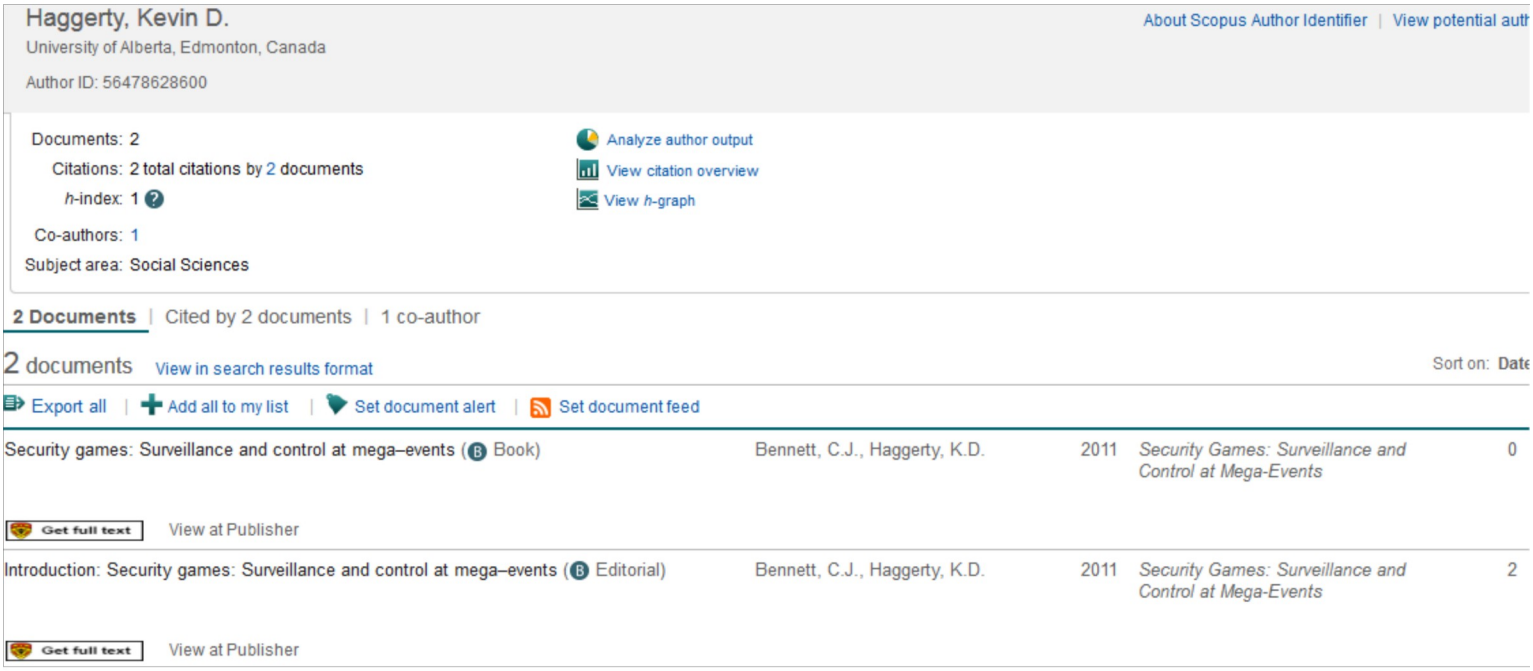
For the publishers that build Scopus and Web of Science, whimsical professor authorship practices are a source of error. When I interviewed an employee at one such publisher whose job it was to support university administrators in their analyses he explained that disambiguating authors was a common problem. For example, there is more than one Kevin Haggerty in the world. If Kevin Haggerty writes a paper and lists that name as the only author there may be another Kevin Haggerty at a different location who is credited with the paper and any citations that derive from it.[16] One approach to disambiguate is to also compare author with an institutional affiliation because there may only be one Kevin Haggerty at the University of Alberta. However, Kevin Haggerty may move institutions many times, or Kevin Haggerty may misspell his name. As such, one Kevin Haggerty may be counted multiple times. Cultural traditions can also complicate author tracking, for example, those where women change their surnames upon marriage. Figure 7 illustrates a second profile for my PhD supervisor that only includes a book that he co-authored and a chapter from that same book. His profile illustrated in Figure 4 includes many of his journal articles, but does not include this book. I'm uncertain as to how he appears as two authors with the same name and institution, but his case is

[16] Indeed, my supervisor Kevin D. Haggerty is occasionally confused with another Kevin Haggerty who also does criminology related work. When I was a master's student I had made this mistake and in my introductory email to Kevin D. Haggerty I expressed interest in his work on surveillance as well as a publication by the other Kevin Haggerty, much to my embarrassment.

illustrates the disambiguation problem.

In order to solve the disambiguation problem publishers now encourage professors to register with their databases or to sign up for unique identifiers. Scopus has become affiliated with ORCID while Thomson Reuters has developed and promoted Researcher ID. These tools allow scholars to register for a unique numerical identifier that then becomes associated with all of their publications as they upload the information regarding the publications to their profiles. Scholars can then be more effectively tracked

Figure 7: My Supervisor's Secondary Scopus Profile (Source: Scopus, 2015d)



through the databases. Publishers also encourage authors to be consistent in how they name themselves when they submit publications and to use initials to further assist

disambiguation. Learning of this problem and with a concern for my own future academic recognition I began to author papers as Gary RS Barron in order to become more readily recognized by these systems. I also registered for an ORCID account as well as several other services.

Mendeley, Academia.edu, and Researchgate (RG) are three other online profile and social networking sites which have recently become popular tools for enhancing visibility and sharing academic work. Mendeley is owned by Elsevier and integrates with Scopus to allow researchers to groom their profiles, track their citations, observe how their work is being taken up and by whom. Academia.edu and Researchgate have similar functions, allowing professors to upload their work to create an online CV, share works in progress, and connect with scholars with similar interests, but are not integrated with any of the major publishing company databases. Each of these tools also informs users about how many people are viewing their profiles, which pieces of their work are being read, and other analytic tools. For example, Researchgate, has developed a variety of analytics for users to examine their own degree of prestige including a Researchgate score, impact score, the h-index, and a bar graph that illustrates the percentile the user falls into. My own RG score, which includes publication metrics (citations and how many people have read my publications on the site), questions I have answered, questions I have posed, and my number of followers is 8.37, “higher than 37.5% of ResearchGate members” (Researchgate, 2016). These sites and tools pique researcher interest and portray the numbers as objects that can be worked upon and changed.

Researchgate claims, “the RG Score takes all your research and turns it into a source of reputation” and that, “with the RG Score reputation is passed from researcher to researcher, allowing you to build and leverage your reputation based on anything you choose to contribute” and in the RG profile the site encourages users to “boost your scores” or “boost your stats” by “adding more research” as well as to “stay up to date on your citations...follow your colleagues and competitors” (Researchgate, 2016). On the landing page of its website Academia.edu advertises itself as a means of increasing one's citations stating that, “a study recently published in PLOS ONE found that papers uploaded to Academia receive a 69% boost in citations over 5 years.” (Academia.edu, 2016). One colleague I met who had recently applied for promotion to full professor used Mendeley to illustrate that his publications had been translated into several languages, used as teaching materials, and cited by scholars in a variety of fields beyond his own.

New tools and metrics work on traditional concerns for reputation and prestige and can facilitate or augment information provided through traditional peer review by bringing new information to bear on how a scholar's work is unfolded. However, rankings and metrics also serve the business interests of publishers and they enroll academics into their surveillance systems by increasing visibility across locations and databases. Open access publishing has been regarded as a threat to the traditional publishing industry, and some scholars have regarded these academic social media as a means for businesses to advance their version of open access, rather than alternatives that would not generate revenue (Adema 2016).

Bourdieu (1980; see Grenfell, 2008) demonstrated that people hold and work with symbolic capital that can be converted into material resources and advantages, including money. Academics realize that to increase reputation they must make themselves traceable, countable, measurable, and do so in new ways. Academic interests thereby support more effective aggregation of data that can be monetized and sold back to universities to transform academic performance assessment and administrative decision making. Academic symbolic capital in the form of reputation that is acquired through producing publications and other work is thereby transformed into monetary capital for businesses. As academics use these tools in their work they also undertake important labour for publishing companies in exchange for the hope of reputation. This is not unusual for social media, for example, they have been shown to be a method for police to enroll people as resources in their investigation processes (Trottier, 2012). Social media business models are also largely based on selling user data and generating profit from advertising. I once logged onto Academia.edu and I noticed an asterisk beside the link to view my “readers”. When I clicked on that link I was presented with a page that told me 82 people had recently read my work. I was curious and so clicked on the “view your readers” button, which presented me with a popup window informing me I could upgrade my account for $129 CAD per year to see who has been looking at my work.

Many academics are aware of the fact that their salaries come from tax payer grants to their universities, that their research is supported by publicly funded research

grants, and that they then produce publications for publishers who then sell these back to them and their employers for handsome sums (Elliott and Hepting, 2015; Fuchs and Sandoval, 2013; Haman, 2013). In recent years the increasing profits of publishers through their journal sales has been recognized as a problem that is contributing to the increased operating costs; some universities are now reducing their library collections. For example, Harvard University, which is the wealthiest university in the world with an endowment growing beyond $43 billion USD, has stated that it can no longer afford to pay for journal subscriptions (Sample, 2012). Further, Elsevier has become one of the most profitable businesses in the world and in 2015 was recognized for achieving, “revenues of £2 billion and an operating profit margin of 34 per cent – almost four times the average profit margin of groups in the FTSE 100” (Smith, 2014; Cookson, 2015). As an indicator of the degree to which university and science metrics are big business, Thomson Reuters sold its Web of Science database and related intellectual property for $2.5 billion USD in the summer of 2016 (Bond, 2016). As academics are further enrolled to produce data and other products for publishers to sell, they contribute to increasing expenses at their own universities. I have made no attempt to examine the degree to which university budgets are affected by publisher's business practices, or how unpaid academic work contributes to these, but there is sufficient evidence that further inquiry is worthwhile.

In continuing to adopt such measures academic administrators become more tightly coupled. They are likely to become a system of their own domination. Business

schools that have adopted lists of top tier journals wherein professors must publish to acquire merit, tenure and promotion are an example. While some of these journals are owned and operated by professional associations many are owned by the large publishing companies and the metrics that—in part—give them their prestige are also owned by the publishers. Professors who refuse to publish in such venues for political reasons or because their interests do not align with the journals will have a more difficult time maintaining their careers. Universities and professors who emphasize the techniques of assessment I have articulated illustrate a situation reminiscent of Foucault's panoptic machine. As he said, “we are neither in the amphitheatre, nor on the stage, but in the panoptic machine, invested by its effects of power, which we bring to ourselves since we are part of its mechanism.“ (Foucault, 1977:217). The emphasis here is on how we tie ourselves into power relations based on our own interests and motivations. Rather than being stuck within a specific structure or space that makes us visible, reflect upon ourselves, and perform in specific ways—as with the disciplinary panopticon of the prison—as academics we constitute our own relations of visibility, legibility, and knowledge with the discursive and material resources available as we pursue our interests. We freely and creatively pursue our interests, even as we are increasingly regulated in subtle ways.

Scholars have debated the utility of the panopticon for conceptualizing surveillance and its putative disciplinary effects (Haggerty, 2006). Surveillance is not merely disciplinary, but involves many dimensions and attributes (Ellerbrok, 2010;

Haggerty and Tokar, 2012; Trottier, 2013). Importantly, the panoptic machine articulated by Foucault (1975) cannot be reduced to Bentham's disciplinary prison, it incorporates visibility as a means to work with the effects of power and are invested in them. Such investments are unlikely to be merely disciplinary given that people who live freely beyond prison walls do so in a system of intersecting institutions each with unique discursive resources and have many possibilities for engaging with surveillance in creative ways.

There is nothing unusual about the fact that people are engaged with and tracked through all sorts of surveillance. It is increasingly common for people and their work to be represented through digital impulses and transported to distant locations for purposes we cannot know. Our digital doubles may have unknown consequences for our individual and collective lives (Haggerty and Ericson, 2000). What I have observed with the metrics and markers described above is that these are not merely tools for surveillance of individuals by others, but are also forms of self-surveillance. Our digital doubles are brought back to us in the image of numbers. Rather than seeing ourselves in a mirror, or through interactions with other humans, we see our numerical selves which are a part of a system of administration interested in improving the numbers. We become concerned with grooming our digital doubles through our day-to-day work in order to present our numerical selves in a more favorable manner. Importantly, this positions humans in a post-social relation (Knorr-Cetina, 1997; Knorr-Cetina and Bruegger, 2000; Knorr-Cetina and Bruegger, 2004) with themselves and others. As I have described earlier, in such

relations intermediaries are matters of greater interest than the human to which they refer. Digital doubles may also be regarded as more credible, while their human referent would prefer to tell alternatives stories of themselves (Bauman and Lyon, 2013). Direct interactions may be rare or entirely unnecessary. The numbers become objects of attachment, but also of one's position in relation to others' status as scholars so that a constant comparison to past numbers and those of peers is possible.

I have illustrated some of the numbers that represent my digital double in Table 2. Importantly my numbers mean nothing alone in a table. What is a Researchgate impact of 8.37? Or seven profile views in 60 days? To understand the numbers I must seek out my colleagues' scores, because these numbers mean nothing without a point of reference. The numbers mark, measure, allow comparisons to be made, and encourage work to make improvements. Personal judgment derives from engaging either with others, or tools that stand in the place of more traditional human interaction. As we engage with numbers we interpret ourselves and others through their lens and this shapes subjectivity (Lupton, 2016).

In order to groom my digital double I can upload my work to Researchgate and engage with scholarly audiences to increase my visibility. I can receive updates when I have been cited, when colleagues have been cited, when they have uploaded new work, or request feedback on my work if they have cited me. I can add digital identifiers such as ORCID to each publication to facilitate publishers tracking my work and cultivate citations by making it easier for colleagues to find. In order to delve deeper into my

metrics and the relations they involve with colleagues who are watching my work, I will also have to pay for additional access. Ranking organizations and universities also now hold workshops to inform faculty and students about bibliometrics and related tools in order to support such digital grooming. None of this work guarantees my numbers will improve, people may still never read or cite my work and other people's numbers may improve more rapidly or to a greater degree, making my improvements relatively unimpressive. My digital double is the image that others will see and interact with through my profile or in reports to administrators within universities interested in my performance.

Table 4: Gary RS Barron in Numbers in the Year 2016

Numerical Represetation	Measure or Identifier
Academia.edu Profile Views (60 days)	7
Academia.edu Document Views (60 days)	19
Academia.edu Unique Visitors (60 days)	20
Google Scholar Citations	8
Google Scholar h-index Since 2011	3
ORCID	0000-0002-2247-7745
Researchgate score	8.37
Researchgate reads	966
Researchgate citations	9
Researchgate reach	622

Such visibility facilitates administrative oversight, but also concern for the management of oneself as a numbered subject. Subjectivity and administrative oversight

are often integrated as effects of these systems, a news report from the well known science journal Nature is illustrative:

> After Zen Faulkes published his latest paper on sand crabs, he spent half a day updating his many Internet profiles to display the information. There was his personal website; Academia.edu; Researchgate; Mendeley; ImpactStory; his page on the website of his institution, the University of Texas-Pan American in Edinburg; his profile with the Open Researcher and Contributor ID (ORCID) project; and Google Scholar. "It is useful to have a presence on all of them," he says. Perhaps wisely, administration at some institutions have decided that few researchers can be trusted to be as assiduous as Faulkes in updating their profiles…institutions are creating their own networks of automatically updated faculty-member profiles, using commercial tools such as Elsevier's Pure Experts Portal, Thomson Reuters' Converis and Wiley's Knode, as well as open-source profile-building software such as Harvard Catalyst Profiles…
>
> (Van Noorden, 2014)

The profile integration systems seem to proliferate and connect into one another to no end, though the technologies still have limitations, the article continues:

> These 'top-down' profile networks do not completely solve the updating problem, because they do not push each new profile change to Researchgate, Academia.edu, and the rest. But advocates see them as an important step forward, both because the information they contain is reliably up to date – often

> fed directly from an institution's human-resources department – and because they structure their information in similar standardized, machine-readable formats (Van Noorden, 2014).

The example demonstrates administrative and individual academic interest and coordination through automation. While there are limitations, the systems are being designed to integrate with others, and push individual and collective data out into other systems that have global reach. Management of individual and collective identity is a matter of constantly seeking, updating, cleaning, and presenting data in ways to ensure one's image is well groomed and put on display.

In Greek mythology Narcissus saw an image of himself in a pool and fell in love so intensely with it that he lost interest in life and died. Today scholars can see themselves in numbers and are motivated—through administrative requirements or personal desire for increased reputation—to improve them. Narcissus lost touch with the fact that what he saw was merely an image. The risk of obsession with one's own post-social subject is to lose sight of the image for what it is—a numerical representation of one's work—and to thereby allow the numbers to replace personal judgment and direct engagement with colleagues to deliberate on the quality and value of academic work. The technologies are designed based on psychological insights to reward and encourage ongoing interaction, creating anxiety when one does not engage.

Generating profit from luring people's focus online has been referred to as "the attention economy" (Bosker, 2016). The attention economy is an important mechanism of

control. Unlike discipline—which emphasized authority exterior to its subjects to enforce a reflective self-governance—control is motivated by "...mechanisms and circuits of desire, which are actualized by systems of advertising, marketing and self-actualization." (Walters, 2006:190). The complex relations between external motivators and interior interests are blurred in control, these are embedded in the seductions and coercions of extralocally mediated relations. What I have illustrated in the chapters to this point are the interests and values of academics, how these relate to rankings and practices of judgment and promotion. These interests and values are held not only by individuals, but also by groups, are embedded within institutional texts, infrastructure, and data that link local sites into broader systems of control. Effects are dispersed across these networked relations in local and extralocal judgment through data flows in digital tools and databases, but also in face-to-face committee meetings, reporting templates, and budget decisions. Rather than being confined to specific sites, I have shown how controlling relations are diffuse across many spaces and take many forms "...open networks of power which operate through variable combinations and productions of desire, lifestyle, anxiety, and fear, and which have the market as their paradigm." (Walters, 2006:191). Further, "control societies implicate their constituent institutions and subjects in regimes of modulation and feedback. All fixed standards and norms are made to float." the state is one of constant reporting, flows of information, and comparison. This is what Savage (2013) means that data have a "lively form which exceeds the straitjacket imposed by positivist statistical procedures" (p.6), the meaning and effects of data cannot be taken for

granted.

Where discipline emphasizes the normalization of whole individuals, control emphasizes the *dividual* a subject that is, "partial, fragmented and incomplete" (Walters, 2006:191-192). Selective accountability (Espeland and Sauder, 2016) is fitting for dividuals, given emphasis of these concepts on the incomplete and partial forms to which they refer. My analysis further speaks to Espeland and Sauder's (2016) characterization of rankings as "engines of anxiety", as the network of relations between universities, professors, and students, are shifted to become increasingly uncertain, fast paced, and subject to further alteration in ways they cannot know because judgment is diffused across so many sites and technologies. Personal and collective data work, the creation and linking of infrastructure, and the methods used in these affect the vitality of data and their effects as they circulate. Importantly, control "constitutes privileged populations who enjoy the rewards of credit, mobility, and information. But at the same time it filters out, and constitutes a risky, excluded remainder." (Walters, 2006:192). Such privileges are evident in rankings and metrics which convey reputation and status on those who measure well and thereby provide access to the related rewards.

Chapter Summary

In Chapter 2 and 3 I conveyed values and interests in academic traditions of peer review and assessment that emphasized characteristics of academic freedom and examining the corpus of an individual's work in a pragmatic fairness. Where metrics and rankings

entered into these judgments with greater intensity—such as with the business school point system—the emphasis became more focused on specific aspects of an individual or group's work. In this chapter I described the nexus of individual data work on digital doubles, infrastructure, and tools that facilitate such work as well as how these may become integrated with the global ranking and metric assemblage. To expand upon this initial analysis future research should interview individual scholars and students regarding how their work involves data pertaining to themselves in digital presentations of the self. Future research should also follow traces of those data to other locales to examine how they are further worked upon and the work that they do in turn.

In Chapter 5 I delve into the infrastructure and data work by which academia is translated into databases, marketing materials, and rankings. In doing so I turn my attention toward university institutional analysts who do much of the work translating the university into different forms. Work with infrastructure and data further shows how the university is coordinated by metrics and rankings as well as how it becomes bound to these technologies and their interests across time and space. I also demonstrate further limitations of ranking influence in how locally developed infrastructure allows ongoing translations and interpretations of data, whereas ranking standards limit their local utility.

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Chapter 5: Infrastructure and Data Work

“When classification systems and standards acquire inertia because they are part of invisible infrastructure, the public is de facto excluded from policy participation.”

Geoffrey C. Bowker and Susan L. Star, *Sorting Things Out*, p. 324

“For those who labor long and hard to craft good and just standards, as well as for those who have suffered from their absence. On the one hand, the fight against the tyranny of structurelessness. On the other, the fallacy of one size fits all.”

Martha Lampland and Susan Leigh Star, *Standards and Their Stories*, p.v

The year I did my dissertation research at the University of Alberta it had 12 collective agreements, 27 types of employees, 13 further classifications within those types and a total of 15,000 staff. As Director of Human Resources, it was Wayne Patterson's job to report on this information. Early in his time at the University of Alberta, if the provost requested reports on staff, Wayne would have to manually search for the data and create his own visualizations. The work involved making queries in Excel, and manually organizing graphs and tables. Once the report was completed, if the provost became curious about the gender composition of all of the employees at the university, but it wasn't in Wayne's table he had to do another query and manually reorganize and reformat it. At the time of our interview such work was no longer necessary. All of the categories

of employees had been clearly defined and ordered in a taxonomy to include them in the new data warehouse. With a few clicks Wayne could see all of the employee data and visualize them in moments. If he needed to add gender to a table or graph, a click on his computer screen, drag, and drop created the visualization of his choice. The work to hunt, gather, and prepare his data had been done for him and he only needed to place an order to have it served up to him as he liked it. Yet behind the interface of the data warehouse that Wayne saw on his screen were people working independently and on committees to create standards and processes to translate data from many sources so that they would all fit together to be summoned by people like him.

While the data warehouse provided a flexible and seemingly responsive system, it also had limitations. At the time of my interviews the data warehouse was still under construction, only data regarding students and staff were available. The plan was to integrate all sorts of data from sources across the university and potentially have these hook into external systems to track research productivity. Because the warehouse was the product of data and infrastructure work conducted across the university, all sorts of standards were developed—some of which I will describe shortly. Standards involve decisions about what information to include or exclude, not unlike those that are made in creating rankings and other metrics. Also like metrics produced by organizations beyond the University of Alberta's purview, locally produced data raise questions, concerns, and lead to more interest in new kinds of data, or reverse engineering those that exist. Due to the timing of my research, I was unable to investigate this aspect of the data warehouse.

However, I was able to illustrate similar infrastructure and data work through interviews with institutional analysis and research support staff who had their own data tracking systems that they wished could be incorporated with, or replaced by systems like the data warehouse.

In chapter three and four I described publishers' databases, journal lists, and related devices that are all part of a vast information infrastructure that produce rankings and enroll academics and administrators into constant comparison and improvement. Here I focus more on the work required to produce information infrastructure that is removed from direct academic and institutional assessment, but is intimately connected to the production of rankings, metrics, and other assessments that come to bear on universities. As infrastructure is heavily dependent on standards, many themes common to other research on standardization are evident here, including that they are integrated and layered, are relative to communities, and incorporate values, ethics and concerns (Lampland and Star, 2009). The point being that decisions and interests at many local sites within universities, at ranking organizations, and publishing businesses get incorporated into the data as they are produced, reported, and eventually transformed into public tables and measures. Rankings are an assemblage of global relations that are made possible through infrastructure and data work based on the values and interests at those local sites of production. They then return to these sites and chafe with the values and interests that partially made them possible. Such chaffing contrasts with examples I provide of data work and infrastructure for local reporting purposes, because in most of

the instances I encountered the reporting rules, standards, and conversations with colleagues related to them allow numbers to be disassembled and negotiated. Numbers made in the rankings assemblage cannot be undone. This is not to say that local conflicts about data do not exist—I have illustrated some examples in the previous chapters—merely that the relations, consequence, and strategies for managing them are different.

"Infrastructural work" consists of the cultures, practices, and processes of assembling the means to align disparate and distant components (e.g., standards, classifications, databases, academic units, workers) to support the flow of information, the structuring of knowledge, the purposes of which may change as they do. The notion of "data work" is intended to capture the concepts, strategies, and practices of producing, seeking, making sense of, and reporting data. Data work also indicates that data themselves do work, in orienting people's attention, informing on quality, identifying problems and implicating their solutions. Infrastructural work and data work are not mutually exclusive as they are co-produced in reference to one another in chains of mediated action. Data work and infrastructural work facilitate global assemblages of control and diffuse judgment, though local workers may not be aware of those effects as they are typically distant in time and space.

Without infrastructural knowledge it may not be possible to effectively interpret or work with data. This is illustrated in differences between how university staff produce infrastructure as compared to work with rankings data-infrastructure which is opaque and privately held. Much infrastructural and data work within the universities I studied is also

reflective of the academic cultural concerns and values related to supporting diversity and pragmatically fair assessments. That is, it supports opportunities to question how the data were made as well as to contextualize them, whereas rankings and citations do not. Infrastructure and data work are illustrative of reactivity (Espeland and Sauder, 2016) in that they make metrics and rankings real in their effects as they become embedded in day-to-day practices.

I begin by describing how administrators, institutional analysts, and other staff have traditionally shared information and worked to create data. I demonstrate how changes in technology have changed data work over time. Next, I describe how university employees respond to requests for information from rankings organizations by describing reputation surveys and templates used to report such data. All of what I describe are important pieces of information infrastructure that support ranking production, but also makes them salient. As I proceed with my discussion I describe how rankings homogenize, standardize, and transform universities into “world class” entities while truncating locally meaningful and relevant information.

Institutional Analysis and Data Work

Universities and the people within them generate large volumes of data and these are collected, worked upon and reported for many purposes. Institutional analysts and research facilitators are employed by deans and central administration to work with data to understand academic performance and support decisions. Data work varies in the

degree to which it requires human effort and this largely depends on available resources to hire staff, purchase ready-made software, or build customized technological solutions. Asking staff about how they do their work, how they know what matters, where to find information, the tools they work with, what data matters and why, provides insights into how information flows into and out of universities to publishing and rankings businesses and back again. Such work illustrates how mediated relations involve work in presentation of the self. Analysts' work with data also illustrates how locally contextualized and meaningful information is reduced into standardized forms, made transportable, and comparable. Where this infrastructure is adapted or built to respond to rankings and related indicators, work within universities incorporates their logics, orienting future work.

Building Data Solutions

Because annual review templates contain so much information regarding each professor's activities they can be valuable for administrators to clarify what is happening in the organizational units they oversee. Without automated and digitized reporting processes, people must extract information from templates and place them into a system that allows aggregation so that an overall image of the unit can be made. In the faculty of Education at University of Alberta, it was Arthur's job to use the old templates and create a database to generate reports, "15 years ago they needed a mechanism to accumulate all of the information that people were already entering on their annual reports. We built a

system that was fairly specific for what they asked at that time, which was a way for people to enter the standard report that they were already filling in, but put that into a database." His work began with, "a Word document that they used to share around. It was basically just headers and titles and they filled it out and copied sections that they wanted to repeat [and I] designed a system that mimicked it in some respects." The system allows professors to enter their reports, review them with department chairs and then finalize the report. Once the report is finalized it is locked and the department chair can view all of the reports to prepare for FEC or to pull statistics on department activities.

Once a database has been created it poses new problems and questions. When pulling statistics from the database Arthur had to work to disambiguate publication titles, professor names, and ensure grants with multiple applicants were not double counted. Yet these problems were not insurmountable because Arthur had intimate knowledge of the faculty and could clarify ambiguities with administrators or professors, "It's been identified that's a shortcoming, but it's one of those things where, is it worth doing the work to make it all...to rationalize the database when we already know what the issues are. It's sort of easy for somebody to just go in and say, well we have a double report here and we'll just drop our numbers down by one, [that] kind of thing." Data management and cleaning are not the only problems that arise once a database is in place, function creep (Ball, 2010), the phenomenon where a system created for one purpose becomes used for other purposes once it is in place, is also a concern.

Five years prior to my meeting with Arthur, the faculty of Education was

undergoing accreditation and this required them to report information on specific academic activities, most of which was stored in Arthur's database. Using the database to facilitate scrutiny by outside organizations was not an easy sell, Arthur explained:

> One of the issues has always been the pretext under which the information in the annual reports was collected, and because it was collected specifically for the purposes of the annual reports and their evaluation process. Because it was collected for that purpose they are very reluctant to use that information for any other purpose, people might change what they're going to enter depending on which, what the final purpose of the information is.

He further clarified that what people enter for FEC as compared to accreditation may vary by stage of career and activities they would prefer to highlight to different audiences "Maybe somebody would want to report a $500 grant and somebody [else] might say, meh, I don't care because I have a $500,000 grant that I want people to look at and notice." Such concern with how one can present oneself to different audiences is much like how people typically concern themselves with face-to-face interactions with different people, though mediated through the database. For example, Goffman (1959; 1969; 1986) has described how during face-to-face interactions people will perform differently depending on the person they are facing, props they have on hand, and how the others present themselves. In doing so people leave some aspects of their personality, emotions, and thoughts unseen. Understanding between the two parties and their identities is performed through the interactions that occur between them. In this instance the

professors would be represented to the accreditors by the database without any face-to-face interaction whereby they could co-create understanding by strategically presenting their work. The database does not afford strategic opportunities to present oneself. Taken from one context and used for another, the front-stage/back-stage dynamic of face-to-face interaction collapses; and everything is brought to the fore with the exception of what was left out when the database was created.

To solve this problem, Arthur built a parallel system and migrated all of the information from the original database to the new one. Professors were then allowed to sift through the accreditation specific database with full knowledge of its purpose. By creating this second database and allowing the professors to work upon it, Arthur also built a backstage for the mediated professor-accreditor interaction. Extralocal objectified information such as those created by rankings provide no means for negotiated interaction. Universities must submit according to the standards that are requested. Universities that choose not to submit are not visible and must suffer the consequences. Personal and collective representation is on terms determined by distant others. The rankings then mediate the relationship between those subject to them and whatever audiences take them up.

Putting information into context was also a massive undertaking for staff at the University of Alberta who built its institutional data warehouse. The data warehouse was designed to reduce the workload of people like Arthur, deans, and department chairs, or at least simplify it by creating a comprehensive information source with a user friendly

interface. Because the data warehouse would contain so much information on each student, professor, staff member, and administrator at the university, it took years of work to get representatives from across campus to agree on the standards and purposes for the data, as well as definitions that would give them meaning. I was unable to observe these negotiations, but spoke with several individuals who were involved and they shared examples about debates on how to calculate numbers of staff and students, as well as the creation of business rules that would facilitate the ability to reverse engineer numbers.

Having effective data is necessary to performing the university's identity to its audiences. Without a working information system there are no data to share with ranking organizations or accreditation bodies. The data warehouse was developed to be the ultimate source of rationalized data across the University of Alberta. Before creating Acorn the University of Alberta had explored several off-the-shelf products, but none could accommodate local interests and categories. They decided to build their own solution. With the new data warehouse, institutional analysts, deans, department chairs and other employees would no longer have to hunt, gather, and prepare their own data. Instead, they would merely have to login to an online system and make requests to suit their needs. Importantly, the infrastructure was assembled in such a way that any number could easily be traced back to through the steps taken to make it to its sources. The numbers were designed to be reversible. Creating business rules for reporting and data management recognizes that issues with data arise, and analysts talk of their work managing data illustrates some of these complications—like Arthur’s work to clarify how

multiple names on a grant should be categorized, or having to create an alternative system for a new reporting requirement.

The Data Warehouse

Once a database has been created its standards pose problems, but people also begin to ask new questions of the data and try to use it for new purposes. This trend is what gave the University of Alberta data warehouse its name, Acorn. I had presumed that Acorn was an acronym, but Michelle—a research systems analyst and the architect of the data warehouse—informed me that: “It's just the little seed that grows.” The name recognizes that new data lead to the creation of more data and inevitably links into other data systems. Dale, another analyst who had worked on the data warehouse and used it regularly explained that, “it's like research questions in general. Once a certain research question has been asked, and reasonably satisfactorily answered, it leads to new questions. And so you go down that path. But if there's just a blockage, like there really is no information...then it doesn't get there. But once there is, nothing succeeds like success...you try to incorporate most of the routine-ish answers into there but you know, people will always ask a new question.” The existing data and infrastructure are limited in responding to creative questions that are asked of it. Much like when rankings appear each year and administrators seek out information to understand how and why their institutions have placed as they did, other types of information pique curiosity, generate questions, and prompt a search for answers. And so it was this constant questioning and

search for useful information that led to the data warehouse being proposed as a solution. But building a customized solution is expensive. It requires the political work of getting affected parties to have interest in the project, negotiation to create standards and of course, time, money, and human technical skill.

Figure 8 illustrates an overview of the processes that make up Acorn. In the column to the left are information producers and data sources which through enterprise information management—the four columns in the center—are turned into business intelligence and reports for consumers, the last two columns on the right. Missing from the consumers column are ranking organizations, which may have been folded into the box representing the “public”. Below the columns are the foundation that uphold Acorn as a useful source of information: metadata management, data quality management, and data governance. Moving from the left of Figure 8 to the right are processes of standardization and translation which transform raw data into actionable business intelligence. Official data, measures, and statistics used to report to accreditation and rankings agencies are constructed through these processes, the inter-subjectively negotiated standards, business rules, and categories are incorporated along the way and transported elsewhere. Subjectivity is displaced into other forms and locations (Porter, 1995). These are the mechanisms by which personal and local presence, experience, and work are translated into extralocal information for multiple purposes. All the little judgments along the way are now diffused into new forms and locations, doing their own work as they move out into the world.

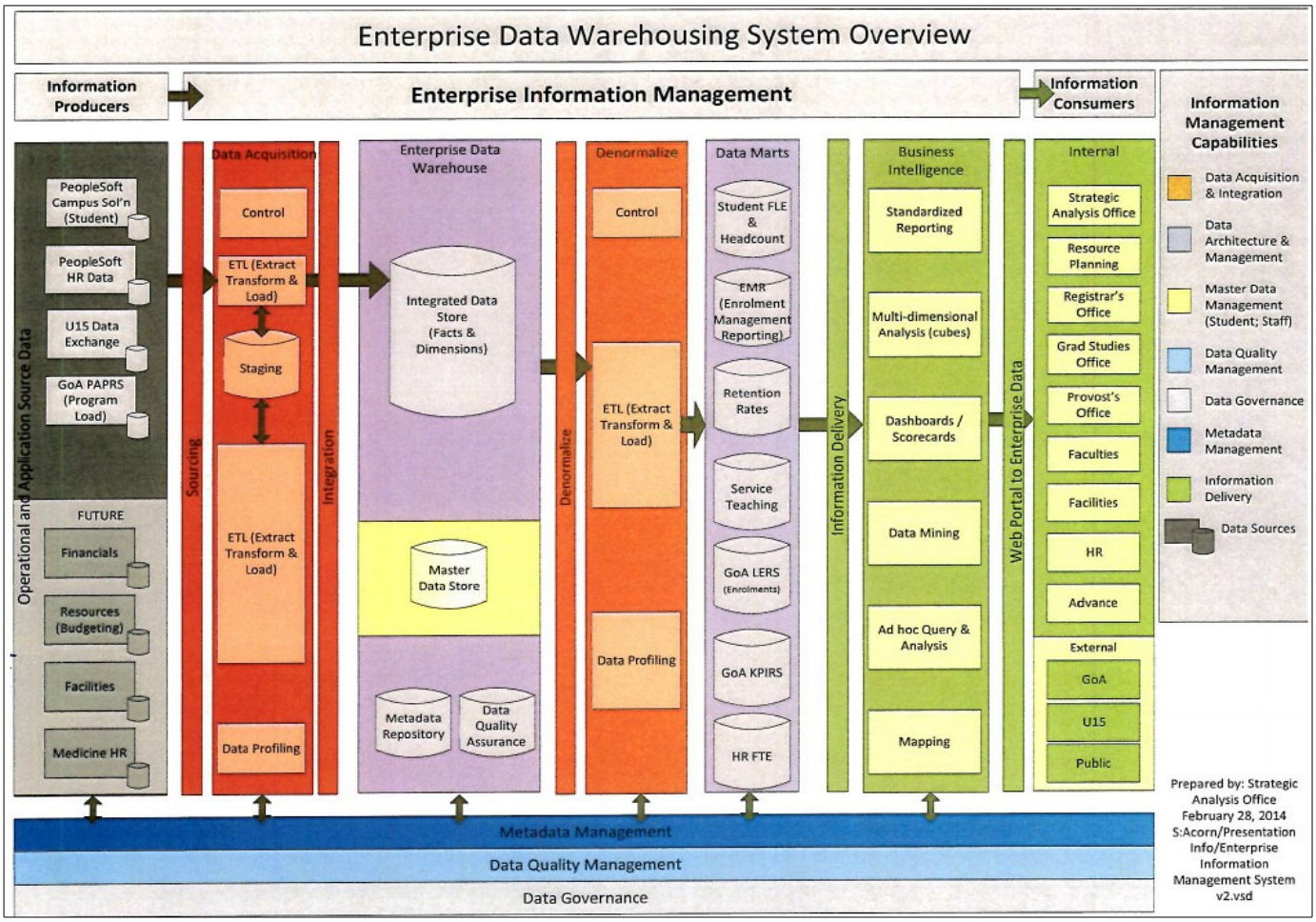
The Acorn data sources include Peoplesoft, which is an Enterprise Resource Planning solution (ERP), that allows organizations to integrate, manage, and automate multiple functions such as human resources, payroll, and enrollments. When a staff member is hired or student is registered at the university they are assigned a number and their personal information is incorporated into the ERP which allows changes in that information to be tracked over time. One version of Peoplesoft was used for staff and another for students. Several analysts at different institutions explained to me that these ERP systems are designed for data input, but not for effective extraction. Other data sources such as those supplied through the U15[17] data exchange also feed into Acorn. Figure 10 illustrates that in the future more sources will be incorporated into the system. One future data source that will likely be incorporated into Acorn are research metrics, such as citations.

Dale explained that one problem with trying to incorporate such data from products like Thomson Reuter's Incites is faculty names, "...names of course are a horror story. They do have the capacity to have unique identifiers for faculty around the world kind of thing. But the faculty have to set that up...you can't push them too hard to do certain things. You just can't say you have to do this. But generally, they're very reasonable people and you could explain the purpose of why it's a good thing to do." Dale was explaining that disambiguating names to ensure that you do not have duplicates was a nightmare and that there are tools that assign people unique identifiers—like ORCID—

[17] The U15 is a group of Canadian research intensive universities that are formally associated for promotional and policy purposes.

and these can be useful, but faculty would have to be persuaded to enroll in those systems. Despite these potential problems, incorporating such information was regarded

Figure 8: University of Alberta Data Warehouse Overview



Source: University of Alberta, 2015

as an important future function, “Because that's half the business of the university.” Interest in such data was widespread among staff and administrators with whom I spoke. The research facilitator group that I met with would regularly hold meetings specifically

on how to acquire useful research metrics. Yet the limitations of any single ready-made product typically led to the conclusion that it was better to just assemble bits of information from multiple sources.

I spoke with Dale about his team's search for a way to incorporate all of the data sources that they had into one system that would also facilitate data extraction. He explained that they had looked at several off-the-shelf products, but none provided the functionality they required because, “you have compromises that this [the off-the-shelf solution] is a general product that is supposed to answer the needs of all kinds of people, not specifically your needs.” These pre-made solutions were also considered to be more expensive than assembling an internal team to develop Acorn. So a committee made up of representation from across the University of Alberta, largely directors, associate vice-presidents, and technical staff decided to build Acorn.

One compromise in developing their own solution was the time related to recruiting expertise and engaging with people across campus to understand local needs and definitions. Dale explained, “...there are different subject matter experts all along the line...they're not coders but they know the business stuff, they enter data, they know the principles behind it and then you get coders who kind of know the business stuff well enough...and people that use the systems to report for a long time and sort of abstracted how it all must fit together. So between all those parties, we've had lots of meetings, and so in the building of a data warehouse, you need input from all those levels.” By bringing together people from across campus who had locally useful knowledge of how their parts

of the university work, the customized data solution was made useful and relevant. Michelle explained that, “It’s a never ending job...there’s already a wish list. They already want more stuff because they want to be able to calculate stuff that used to take them hours and days to do every year...we are now streamlining things for them so they can pull up the report.” This is in sharp contrast to what administrators and staff had told me about external rankings which did not provide locally meaningful information and which required further information to be understood.

However, the aim of the data warehouse is very much similar to the ostensible ease and utility of rankings and tools like SciVal, to offer analytical and strategic information that is rapidly consumable. Michelle said, “...that is the purpose of the data warehouse...and that’s what we’re also trying to do with this whole graphical thing, so at one glance, ‘oh, that’s the trend’.” Off the shelf data warehouse products, rankings, and SciVal, offer information about trends that can be understood at a glance, but the information is often not meaningful for strategic decisions because categories don’t match with local organization and they are missing context that helps with comparisons, “...the advantage for the deans is everybody’s got the same business rules… Because we’ve defined the business rules and everything behind it, if they want to question, we can tell them what we did.” She noted that the provost had also begun to ask people if they had acquired their data for reports from Acorn, it was becoming the authoritative source for information. When I spoke with someone from the Registrar’s Office she said, “…they pull everything out of Acorn, it is the single source of truth.”

Business rules were developed to ensure anyone could trace back how data in reports were assembled. Because there were multiple sources from across campus and each academic unit had different categories of staff, Acorn needed clear definitions and processes to translate these categories into a form that could be made comparable on an aggregate level. Definitions of full-time equivalence (FTE) and medical staff are examples of complicated categories that needed to be better understood and standardized. As Dale said, “We discussed for a while what the difference between a FTE, full-time equivalent staff member and a head count, but nobody...is there a threshold, someone's FTE is point zero two...should they be included in a head count when you report to the community? Because if you added up everyone over here and all those little bits, it could come out to some number that's really not representative.” The problem Dale articulates here is one of how to count the total number of staff on campus. A head count of the number of people employed would give one total, but the sum of Full Time Equivalent Employees (FTEs) would give another. For example, imagine that the University of Alberta had only 10 employees, that number would be the same as the total head count. But if 5 employees were FTE 1.0, two were 0.2, and three were 0.5 the FTE sum would be 6.9 FTE. The FTE gives a more specific representation of how many employees spend their time working on campus, but not the total number of employees.

Similarly, staff in the faculty of Medicine posed problems because they had so many different types of classifications including clinical, research, and teaching staff. Some were employed and paid by Alberta Health Services, others were employed on

contracts, and some were permanent. Diversity made standardizing medical faculty and staff into a form comparable with faculty in other academic units very complicated. Working through such difficulties is important for getting useful and comparable information. Michelle had explained that they were developing categories in the student data source so they could be compared with the faculty source, because student to faculty ratios are a useful comparison. The problem was that the categories for student affiliations with a faculty, such as medicine, needed to be standardized. All of these considerations and decisions affect the final numbers that are eventually reported to ranking organizations who then combine these data with those from their citation and survey sources. Each university that reports data to rankings submits their data through a standard template, but how the calculations are made to submit the data differ across institutions. Infrastructure and data work in local sites across the globe have unknown effects on the position of each university that is subject to the rankings.

At the University of Alberta they were concerned that there be clarity as to how data were made and translated so that it would be transparent and confusion related to particular numbers could be eliminated. Such clarity was also important because the data might be audited by the government, an accreditor, or another interested party. What makes the data traceable and reversible are the business rules standards, definitions, and processes. Traceability was also important to ensure—in the case of the U15 data exchange—that everyone is reporting information in the same way, but so each partner university is accountable to the other and any of them can effectively audit one another's

data. Business rules make each faculty and academic unit comparable, but they also allow such comparability to be undone so that users can go back to the original categories and definitions to verify and understand the situation. Rather than the opaque information that comes to administrators from external rankings, this infrastructure and data are workable, usable and meaningful. They are built to represent academic units on negotiated terms—though due to the limitations of my interviews and observations I cannot say what compromises were made—and in instances where a number appears unusual it can be verified and changed if necessary. As Karpik (2010) has noted, commensuration is not a threat to incommensurable qualities if it is pluralistic and reversible. Acorn was designed with the intention of being able to undo equivalences in order to trace their origins and context.

Acorn's business rules and standards were designed to facilitate comparability, but also common understanding for administrators and other staff when they held meetings. As people's curiosity sparked interest in new questions, Acorn would be able to provide answers—it was becoming “the single source of truth”. Acorn users like Wayne or staff in the registrar’s office could readily pull reports, alter them if the request changed, or trace back the data to its sources. Where new questions and data were needed, there were plans to incorporate those as well. While the data warehouse was not running at full capacity when I was doing my interviews, the work that it would do in producing comparisons and counts would also support reporting to ranking organizations, which was already possible, but now the data and counts would be—in Arthur's terms—

more rationalized. Acorn not only holds data, but the data and visualizations do work to shape how actors understand, work upon, and perform the university. Rather than spending hours or days to produce reports and understand a situation or trend, at least some matters could now be known “at a glance”. Acorn can now also supply responses to requests from rankings organizations, which enforce their own standards upon the field of higher education. Rankings require that local actors submit data to extralocal reporting requirements that transform meanings and truncate context. When rankings and related metrics come back to local sites they may shift the relations that previously contributed to their assemblage.

Reporting to Ranking Organizations

Rankings are built using Elsevier's Scopus, Thomson Reuter's Web of Science, and data supplied by individual academics and universities through reputation surveys and direct requests. To better understand how reputation surveys worked I interviewed a senior scholar while he was filling in the survey, asked others who had responded to such surveys about their experiences, and was also able to respond to these surveys myself on several occasions. I was able to complete the QS survey because I had been invited to do so on behalf of a university after meeting their director of institutional analysis at a conference. After completing that first survey I received regular requests from QS to do so again. On each occasion I responded with different answers several times by reusing the same link that they had supplied me—there’s was no imposed limit that I observed.

Below I describe my conversation with one professor as he filled in the Times Higher Education Reputation survey and with an institutional analyst who responded to the THE's request for university-level data using their template and online form. These surveys strip away the context that facilitates scholarly judgments of quality. Academic fields can be quite large and professors may know their discipline, but their collegial networks are typically focused within specific areas of research. Unlike FEC where a template orients scholars to a body of work through negotiated cognitive contextualization (Lamont, 2010), reputation surveys position academics in front of a computer screen with an online form that asks them to report on the best departments and universities in the world. They have little other than their memories and the Internet as reference points to assess global fields and distant institutions.

The survey begins by requesting that respondents indicate the institution from which they received their highest degree, where they are currently employed, and their disciplinary area of expertise. It also asks for one institution with whom the respondent has recently collaborated and has the greatest knowledge. The survey then asks respondents to nominate the 10 best research and teaching universities in their subject area for their region. In our case the subject area was sociology and region was North America. It follows by asking for nominations of the best in the world without specifying a rank order. The respondent can click on a link to view a list of institutions for assistance or to check spelling, but the list is to be generated from memory. As a respondent types the name of a university the full name appears in the online form. There are also a

number of demographic questions and a final open response question asking for any general comments the respondent might have regarding the survey.

The respondent I observed listed seven universities as nominees for best in sociology in North America, seven for best teaching in North America, five for best research in the world, and seven for best teaching globally. When I inquired about his rationale for his choices for best research in North America he explained that he was aware that they all had good quantitative sociology programs and there were scholars there that do research which he follows. During the interview he tried to use his personal knowledge of research done by colleagues in his particular research area—not sociology as a discipline more broadly—as a reference point. He explained, “Part of my problem is I don't really think about universities, I think about people. You know, who is writing in my area and so on. I don't even know where some of them are, maybe some people are more conscious of that.” His response to my question jogged his memory and he added an additional university to his list of nine to make a total of 10. He had added the University of Minnesota because during our conversation he recalled a co-author of some scholars that he knew work there. He also explained that he included some in his list based on reputation because, “It's probably well deserved. Good reputation leads to people going there and being recruited, that would be Berkeley and Harvard, they do have good people. Chicago, in part reputation from the past—the Chicago School—I'm going way back, but I did check something out there recently. They had some big names. So I'm going part old reputation and current people.” So his choices were based on,

“People, programs, and reputation, which I think is justified.” The fact that past reputation enters into his judgment is illustrative of how rankings reproduce existing and past hierarchies. In many respects the logic of including universities that appear to be well-reputed because they consistently appear in reputation surveys makes sense, the survey is asking for information about reputation, and rankings are supposed to convey that.

In regard to best sociology research in the world he listed Harvard, Berkeley, Oxford and Cambridge and then began to have difficulty thinking of other universities. He said he listed Cambridge and Oxford just because he presumed they must be good based on their reputations and they came to mind quickly. While he paused to think, he also said that he could not even name a single Asian university and was guessing there were no top institutions in the global south because he couldn't recall seeing any in the rankings. Again he tried to think of institutions where he knew people, but didn't believe that knowing of one excellent scholar at a university meant that the discipline there was also strong. His attempts to muster personal knowledge of institutions on a global level simply did not succeed. He then added Michigan State to the list and ended his attempt noting that he could have included some of the others’ from his North American list and that he believed Europe must have some universities that he should include but, “I just don't know enough about Europe so I'm not willing to, personally, put them in there.” He decided to end his attempts to list more universities because he felt there might be European institutions that were more deserving than the ones he could name, “I guess I'm

taking the ranking really seriously and I'm also unwilling to toss in some names just because...I could put in Humboldt University in Berlin, I could put in Lancaster...there's all kinds of places I could put in because I know a person or I know a reputation, but I just don't know whether they are that good." He simply didn't feel that his knowledge of additional universities was sufficient to make any further nominations valid, though he did also mention that my presence may have made him more thoughtful than he would have been if he was doing the survey alone. His addition of the University of Minnesota in response to my questioning is certainly illustrative of how my presence affected his answers, if I had not been there he may have not made the addition.

In regard to teaching within North America and the world he nominated his own institution because he knew for certain that the scholars in his department were excellent teachers. Again his nominations were based on his personal knowledge, but also from what he had heard from some of his colleagues. He stopped making his list when he could not name any more institutions based on such knowledge. Upon completing the survey he reflected on the difficulty he had generating complete lists, "I realize I just don't have much to go on. You know, I've been around a long time and haven't spent all my life in Wetaskiwin or something, so there must be people less informed than me and I read on higher education." Despite having more than 30 years in academia, having traveled, and read widely on higher education he was surprised at his own lack of good knowledge on the quality of sociology research globally. His experience made him feel that, "this reputation stuff feels really shaky." He was concerned that others answering the

survey might be less thoughtful in their responses. Scholarly assessment, as I have argued, is highly situated, contextualized, negotiated and built upon orientation around evidence of a body of work. Here the scholar I interviewed was stripped of the context that has allowed him to make detailed assessments in the past, the only negotiation to be made is between him the computer screen, and the online form.

Other scholars I interviewed said they had similar experiences in terms of their inability to generate a list based on effective knowledge of the institutions they were asked to rank. For example, one dean who was previously the president of an American liberal arts college mentioned his experience with the US News and World Report reputation survey, “So every year, I was asked to rank all of the institutions in my category. You know, if I was at a private liberal arts college, I was asked to evaluate other private liberal arts colleges... And the level of ignorance that everyone brings, the level of ignorance and the level of prejudice that everyone brings to those reputation surveys are frightening, and yet they determine outcomes.” I asked him how many colleges he was asked to rank, “I would say over 60...I mean it's a different world, you know, given the scale of the United States. I mean, there are thousands of colleges and universities in the States, literally.” Another senior scholar I spoke with who had spent the last decade working in administration said, “I did this year, I did the QS rankings... The case was I was surprised how quickly it asked me to identify myself by discipline. So I thought I was doing an institutional response, because I have had such an in-and-out relationship with my discipline in the last decade and a half, I'm not sure how much I know.” He

decided not to respond to the survey at all, because he didn't believe it would be meaningful. These scholars were fully aware of the limitations of their knowledge and believed that despite their years of experience they were still ignorant in the face of a request to nominate 10 to 15 institutions as "the best" in the world.

Beyond reputation survey limitations as an assessment of a university's research or teaching excellence in a particular disciplinary area, it is also dissonant with academic traditions of peer review as I have described in Chapter Two. The scholar I interviewed struggled to use intimate knowledge for his assessment, but in the absence of such knowledge felt it would be inappropriate to add names to his lists. Rather than create an assessment based on an in-depth review of research and teaching at a university, he had to base his list on limited personal experience, knowledge of colleagues who he had worked with or whose research he had read, or word of mouth reputation from trusted others. His final reflection on the survey was that as a form of assessment the reputation survey was "shaky". I have also been informed that asking faculty members to indicate the teaching quality at other universities is nonsense, as even when they work as external departmental reviewers they are not asked to comment on teaching because it is understood as such a specific local knowledge.

Ranking organizations also request administrative data of the sort that Acorn was designed to standardize and report on. I was fortunate to connect with an institutional analyst named Deborah who regularly provides these reports to ranking organizations each year. She shared the template she used for the submission to the Times Higher

Education ranking, which I have illustrated in Table 6. The table required her to copy and paste data from her own database into the template, then copy and paste from the template into the THE ranking online form. The template asks her to provide her university's number of academic staff and students of different categories (international, research, undergraduate, graduate), number of degrees awarded (doctoral, undergraduate), overall institutional income, research income, and research income from industry.

Table 6: THE Institutional Data Submission Template

Section and THE Definition
Academic Staff This is the FTE number of staff that are employed for an academic post. Typically they will have a post such as: lecturer, reader, assistant/associate professor or professor. Notes: • This should include permanent staff and staff that are employed on a long-term contract basis. • This will NOT include: non-teaching ‘fellows’ (the term varies across countries), researchers (only doing research), post-doctoral researchers, research assistants, clinicians of all types (unless they also have an academic post), technicians and staff that support the general infrastructure of the institution or students (of all levels). • This will NOT include staff that hold an academic post but are no longer active (e.g. honorary posts or retired staff) or visiting staff.
Number of Academic Staff
operating only
Of which are international/overseas origin The FTE number of “academic staff” (see above) whose nationality is different from the country in which your institution is based. This will NOT include naturalized citizens.

Section and THE Definition
Research Staff This is the FTE number of people who are employed only to perform research. *Typically they will not have a permanent post at a university*; often they are contracted specifically for purposes of doing research or similar activity. Notes: • This will include researchers, research fellows and post-doctoral researchers.
Number of Research Only Staff
Students This is the FTE number of students of all programs that lead to a degree, certificate, institutional credit or other qualification. It will include students of all years of study. Notes: • Typically these will be undergraduate and postgraduate students who are studying for Higher Education programs such as Bachelors, Masters or Doctoral or other equivalent degrees or components of those programs. • It will include visiting/exchange students who are studying for programs that result in credits at your institution (i.e. incoming students). But it will not include exchange students who are currently studying at another institution (i.e. outgoing exchange students, who are not currently studying for credits at your institution) • It will NOT include students who are not currently active. • It will NOT include post-doctoral students.
Number of FLE students
Of which are intl/overseas origin The FTE number of “students” (see above) whose nationality is different from the country in which your institution is based. This will not include naturalized citizens.
Undergraduate - New Student Intake This is the FTE number of students entering the institution, or this level of education, for the first time during this year for a taught program that is the first significant stage of your institution’s academic program. Notes: • This will only include significant programs; typically they will be 3 or more years in length. • This will include students for Bachelors and other equivalent degrees • This is the equivalent to UNESCO ISCED-97 Level 5A. • This will include students who are entering the institution for the first time, and those who are entering this level of education for the first time (e.g. those students who are moving from a lower level of education to a bachelors degree) • This will include students studying for a Master’s or diplom (or other equivalent) program where

Section and THE Definition
the Bachelor's degree is included as part of the course and results in a single qualification. • This will NOT include students doing a master's degree or other post-graduate degree (except as part of a joint bachelor's program as listed above), PhD students, or students of programs for occupational skills • Note on double reporting: In the case that students studying a joint bachelor's/master's degree program that receive 2 qualifications (e.g. Bachelor's Degree AND a Master's degree) you should ONLY report the Bachelor's component and the Master's component should be ignored. In the case that a single qualification is awarded then this qualification should be reported even if it is a Master's degree. Remember that we are asking for the "a taught program that is the first significant stage of your institution's academic program".
Of which are international/overseas origin
Number of undergraduate degrees awarded (calendar year) This is number of degrees awarded during this year for a taught program that is the first significant stage of your institution's academic program.
Doctoral - New Student Intake The FTE number of Doctoral (PhD and equivalent) students admitted in this year. These programmes are devoted to advanced study and original research and will lead to an advanced research qualification. Notes: • • This will include advanced degrees that include a significant taught component such as a Medical Doctorate , Doctor of Law or Doctor of Engineering and equivalents. • This will NOT include Master's students (including research-based Master's degree or Master of Philosophy or other equivalent)
Number of Doctorates awarded This is number of advanced research degrees (PhD and equivalent) awarded during this year. Notes: • This will include advanced degrees that include a significant taught component such as a Medical Doctorate, Doctor of Law or Doctor of Engineering and other equivalents. • This will NOT include Master's degree (including research-based Master's degree or Master of Philosophy or other equivalent)
Institutional Income The overall income (in your pre-selected currency) of your institution during this year. Notes: • This should include all forms of income such as: general university funds, grant income, contract income, teaching income, donations, investments and commercialization. • This will include "Research income" (see below)
Research Income This is the amount of income (in your pre-selected currency) that your institution has acquired during this year specifically for purposes of conducting research. Notes:

Section and THE Definition
• These may be short-term contracts or longer-term research units. • It will NOT include general funding for your institution, income that is generated by your institution (e.g. donations, investments or commercialization) or teaching income. • This will include “Research income from industry and commerce” (see below)
Research income from industry and commerce This is the amount of research income you acquired from industry or other commercial entities. Notes: • It will NOT include general funding for your institution, income that is generated by your institution (e.g. donations, investments or commercialization), income from teaching or income generated from public sources (government and charities).

Just as Acorn required specific definitions to ensure consistency and comparability, the template also contains definitions to ensure that she understands how to make her counts for each category that she submits to the template. When I asked her where the definitions in the template come from she said, “The ranking agency develops them and then we apply them as best we can.” Acorn required that academic units at the University of Alberta transform their definitions and counts that fit its standards, and the THE definitions also standardize information that universities across the globe submit to the ranking. Because the ranking standards are not based on local knowledge, universities can only “apply them as best we can.” In doing so, local information and context are truncated or erased. Differences in how universities count and understand themselves are transformed and homogenized into the form that rankings require.

Deborah explained further, “So our U15 group would talk about it. Like, oh what are you doing for this one, what are you doing for that one? Because sometimes, their definitions...have to be translated to the Canadian context. And so we would talk

about that... So, for example, clinical [faculty] was one of the ones that was decided on. I think we put them on as point one of an FTE." An analyst from an institution in Ontario described similar problems with applying a standard definition to institutions across the globe, "If you decide to participate then you get a template that says we would like you to submit this data. So there are all kinds of things they ask for. And specific definitions are being laid out. And so we would just pull out that data based on the definition. And then again, there's some cases where we would make an additional call saying this indicator is incomparable across countries, so we are not going to submit." She told me that one category that it didn't make sense to enter was research funding because, "The way that they calculate research funding, for example, is so different from the way we consider research funding in Canada. That even if we put something in it's completely inaccurate, it would be based on a completely different definition. So it wouldn't be comparable...we might have good data, but it might not be comparable with other countries." Her institution's policy was to only submit data that were equivalent to what they provide in community reports and post to her institution's website. If she were to submit data according to a ranking organization's definition, the meaning of the information would be changed to a degree that it no longer would make any sense. So while standard definitions homogenize and make universities comparable, they also can completely transform the data to the point that they are meaningless. What deans, scholars and institutional analysts know is not what rankings and their consumers know, the process of submitting to rankings fundamentally changes what can be known. Scholars and analysts

understand such knowledge is “shaky” or “meaningless”.

Situated Knowledge, Active Subject

Acorn, the data warehouse, was made to be a point through which all academic units, communications, and promotion material must pass in order to be made into understandable and usable information. In doing so, Acorn created individual and collective identities. Infrastructure is reactive as it produces numbers referring to the university, but also changes iteratively as people work with and ask questions of the numbers. In order to count well in the rankings, universities must be willing and able to submit themselves to the ranking organization's definitions and standards. By refusing to submit data because of professional ethics or organizational traditions, a university risks ranking poorly. Infrastructure is created and adapted in response to rankings, ratings, and related practices and is a condition of possibility for ranking participation. In making infrastructure university analysts and staff make data, produce representations and interpretations of the university, and embed interests and ethical concerns into the infrastructure—the data simultaneously make up the university. Infrastructure is also important for how rankings and other measures subjectivize universities and their employees. As rankings and numbers come to them they shape interpretations of individual and collective identities and the definition of their situation.

Professors who meet at committees like FEC to evaluate others for tenure and promotion may be distant from the disciplines and individuals they judge. They engage in

dialogue with the template, department chair, and one another to close that distance. Reputation surveys are an example of how infrastructure can impose limitations on the conditions that support scholarly judgment. The senior scholars I interviewed who shared their experiences filling in reputation questionnaires felt that they were “shaky” at best, or based on ignorance. Rather than working with evidence of university quality and negotiating its meaning with colleagues, the respondent is positioned as an all knowing expert with universal knowledge of the field and its constituents. Despite years of experience the scholars I spoke with felt they were unable to generate adequate assessments because they could not summon personal experience with the departments and universities they were asked to assess. However, over the course of their careers they had regularly assessed other colleagues and departments through face-to-face meetings and heavily contextualized reports that provide a point of departure for debate and application of their expertise to the assessment.

This reinforces how personal judgment and sense making are developed through interaction with people and reference to institutionally accepted practices (Power, 2000; Lamont, 2010; Espeland and Sauder, 2016). Reputation surveys have no point of departure or context to determine “the best” so scholars who respond to them and take the survey seriously are likely to draw on personal experience in their own research areas and disciplines. Rankings conflict with academic traditions and expertise by positioning them into a visible, changing hierarchy; in making conditions that require constant questioning of their individual and collective self-knowledge, stripping the context that supports

professional judgment; and removing the possibility for intersubjectively determined definitions of the situation and self.

Disciplines are heterogeneous and this is why professorial tenure and promotion assessments are individualized—how academic work takes place, its temporality, its criteria for excellence, varies within a discipline as well as across disciplines. Lamont (2010) has described how assessments of excellence are determined as professors learn criteria across disciplines and debate individual candidates in relation to one another. While there was horse trading, deference to status, and other compromises, the process was such that negotiations contextualized each candidate and Lamont found judgments to result in a pragmatic fairness. What I have found in formal criteria for academic assessment at universities are broad standards within which such contextualizations took place, information was gathered, and differences in assessments were negotiated. Overall it appeared to me that deans, department chairs, the data warehouse, and faculty promotion and tenure committees incorporated a similar sort of pragmatic fairness into their assessments. Local ability to unpack and trace knowledge and context was primary in sense making. So when I watched a professor answer the reputation survey and asked what his criteria for his assessment was, he said that it was based on his knowledge of people in his area of quantitative sociology and it was difficult for him to judge other universities he knew because he had no effective basis for comparison. In contrast, I have found academic practices of assessment incorporate values of academic freedom and attempts to recognize diversity in ways that it can be meaningfully understood and

recognized. The values we use to evaluate, audit, and organize universities will have particular effects on how it is enacted and specific consequences for society more broadly. Being able to trace back how data were produced supports accountability to constituents who will suffer those consequences and allows them to understand the data and themselves.

The global rankings assemblage creates conditions where cognitive contextualization and pragmatic fairness (Lamont, 2010) gives way to diffuse judgment. These relations situated those involved as subjects who are judged while simultaneously being involved in the same processes of judging by being given opportunities for weak contributions with little meaning. Diffuse judgment erodes personal, professional, and collective capacities to participate as well as potential for knowing the conditions of participation. This is not to say that participants do not have the freedom to be creative in how they respond—I was able to respond multiple times and submit my own meaningless information. The product of global judgments that each person submits are aggregated and combined with other judgments and weighted to produce the ranking which is itself a final judgment that creates the conditions for future judging and these cannot be traced, questioned, unpacked.

Rankings deliver a hierarchy with great consequences, but make the processes by which they were constructed opaque. As I showed in prior chapters, their transparency comes with a price that is sold as a service that further enrolls universities into ranking practices involving assessments based on very specific sets of values. Analyzing

infrastructure illustrates how professors and universities become embedded in systems of control (Foucault, 1977; Deleuze, 1992; Bussolini, 2010; Elmer, 2012) which emphasize interconnected systems and flows of information that incorporate judgments and actions. Such control is also characterized by interactions between users and systems of institutional action, an absence of concern with values, and sociotechnical systems that orient user consciousness, particularly with regard to threats (Lianos, 2002). As Deleuze (1992) has described the corporation in societies of control they are "no longer for production, but for the product, which is to say, to be sold or marketed." Similarly, the university becomes less focused on the pursuit of knowledge for its own sake or utilitarian purposes, and more on promotion and visibility. Numbers are the language of control and in this instance what is communicated is a constant visibility and judgment of quality wherein the numbers must always increase. This is evident in rankings, but also other sorts of metrics and scores within the relations of their assemblage. People using the sustainability scores that I mentioned previously recognized, "we're not supposed to use it as ranking, but we turn it into one." The interest is to advance ahead of others who are situated and made visible within the system, and to guard against stagnating or worsening. Espeland and Sauder (2016), for example, have noted numerous instances of careers ending as a result of law school rankings over which the dismissed individuals had little or no control.

These relations are rather different from traditional face-to-face interaction and enforcement of norms. Control systems presume that all subject to them are aware of the

rules incorporated their design and “implicitly projects on all users their passive approval of certain values” (p. 420). How control affects intra-and-interpersonal relations and judgment likely varies with the actors of the local and extralocal assemblage within which it is embedded. Rankings sound the alarm with each public release date and tools like Researchgate produce a nearly continuous feed of information that situates its observers in relation to their own and colleagues’ changing numbers.

As I mentioned several times already, controlling relations in a global surveillant assemblage are often configured and their expansion driven through their alignment with individual and collective interests. The means of achieving such interests may, however, transform or ignore the values of the very same people while preventing any negotiation for those values to be recognized. Yet I have demonstrated the multiple uses, interests, and effects of rankings and metrics as well as variation in the degree to which they may dominate individuals or erode (or not) professional autonomy. These relations should not be reduced or presumed to have one particular function, end, or possible enactment, they are about everything at once (Lianos, 2002) and their purposes may shift with those of actors within the assemblage.

While I have not been able to investigate all of the networks implicated in these systems, I have been able to point to junctures and connections between academic social media, publisher databases and analytics services, surveys, templates, spreadsheets, and data warehouses. Systems of control maintain themselves in their capacity to “seduce their users, as on fierce competition which weakens the individual to an extreme point”

(Lianos, 2002:426). Individual's capacities for interactive sense-making and collective reasoning is displaced by that provided by the system and its information flows. When control enters into academic networks, it alters the conditions of academic freedom including self-governance and what sorts of work is recognized and valued. Business rules and infrastructure can be followed to unpack such information, but these are increasingly privately held. As university actors engage such systems they further embed them into their day-to-day work and come to be invested in the visibility and systems they create.

Chapter Summary

In this chapter I have analyzed infrastructure and data work related to a university data warehouse, a faculty, and by analysts and scholars responding to requests from ranking organizations. I have shown some local decisions and concerns and how these are addressed and incorporated into infrastructure and data which they then carry with them to affect what can be known by their users. I also demonstrated how local reporting practices can facilitate undoing numbers in order to assist with negotiations and meaning making and how this contrasts how rankings are made. Beyond the opaque data practices of rankings organizations, data are created in many locations by university analysts and individual respondents to surveys and how they fill in ranker templates affect rankings. Diverse data and infrastructure work demonstrates why public numbers like rankings are opaque and the difficulty of tracing and unpacking how they are made up.

By following data and infrastructure work I was also able to demonstrate some of how local sites are tied into the global ranking assemblage, through surveys, reporting templates, and data warehouses that are intended to incorporate and link into all sorts of data sources, including those created and used by ranking organizations and publishers. These systems constitute mediated ways of representing and thinking of individual and collective identities.

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Conclusion

“To understand one's fate means to be aware of its difference from one's destiny. And to understand one's fate is to know the complex network of causes that brought that fate about and its difference from destiny. To *work* in the world (as distinct from being 'worked out and about' by it) one needs to know how the world works.”

Zygmunt Bauman, *On Writing*, p.86

My objective in this research was to understand how rankings and related metrics are produced and coordinate work within universities. I have done so by following flows of information and chains of action within and across universities and other organizations involved in producing rankings. This often led me to consider metrics, social media, and other artifacts and infrastructure to which rankings discourse are connected. Our world is made up of diverse historically contingent symbolic and material practices. These situate people and artifacts such as databases, research papers, and institutions in dynamic processes with consequences for what can be known and therefore acted upon. Critical to what we can know is *how* we go about our inquiry to arrive at our knowledge which will then determine relations between ourselves and others.

Quantitative metrics and indicators appear to be objective and neutral assessments that can be useful for accountability and decision making. However, quantification requires people to make definitions, standards, and criteria and these are imbued with their personal or collective biases, interests, and assumptions. Once a metric

is created, the assumptions and work that produced them are obscured, making them transparent takes considerable work. The subjective values and beliefs that go into making measures do not disappear, but are embedded into their numbers (Porter, 1995). As individuals and organizations attend to metrics they orient their thoughts, work, and organization. Local interests, meanings, interpretations, categories, and infrastructure shape rankings and measures, but are also shaped by them.

I have advanced five arguments throughout this thesis. First, rankings and related metrics are promoted as objective knowledge that relay an underlying truth regarding excellent scholarship, but are assemblages of extralocal work. Second, the global network of rankings, and metrics, are attractive for professors, students, and others within their networked relations, but are simultaneously dissonant with common academic values and approaches to assessment. Third, while other authors have emphasized the disciplinary relations of rankings in local sites (Sauder and Espeland, 2009; Espeland and Sauder, 2016), I have argued that the global assemblage of higher education, rankings, and the publishing industry is best understood through notions of "control" (Foucault, 1977) or "societies of control" (Deleuze, 1992). Though this is not to say that control has replaced discipline, but is tied up with and implicates it in ways that have not been attended to in past research. Fourth, Espeland and Sauder (2016) have advanced the notion of reactivity as essential to understanding rankings and their effects. I have advanced *infrastructural* and *data work* as important categories of reactivity that shape day-to-day routines within universities and bind local sites into extralocal networks. Fifth, to describe these conditions and their effects, and tying together my

arguments above, I advanced the notion of *diffuse judgment* as characteristic of the sort of judgment that can be observed in control society.

Academics traditionally review one another's work in an exercise of heteronomous judgment that begins with individualized representations of work to assess its quality and determine access to rewards such as merit, tenure and promotion. I found that for the most part professors collectively unfold the quality of research, teaching, and service based on the interests, research area, and disciplinary traditions of each person under review through negotiation and dialogue. These negotiations involve reference to broad standards, and as Lamont (2010) has shown, compromises involving informal criteria that include diversity and cultural capital. This form of assessment is by no means perfect, but achieves a pragmatic fairness. This approach to assessment supports diversity, and for the most part ensures that quality work is promoted and individuals can grow in their interests, but it also allows reputations and prestige to be acquired as professors obtain increasing symbolic rewards. At the universities included in my study, organization level planning and reporting was also designed with some flexibility to allow local departmental and faculty interests, values, and identity to be represented to senior leadership and the public.

Peer review bases judgment on recognizing individual research interests and disciplinary traditions as worthwhile in their own right and that there cannot be any single standard of excellence applied to each and every professor. Such assessment is the basis for a cultural economy that earns professors increasing symbolic and material rewards. Individual professors, chairs, and units are held to account, but also allowed to engage in

diverse work and grow their interests into new realms. Representing academic work and collective identity through a mix of what academics and their administrators hold in common as well as what makes them unique supports their diversity to be understood and evaluated without the violence that comes with forcing people into predetermined categories. Rankings and metrics can enter into these practices by: replacing dialogue and negotiation on standards of quality, restricting judgment in stating boundaries and minimum requirements, or as one of many pieces of information that supports unfolding quality.

Publishers and ranking organizations produce metrics and services for academic monitoring, evaluation, and visibility. These further enroll individual professors and universities into ranking evaluations and infrastructures. The numbers that come to administrators and professors through products like rankings, Researchgate, and SciVal position them in a state of constant comparison and a logic that presumes numbers can be improved. The numbers, lists, and rankings based on them incorporate judgments on individual or organizational quality that structure or stand in place of professional assessments. These devices are consequential to the degree they are institutionalized and this varies by discipline, department, faculty, and university and is moderated by leadership or factors such as tenure. Where such measures are used to align faculty work with strategic plans, they may compress academic time into strategic plan time thereby orienting professors to specific types of work that can be completed and recognized within strategic time frames. While metrics and rankings were used to create alignment with strategic plans at the universities where I did my research, for the most part they

were used flexibly and in addition to other means to allow individuals and academic units to represent themselves according to their unique traditions and interests. In contrast, the business school point system that I shared was an extreme attempt to impose restrictions on academic work.

Administrators need to understand what is happening at their institutions in order to make decisions. Infrastructure and data work translates academic activity into numbers facilitating and producing rankings while institutionalizing them. As data is worked upon and questioned, the data instigate a search for new data and technology to simplify such work or to allow new audiences to do data work. Function creep changes the possibilities for how individuals and organizational units can represent themselves, but thoughtful adaptation can open up such possibilities rather than reduce them. Importantly, technologies used in data work make use of standards and definitions in order to translate diverse local practices and meanings into comparable forms. Comparability can be a point of departure for dialogue and the creation of further understanding. Creating a common basis for dialogue requires the ability to move backward through standardization processes to elaborate context. In preparation for administrative meetings, the transparency afforded by business rules allowed senior leaders and deans to ascertain why numbers appeared as they did. Without the ability to translate numbers back into their definitions, administrators would be unable to understand their situation and debate their status relative to one another. Locally produced information systems contrast with rankings and related metrics in that the latter are produced through opaque processes. Indeed, by requiring thousands of universities

across the globe to submit to the same standards it would be a herculean task to unravel the details of how all data flow into a single hierarchical list. Local infrastructures are reactive in that they are built in relation to metrics and make the reality to which the numbers refer. This is not to assert that local practices are always good, they have their limitations and they can be undertaken as cynically and thoughtlessly as rankings, or used to impose a particular view of the world—as with the business school point system and the case of academic units that were made to compete for funds in the face of annual budget cuts.

In my research I have directed attention to important points where work is done to translate academia into numbers, and how these do or do not enter into evaluation practices and other work at universities. Rationalized institutional databases provide universities with one effective means to report to ranking organizations, but also to work with other universities toward understanding one another's status and functioning. Reputation surveys rely upon responses from individual professors and administrators—sometimes curious graduate students—to make judgments removed from direct knowledge and context that supports assessment. In the absence of a contextual foundation from which to pass judgment, senior scholars taking reputation surveys seriously felt their assessments were “shaky”. Rankings and metrics as a product that enter into academic assessments and work can erode scholarly autonomy, but their production places limits on the conditions that support their expertise—the very expertise that reputation surveys aim to harness as an information source. Rankings position scholars as experts in their field and all-knowing of their field, but with little evidence to

inform their decisions. In doing so, rankings reproduce existing hierarchies.

Collective Sense-making and Categorical Struggles

Rankings and related metrics are promoted as objective knowledge that relays an underlying truth regarding excellent scholarship, but are best understood as an assemblage of diverse locally situated interests that appear in numerical and extralocal forms. Rankings are a product of assumptions and decisions made by specific individuals and organizations, such as the Times Higher Education (THE) and International Rankings Expert Group (IREG). People actively work to create and promote interpretations of excellence to impose them on higher education, thereby defining situations for scholars, deans, university presidents, and heads of state. Rankings are dependent on actors across the globe who work in universities, publishing corporations, and other organizations to assemble and submit information for their calculation. I have shown some of the specific means by which rankings are produced and how their reality is strengthened through people's day-to-day work. Their subjective assessments and concerns are embedded in the categories, standards, infrastructures, and rankings themselves. Once people believe something to be real, it is real in its consequences (Thomas and Thomas, 1932). The criteria and situations that rankings promote have effects on the world as people come to believe that they are matters of importance, changing their work and understandings as they do so.

Another important observation within this thesis is that if individual universities or entire countries were to successfully pursue excellence as defined by world class

university rankings universities, higher education, and academic work would be completely transformed. Rankings promote a specific model of what a university should be, but also can transform how academic work is monitored, the time in which it is done, assessments of its quality, and the form its processes and products take. Lacroix and Maheu (2015) have demonstrated how universities are embedded in historical social, political, and economic contexts. Just as academic disciplinary traditions vary, the contexts of their work do as well. The degree to which rankings have their effects are determined by political decisions with intended and unintended consequences.

Espeland and Sauder (2016) have also made these points in their examination of ranking effects and consequences for the field of legal education. In particular, they argue that rankings have effects as a result of reactivity, which takes at least four forms: commensuration (equating disparate phenomena using a common measure), self-fulfilling prophecy (an expectation confirms its own effects), narrative (stories told to explain or make sense of rankings), and reverse-engineering (deconstructing rank into component parts to understand which of them might be controlled). Much of my study supports these findings and I have elaborated these by showing that infrastructure and data are important forms of reactivity. My research differs in that I followed data flows through organizational units in order to understand how rankings are made, the infrastructure that supports them, and how they are related to other forms of assessment within universities. I have argued that infrastructure—technologies, databases, strategic plans and reports that coordinate knowledge and activity—is also a form of reactivity. Further studies of *infrastructural and data work* related to evaluation and quantification

are necessary to understand their effects on organization and field level practices, but also how the everyday lives of people become organized. This is an important and unique contribution of my research, as infrastructure may not only commensurate and be necessary for reverse engineering, but it also can incorporate and intensify existing or new inequities between disciplines, forms of work, and people to whom data and infrastructure refer.

Infrastructural work consists of the cultures, practices, and processes of assembling the means of aligning disparate and distant components (e.g., standards, classifications, databases, academic units, workers) to support the flow of information for particular purposes. Such work is necessary for *data work* which is itself primary to knowing organizational performance. The notion of data work is intended to capture the concepts, strategies, and practices of producing, seeking, making sense of, and reporting data. Infrastructure and data are co-produced. Lupton (2016) has described such data work in her study of self-tracking and the quantified self-movement. In particular, she describes how self-trackers interested in quantified knowledge of their bodies must seek data, then manage and discipline it so that it makes sense thereby allowing control over the data and the self-tracker's body. By studying infrastructural work and data work scholars can better understand how individuals and organizations are tied into extralocal relations that situate and structure their opportunities for self and public knowledge, but also the opportunities and conditions that arise from these. Consensus on one approach to knowledge production would limit the possibilities for our collective knowledge. Many responses to rankings and metrics have criticized them for not being objective, but a truly

objective and value-neutral ranking around which broad consensus was achieved would likely be the most undesirable scenario. A single dominant ranking would reduce possibilities for imagining what the university, academic work, and students, might be.

Rankings can create dissonance between traditional academic values and approaches to assessment by transforming such processes and concerns into objectified forms that then become used to shape academic work and consciousness. The heart of academia is academic freedom which involves self-governance and the ability to pursue research and teaching without external interference (Horn, 1999). An important part of professional self-governance is the ability to determine access to scholarly rewards and promotion. Academics have long-lasting traditions for assessing scholarly excellence that are based on broad standards that are determined through individually contextualized and negotiated processes of sense-making. These practices generally support perceptions that evaluations are fair and appropriate for a particular individual's interests, disciplinary traditions, and commitments. Academic evaluation is heteronomous in that diverse work can be recognized as excellent (Lamont, 2010). Excellence can be understood as an empty container that can be filled with any content that a group wishes (Readings, 1996). An open concept such as excellence can be useful for organizing groups of people within universities that hold disparate values and interests. Similarly, it can be used by outside parties to shift the interests of university constituents to alternative purposes. Rankings promote notions of excellence in ways that can be familiar to the academic field, but impose a specific standard that creates a zero sum system of recognition. Within the system one can only progress at the expense of others. Rankings impose their own

judgment of worth that restricts or stands in place of, or truncates, contextualized and negotiated assessment. Because they are embedded in academic discourse, rankings can be a legitimate goal or tool for university leaders and professors. However, by adopting scientific and academic discourses of excellence, peer review, and transparency while also adapting these to alternative systems of evaluation and business interests values of academic freedom are eroded or altered. My emphasis of metrics and rankings as a threat to academic freedom is another important and unique contribution of my research. As rankings and metrics become incorporated into university or government policy, taken up by professors as important means of assessing themselves and others, academic assessment and governance incorporates or may become completely replaced by the judgments made by others at distant times and locations.

Rankings, lists, and metrics incorporate standards which are presumed to be universal and are applied to a multitude of diverse people, disciplines, organizations, and nations. This also leads to resistance in that individuals and groups do not want to be denied recognition. Such resistances proliferate rankings and measures as niche products are made in response to concerns. Dissonance created by rankings is evident in how academics and administrators simultaneously repudiate rankings, but make use of them to determine where to publish, for self-promotion, and strategic planning. Such dissonance is an example of what institutional ethnographers refer to as bifurcated consciousness, the division of local, bodily, and experiential ways of knowing from institutionalized and objectified knowledge (Walby, 2005; Smith, 2006). Bifurcation typically submits experiential knowledge to domination by the alternative institutional forms. Local politics

and economies are contingencies that determine how institutionalized forms of knowledge come to be. As performance measures become institutionalized they clearly recognize and reward some forms of work while excluding others. The Accounting chair I spoke with said that his colleagues were concerned not to allow journal lists to dictate their judgments, though they were a factor; a Nursing dean used rankings, metrics and lists to encourage his professors to be more visible; and the business school point system completely defined the boundaries and temporality of professorial work. Particularly stringent application of rankings and metrics can coordinate academic work from traditional research time into ranking agency time.

With the introduction of public measures and strategic plans based on them, the free pursuit of individual and collective interests has to varying degrees become scrutinized, devalued, and limited. Sewell (2012) characterizes such workplace surveillance as exploitative—a situation where the interests of employees are subordinated to those of their employers. However, in the case of rankings the employers' interests can be further subordinated to those of outside parties, such as publishing houses, ranking organizations, and public audiences.

Another unique contribution is that I have advanced the notion of diffuse judgment as the sort that circulates through systems of control. Diffuse judgment is the result of highly structured disaggregated components of assessment that occur across time and space and are recombined through multiple translations into a single statement of fact. Diffuse judgment limits certain capacities while facilitating new ones through artifacts that structure negotiation, direct attention, and interest. Processes in diffuse

judgment potentially allow everyone within the system to have a say, but the degree to which any individual, group, or artifact can influence the final outcome is uneven, uncertain, and questionable. No one party involved at any single point in the processes leading to the final outcome knows what has happened, can unpack, reverse, or examine, other components of judgment that led to the outcome. In each piece of judgment those who are contributing are themselves judged and the final judgment determines their quality in relation to all others involved. The judgments set interrelated positions with consequences for each and these may include access or denial of access to rewards, life chances, participation in activities. Representations of oneself, one's group, one's work, and so on are heavily mediated and judgments rarely involve direct interaction with that which is judged. Within the global rankings assemblage judgments occur in academic social media, publisher's databases, reporting templates, survey responses, ranking organization weightings, and university institutional analysis departments. Workplace surveillance is distributed and local working relations become subject to extralocal interests and concerns.

In creating a zero sum game and because reputation can be a resource (Deephouse, 2000), rankings create a formal system whereby reputation becomes a visible possession of individuals and institutions, as well as the means by which reputation can be acquired. Rankings thereby reproduce inequalities of condition and opportunity and with it, a formal system of stratification. Those who have reputation will seek to protect it, and those who do not have it seek to acquire it. Reputation risk is a primary concern for many organizations (Power, Scheytt, Soin, and Sahlin, 2009) and

rankings intensify such risks by making reputation visible while simultaneously offering their metrics and products as a solution. Creating reputation as a resource and intensifying risk is central to ranking business. Rankings position academics in fragile relations where reputations can change on the whim of statistical anomalies or decisions by ranking organizations to alter their methods. One of the primary rhetorical attacks made on rankings is that their methods are not objective, rigorous, or transparent. Such claims are as in-part a matter of academics drawing on the scientific discourses they use in their day-to-day work, but also imply that they may not want any rankings at all. This is evident in the many statements that "rankings are here to stay" (Saarenketo, 2014; UNESCO, 2013) , and flowing from this is a logic that they ought to be adapted to make them more objective or representative of varying national or institutional missions. As a forensic vocabulary, rankings are a resource serving as a muster point toward alternative courses of action (Douglas, 1990). As an explicit system of stratification, they create winners and losers. Those who rank poorly or are left out always have legitimate arguments against the system.

The relations I describe between rankings, infrastructure, and people that work with them can also be understood as characteristic of control society (Foucault, 1977; Deleuze, 1992; Lianos, 2002). Routine workplace surveillance is tied to a far reaching assemblage coordinated through excellence that erodes professional autonomy and alters the relations in which academics and their work are embedded. Subjectivization, is in part "the creation of subjects who orient themselves to an object and make it real" (Power, 2015:51). As measures become institutionalized they can reorganize university structures

and processes while also orienting people to their criteria, definitions of the situation, personal and collective identities. Lianos (2002) has described control as enacted by technological systems that embed presumed universal values into the practices of which they are a part. As measures and rankings become embedded in infrastructure and assessment practices they become a taken for granted aspect of day-to-day work. Yet the debates regarding such lists and rankings are illustrative of how presumed universal norms are contested.

Another unique contribution of my work has been to illustrate how consciousness, control, and governance are implicated in interconnected systems. Rankings and related metrics coordinate consciousness and activity so as to reconfigure personal and collective concerns, interests, practices, and images of themselves and others. This is done through mediated material and symbolic practices—through texts, numbers, images, computers, databases, spreadsheets—that constitute the information infrastructure (Bowker and Star, 1999) or what Walby (2005) refers to as the material relations of surveillance. Rankings can organize thought and action by promoting their interpretation of 'good' or 'worthwhile' work because they make such work readily identifiable and comparable while assigning it material and symbolic value. Still, how measures are interpreted and enacted are based on locally contingent practices, meanings, and cultures.

Unpredictable fluctuations within lists determine observers' assessments of quality. Connections, flows, and modulations between rankings, metrics, and lists do not require their subjects' consciousness or intentions in order to have multiple effects,

though I have clearly demonstrated how thoughts and interests can be shaped by such control. Numerically mediated relations shape consciousness, knowledge, and organization of academics, universities, and the global field of higher education. Examining the nexus of values held within control systems and the everyday, lived, and local consciousness of people as they go about their work is a necessary means to understand these systems and their consequences. Controls do not impose absolute limitations, they border a realm in which people are free to think and act as they will. From this perspective, responses to control such as "gaming" numbers that organizations submit to rankings (Espeland and Sauder, 2016) might be better understood as "molestation" (Said, 1975). Molestation involves a re-authoring of a text as it collides with its readers' locally contingent interpretations (see: Cooper and Ezzamel, 2013). As actors engage with a text in systems of control, the text-reader interaction unfolds in processes of individual and collective sense-making. The control simply defines limits as to the rules and form through which understanding is determined.

Beyond the University

My original proposal for this research was to do a comparative study of metrics in higher education, health care, and policing. Police work has been increasingly driven by numbers, rankings, and metrics thanks to the popularity of a technology called CompStat which was adopted by the New York City Police Department in the 1990s and was credited with helping to significantly reduce crime. More detailed investigations revealed that rather than reduce crime, police were gaming the numbers by re-categorizing

offenses, intimidating victims, and not reporting some violations (Eterno & Silverman, 2012). A police union representative commented that, “The Compstat program that made NYPD commanders accountable for controlling crime has degenerated into a situation where the police leadership presses subordinates to keep numbers low by any means necessary.” (Eterno & Silverman, 2012:26). Others have pointed to the fact that numbers driven policing led to increased attention on minority neighborhoods. For example, in predominantly black Bedford-Stuyvesant, Brooklyn, officers issued more than 2,000 summonses a year between 2008 and 2011 to people riding their bicycles on the sidewalk, according to the Marijuana Arrest Research Project, a nonprofit that studies police policy. During the same period, officers gave out an average of eight bike tickets a year in predominantly white and notably bike-friendly Park Slope. All told, between 2001 and 2013, black and Hispanic people were more than four times as likely as whites to receive summonses for minor violations” (Knafo, 2016). These are examples of how metric reactivity can have far reaching consequences for communities, professional work, and society by reinforcing old hierarchies and systems of stratification and eroding professional judgment.

Espeland and Sauder (2016) have reviewed numerous studies from health care that illustrate the reaching and potentially damaging effects that our reliance on numbers to know and assess performance can have. One study found reduced infection rates were largely because incentives attached to them decreased efforts to find cases that would make the rates increase. The researchers argued that infection rates may be more of an indicator of willingness to report than potential harm they are believed to represent

(Dixon-Woods and Perencevich, 2013). Public metrics reporting on surgeon-specific mortality rates found that surgeons believed some patients that might benefit from heart surgery might not receive it as doctors worry about protecting their public performance (Narins, 2005). Other research found that hospital-and physician-level report cards also led physicians to screen patients more closely in order to refrain from taking on particularly ill patients so that the outcomes on their report cards appear more favorable (Dranove, et al., 2003). The result was that increased time with patients led to increased expenditure of resources.

Studies regarding performance indicators in public sector health care have illustrated issues with reactivity and its consequences since at least the 1990s. Managers subject to such measures may focus on their own narrow objectives rather than collaborate with others for mutually beneficial outcomes. They may prioritize short-term concerns over long-term issues that indicators will not detect for several years, and may even be motivated to commit fraud (Smith, 1993). These manipulations are illustrative of care for the virtual self (Haggerty and Whitson, 2008) and reminiscent of Arthur's work to help professors manage their mediated presentation of self. However, in the case of physicians the mediated relations can have obviously dire consequences.

New approaches to shift financial burdens from public sector budgets through leveraging private sector financial resources are also increasingly popular in the Western world. For example, social impact bonds use money from private investors to support non-profit organizations. If particular performance measures are met within a specific time period, the government guarantees the investors a return. A case study of a charity

that works with impoverished and homeless people in the UK illustrated that the emphasis on individual level outcome measures fails to capture societal impacts such as reductions in equity. Because the target population of these interventions had complex needs some of the desired outcomes to which metrics were attached were beyond the control of the non-profit organization. Because the programs were not intended to incarcerate, but to house, the organization had little capacity to insist their clients, many with mental illness diagnoses and drug addictions, sleep in the housing they provide. These funding approaches may also be focused more on driving competition within the social services sector, rather than ensuring government cost savings (Cooper, Graham, and O'Dwyer, 2013).

I have cited these studies of metrics beyond the university to illustrate how pervasive and consequential numbers are in our lives and that if taken for granted their potentially perverse effects—intended or unintended—are likely to go unacknowledged. The studies I have noted though, have not examined metrics in light of increasingly interconnected and global information infrastructures. As such, I point to these examples as important areas for future research into numbers, metrics, and processes of quantification in an era where infrastructure is more intensely uniting previously exclusive domains such as education, health care, and policing.

Future research

Rankings and metrics are not only a matter of importance for higher education institutions, but also for studies of organizations and society more broadly. In particular,

Lamont (2012) has argued for better understanding the conditions that sustain heterarchies as our present times are characterized by, “a context in which definitions of worth that are not based on market performance tend to lose their relevance and in which market fundamentalism is exercising strong homogenizing pressures on collective identities and shared definitions of what defines worthy life” (p.210). Higher education is a unique field for such studies because universities are defined—at least in part—by their rare ability to incorporate diversity (Smelser, 2013). University rankings commensurate the values and categories used in universities to think about and engage in academic work and transform them into something else. How we value is an important social and cultural form and it is inherently political (Espeland, 1998). Transforming values and categories of thought has consequences for what can or cannot be debated, what sort of work can or cannot be valued in higher education, and can fundamentally change what an organization is able to do and how it can do it.

My observations and their limitations point to a number of interesting directions for future research. First, I have studied formal statements of academic assessment criteria, more attention to the informal hierarchies, criteria, and interests in peer review and the conflicts that arise in its processes would be informative of their alignments with rankings and metrics. For example, I was unable to observe actual negotiations at committees like the University of Alberta Faculty Evaluation Committee, or appeals made by individuals who have been denied tenure.

Second, being involved in and observing work to create new infrastructure like Acorn, its standards and definitions, its actual operation, and the work to connect it to

new sources is important work I was unable to undertake. Being able to observe those processes would further inform how alignments are made within and between organizations. In particular, attending to how people's wishes, the seductions of data, publishers and rankers marketing efforts and resistances against these, all interact to alter relations of work would facilitate a deeper analysis of reactivity and how infrastructure and data incorporate those concerns and their effects over time. Such research should also consider how consortia like the U15 facilitate strategies to respond to and work with data and infrastructure to operate within the global rankings assemblage.

Third, research with individual professors, graduate and undergraduate students, to understand how they work with rankings and products like academic social media can inform on their alignments with the global ranking assemblage, the data and infrastructural work they undertake as a part of that assemblage, how they are situated within these relations, and how their subjectivity is shaped. Future research should also follow traces of those data to other locales to examine how they are further worked upon and the work that they do in turn. One interest in developing Acorn was to link existing student data with external sources that would track students far past their graduation dates in order to know the effectiveness of their education. How might a department or university be held responsible for personal choices and life outcomes years after a student has graduated? What sorts of attributions might university administrators make to students who do not find employment, or reflect the universities stated objectives? What ethical obligations are there in such a project and how can data and infrastructure be made ethical? Diffuse judgment implies all sorts of potentially interesting moral,

emotional, and material consequences that scholars can better understand through this line of research.

Fourth, I have argued that rankings create new hierarchies while reinforcing existing ones. I have also noted that universities from the Global South are noticeably absent from rankings, the professor I interviewed during his response to a ranking survey also noted this. Further research should investigate how rankings and metrics differentially affect work and organizing across its assemblage, and in particular what is left out of the assemblage and related consequences, be they beneficial or detrimental.

Finally, my intention in studying the university was in part to have a window into how numbers and their infrastructure come to bear on people's lives. There are many such assemblages beyond higher education that can further understanding of how control operates. China, for example, has announced the creation of a "social credit" system based on an unknown methodology to monitor and assign its citizens a score based on their private and public behaviour such as bad driving and buying too many video games (Ma, 2018). The scores are intended to allow or prevent access to jobs, public and private spaces and services such as public transportation, Internet speeds, and education institutions (Ma, 2018). The social credit example appears to be extreme, but there are also many other pernicious and less obvious systems that are worthy of investigation, such as how corporations design products to grab and hold our attention in order to create anxiety when we do not engage with their products and marketing (Bosker, 2016).

Rankings and measures are now used to translate work and experiences across all aspects of day-to-day life. It is clear that what such numbers represent is determined

by how they become incorporated into individual subjectivity and the relations they are embedded in. The consequences may be personal or far reaching, beneficial, benign or damaging. In an age where we increasingly incorporate numerical knowledge to determine how and what we know, further study and dialogue regarding the consequences is necessary in order to develop an ethics of numbers (Espeland and Stevens, 2008). Such ethics will certainly not determine the telos of our quantified lives, but further shape its unfolding in an ongoing dialogue between us and the numbers that tell us who we are, how to live, work, and know ourselves, others, and the world we inhabit.

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References

Altheide, David L. 2002. *Creating Fear: News and the Construction of Crisis*. New York: Aldine de Gruyter.

Alder, Ken. 1997. *Engineering the Revolution: Arms and Enlightenment in France, 1763-1815*. Princeton, New Jersey: Princeton University Press.

Amsler, Sarah S., and Chris Bolsmann. 2012. "University Ranking as Social Exclusion." *British Journal of Sociology of Education* 33(2):283–301.

Axelrod, Paul Douglas. 2002. *Values in Conflict: The University, the Marketplace and the Trials of Liberal Education*. Montréal, QC, CAN: McGill-Queen's University Press.

Ball, Kirstie. 2010. "Workplace Surveillance: An Overview." *Labor History* 51(1):87–106.

Bastedo, Michael N., and Nicholas A. Bowman. 2010. "U.S. News & World Report College Rankings: Modeling Institutional Effects on Organizational Reputation." *American Journal of Education* 116(2):163–83.

Barron, Gary. 2014. "University rankings – a game of snakes and ladders". *University Affairs*, November 12. Ottawa, ON.

Barron, Gary R. S. 2017. "The Berlin Principles on Ranking Higher Education Institutions: Limitations, Legitimacy, and Value Conflict." *Higher Education* 73(2):317–33.

Bauman, Zygmunt. 2000. "On Writing." *Theory, Culture & Society* 17(1):79–90.

Beck, Ulrich. 1992. *Risk Society : Towards a New Modernity*. London ; Newbury Park, Calif. : Sage Publications, 1992.

Beer, David and Roger Burrows. 2013. "Popular Culture, Digital Archives and the New Social Life of Data." *Theory, Culture & Society* 30(4):47–71.

Billaut, Jean-Charles, Denis Bouyssou, and Philippe Vincke. 2010. "Should You Believe in the Shanghai Ranking?" *Scientometrics* 84(1):237–63.

Bourdieu, Pierre. 1980. *The Logic of Practice*. Stanford, CA: Stanford University Press.

Bowker, Geoffrey, C., and Star, Susan L. 1999. Sorting Things Out: Classification and its Consequences. Cambridge, MS: The Massachusetts Institute of Technology Press.

Bowman, Nicholas A., and Michael N. Bastedo. 2011. “Anchoring Effects in World University Rankings: Exploring Biases in Reputation Scores.” *Higher Education* 61(4):431–44.

Busch, Lawrence. 2011. *Standards Recipes for Reality*. Cambridge, Mass: MIT Press.

Bussolini, Jeffrey. 2010. “What Is a Dispositive?” *Foucault Studies* 10(November):85–107.

Callon, Michel and Bruno Latour. 1981. “Unscrewing the Big Leviathan: How Actors Macro-Structure Reality and How Sociologists Help Them to Do So.” Pp. 277–303 in *Advances in Social Theory and Methodology: Towards an Integration of Micro-and Macro-Sociologies*, edited by K. Knorr-Cetina and A. V. Cicourel. Boston, MA: Routledge.

Callon, Michel. 1986. “Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fisherman of St Brieuc Bay.” Pp. 196–223 in *Power, Action and Belief: A New Sociology of Knowledge?* London, UK: Routledge.

Castells, Manuel. 2000. *The Rise of the Network Society. [electronic Resource]*. Chichester, West Sussex ; Malden, MA : Wiley-Blackwell, 2010.

Collins, Francis L. and Gil-Sung Park. 2016. “Ranking and the Multiplication of Reputation: Reflections from the Frontier of Globalizing Higher Education.” *Higher Education* 72(1):115–29.

Cheng, Ying, and Nian Cai Liu. 2007. “Academic Ranking of World Universities by Broad Subject Fields.” *Higher Education in Europe* 32(1):17–29.

Cheng, Soh Kay. 2011. “Mirror, Mirror on the Wall: a Closer Look at the Top Ten in University Rankings.” *European Journal of Higher Education* 1(1):77–83.

Cramer, Kenneth M. and Stewart Page. 2007. “Calibrating Canadian Universities: Rankings for Sale Once Again.” *Canadian Journal of School Psychology* 22(1):4–13.

Cooper, David J. and Mahmoud Ezzamel. 2013. “Globalization Discourses and Performance Measurement Systems in a Multinational Firm.” *Accounting, Organizations and Society* 38(4):288–313.

Cunningham, Stuart. 2008. “University and Discipline Cluster Ranking Systems and the Humanities, Arts, and Social Sciences.” *Higher Education in Europe* 33(2/3):245–58.

Dean, Mitchell. 2010. *Governmentality : Power and Rule in Modern Society / Mitchell Dean*. Los Angeles, Calif. ; London : SAGE, 2010.

Deephouse, David. L. 2000. Media reputation as a strategic resource: an integration of mass communication and resource-based theories. *Journal of Management*, *26*(6), 1091–1112. https://doi.org/10.1016/S0149-2063(00)00075-1.

Dehon, Catherine, Alice McCathie, and Vincenzo Verardi. 2010. "Uncovering Excellence in Academic Rankings: a Closer Look at the Shanghai Ranking." *Scientometrics* 83(2):515–24.

Deleuze, Gilles. 1992. "Postscript on the Societies of Control." *October* 59(Winter):3–7.

Devault, Marjorie, L., and Liza McCoy. 2006. "Institutional Ethnography: Using Interviews to Investigate Ruling Relations." Pp. 15–44 in *Institutional ethnography as practice*, edited by Dorothy E. Smith. Lanham, Md.: Rowman & Littlefield.

Diamond, Timothy. 2006. "'Where Did You Get That Fur Coat, Fern?' Participant Observation in Institutional Ethnography."Pp. 45–64 in *Institutional ethnography as practice*, edited by Dorothy E. Smith. Lanham, Md.: Rowman & Littlefield.

Dillman, Don A., Jolene D. Smyth, and Leah Melani Christian. 2014. *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. New York, UNITED STATES: John Wiley & Sons, Incorporated.

Dixon-Woods, Mary, and Eli N. Perencevich. 2013. "When Counting Central Line Infections Counts." *Infection Control and Hospital Epidemiology* 34(6):555-7.

Douglas, Mary. 1990. "Risk as a Forensic Resource." *Daedalus* 119(4):1–16.

Dranove, David, Daniel Kessler, Mark McClellan, and Mark Sattherwaite. 2003. "Is More Information Better? The Effects of 'Report Cards' on Health Care Providers." 111. Retrieved January 20, 2017 (http://www.nber.org/papers/w8697).

Du Gay, Paul and Michael Pryke, eds. 2002. *Cultural Economy: Cultural Analysis and Commercial Life*. Thousand Oaks, CA: Sage.

Ellerbrok, Ariane. 2010. "Empowerment: Analyzing Technologies of Multiple Variable Visibility." *Surveillance & Society* 8(2):200–220.

Elmer, Greg. 2012. "Panopticon – Discipline – Control." Pp. 21–29 in *Routledge handbook of surveillance studies*, edited by D. Lyon, K. D. Haggerty, and K. Ball. Abingdon, Oxon ; New York: Routledge.

Espeland, Wendy Nelson. 1998. *The Struggle for Water: Politics, Rationality, and Identity in the American Southwest*. Chicago, IL: University of Chicago Press.

Espeland, Wendy Nelson and Mitchell L. Stevens. 1998. “Commensuration as a Social Process.” *Annual Review of Sociology* 34:313–43.

Espeland, Wendy Nelson and Mitchell L. Stevens. 2008. “A Sociology of Quantification.” *European Journal of Sociology* 49(3):401–36.

Espeland, Wendy Nelson and Michael Sauder. 2016. *Engines of Anxiety: Academic Rankings, Reputation, and Accountability*. Russel Sage Foundation. Retrieved July 6, 2016 (http://www.russellsage.org/engines-anxiety).

Eterno, John A., and Silverman, Eli B. 2012. *The Crime Numbers Game: Management by Manipulation*. Boca Raton, FL: CRC Press.

Foucault, Michel. 1977. *Discipline & Punish: The Birth of The Prison*, translated by A. Sheridan. New York: Random House, Inc.

Foucault, Michel. 1978. *The History of Sexuality, Volume 1: An Introduction*, translated by R. Hurley. New York: Random House, Inc.

Foucault, Michel. 1988. *Technologies of the Self*, edited by L.H. Martin, H. Gutman, and P.H. Hutton. The University of Massechusetts Pres: Amherst, MA.

Foucault, Michel. 1994. “The Subject and Power”. Pp. 326-348 in *Power,* edited by J.D. Faubion. New York: The New Press.

Foucault, Michel. 1997. *Society Must Be Defended: Lectures at the Collège de France, 1975-1976*. Translated by David Macey. New York: Picador.

Foucault, Michel. 2007. *Security, Territory, Population : Lectures at the Collège de France, 1977-78.* Edited by Michel Senellart ; General Editors, François Ewald and Alessandro Fontana ; Translated by Graham Burchell. New York : Palgrave Macmillan : République Française, 2007.

Fourcade, Marion and Kieran Healy. 2013. “Classification Situations: Life-Chances in the Neoliberal Era.” *Accounting, Organizations and Society* 38(8):559–72.

Fraser, Nancy. 1997. “From Redistribution to Recognition? Dilemmas of Justice in a ‘Postsocialist’ Age.” Pp. 11–39 in. New York: Routledge.

Free, Clinton, Steven E. Salterio, and Teri Shearer. 2009. “The Construction of Auditability: MBA Rankings and Assurance in Practice.” *Accounting, Organizations and Society* 34(1):119–40.

Gingras, Yves. 2016. *Bibliometrics and Research Evaluation: Uses and Abuses*. Cambridge, MA: MIT Press.

Grenfell, Michael, ed. 2008. *Pierre Bourdieu: Key Concepts*. Durham, UK: Acumen.

Goffman, Erving. 1959. *The Presentation of Self in Everyday Life*. 1 edition. Garden City, N.Y.: Anchor.

Goffman, Erving. 1961. *Asylums: Essays on the Social Situation of Mental Patients and Other Inmates*. Garden City, N.Y.: Anchor Books.

Goffman, Erving. 1969. *Strategic Interaction*. 1st edition. Philadelphia: University of Pennsylvania Press.

Goffman, Erving. 1986. *Stigma: Notes on the Management of Spoiled Identity*. Reissue edition. Touchstone.

Haggerty, Kevin D. and Richard V. Ericson. 2000. “The Surveillant Assemblage.” *British Journal of Sociology* 51(4):605–22.

Haggerty, Kevin D. 2001. *Making Crime Count*. Toronto: University of Toronto Press.

Haggerty, Kevin D. 2006. “Tear Down the Walls: On Demolishing the Panopticon.” Pp. 23–45 in *Theorizing Surveillance: The Panopticon and Beyond*, edited by David Lyon. Collompton, UK: Willan.

Haggerty, Kevin D., and Richard V. Ericson. 2000. “The Surveillant Assemblage.” *British Journal of Sociology* 51(4):605–22.

Haggerty, Kevin D. and Camille Tokar. 2012. “Signifying Security: On the Institutional Appeals of Nightclub ID Scanning Systems.” *Space & Culture* 15(2):124–34.

Haney, Timothy J. 2015. “Factory to Faculty: Socioeconomic Difference and the Educational Experiences of University Professors.” *Canadian Review of Sociology/Revue canadienne de sociologie* 52(2):160–86.

Hazelkorn, Ellen. 2011. *Rankings and the Reshaping of Higher Education: The Battle for World-class Excellence*. Houndmills, Basingstoke, Hampshire; New York: Palgrave Macmillan.

Henry, Frances, Carl James, Peter S. Li, Audrey L. Kobayashi, Malinda S. Smith, Howard Ramos, and Enakshi Dua. 2017. *The Equity Myth: Racialization and Indigeneity at Canadian Universities*. edited by M. S. Smith. Vancouver, B.C.: UBC Press.

Horn, Michiel. 1999. *Academic Freedom in Canada : A History*. Toronto, ON: University of Toronto Press.

Jasanoff, Sheila. 2004. “Ordering Knowledge, Ordering Society.” Pp. 13–45 in *States of Knowledge: The Co-production of Science and Social Order*, edited by Sheila Jasanoff. London, UK: Routledge.

Jenkins, Richard. 2000. “Categorization: Identity, Social Process and Epistemology.” *Current Sociology* 48(3):7–25.

Karpik, Lucien. 2010. *Valuing the Unique: The Economics of Singularities*. Princeton, New Jersey: Princeton University Press. Retrieved May 11, 2016 (http://press.princeton.edu/titles/9215.html).

Knorr-Cetina, Karin. 1997. “Sociality with Objects Social Relations in Postsocial Knowledge Societies.” *Theory, Culture & Society* 14(4):1–30.

Knorr Cetina, Karin and Urs Bruegger. 2000. “The Market as an Object of Attachment: Exploring Postsocial Relations in Financial Markets.” *Canadian Journal of Sociology* 25(2):141–68.

Knorr-Cetina, Karin and Urs Bruegger. 2004. “Traders’ Engagement with Markets: A Postsocial Relationship.” Pp. 121–42 in *The Blackwell Cultural Economy Reader*, edited by A. Amin and N. Thrift. Oxford, UK: Blackwell Publishing.

Lacroix, Robert and Louis Maheu. 2015. *Leading Research Universities : Autonomous Institutions in a Competitive Academic World*. Montreal, QC and Kingston, ON: McGill-Queen’s University Press.

Lamont, Michèle. 2010. *How Professors Think: Inside the Curious World of Academic Judgment*. Cambridge, Mass: Harvard University Press.

Lamont, Michèle. 2012. “Toward a Comparative Sociology of Valuation and Evaluation.” *Annual Review of Sociology* 38(1):201–21.

Lampland, Martha and Susan Leigh Star. 2009. *Standards and Their Stories: How Quantifying, Classifying, and Formalizing Practices Shape Everyday Life*. Ithaca : Cornell University Press, 2009.

Latour, Bruno. 1987. *Science in Action: How to Follow Scientists and Engineers Through Society*. Cambridge, MA: Harvard University Press.

Latour, Bruno. 2012. “Gabriel Tarde and the End of the Social.” Pp. 117–32 in *The Social in Question: New Bearings in History and the Social Sciences*, edited by P. Joyce. London, UK: Routledge.

Latour, Bruno. 2007. *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford: Oxford University Press.

Law, John. 1994. *Organizing Modernity*. Oxford, UK; Cambridge, Mass., USA: Blackwell.

Law, John. 2012. “Technology and Heterogeneous Engineering: The Case of Portuguese Expansion.” Pp. 105–28 in *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, edited by W. E. Bijker, T. P. Hughes, and T. Pinch. Cambridge, MA: Massachusetts Institute of Technology Press.

Law, John and John Hassard, eds. 1999. *Actor Network Theory and After*. Oxford, UK: Blackwell Publishing.

Lehmann, W. (2007a). *Choosing to Labour: School-Work Transitions and Social Class.* Montreal & Kingston: McGill-Queen’s University Press.

Lehmann, W. (2007b). “I just don’t feel like I fit in”: The role of habitus in university drop-out decisions. *Canadian Journal of Higher Education*, 37(2): 89-110.

Lemke, Thomas. 2007. “An Indigestible Meal? Foucault, Governmentality and State Theory.” *Distinktion: Scandinavian Journal of Social Theory* (15):43–64.

Lianos, Michalis. 2002. “Social Control After Foucault / Le Contrôle Social Après Foucault.” *Surveillance & Society* 1(3):412-430-448.

Lianos, Michalis. 2012. *The New Social Control: The Institutional Web, Normativity and the Social Bond*. Ottawa: Red Quill Books.

Lupton, Deborah. 2016. *The Quantified Self*. Cambridge, UK: Polity.
Lyon, David. 2001. *Surveillance Society : Monitoring Everyday Life*. Phildelphia, Pa. : Open University, 2001.

Lyon, David. 2010. “Identification, Surveillance and Democracy.” Pp. 34–50 in *Surveillance and democracy*, edited by Kevin D. Haggerty and Minas Samatas. New York: Routledge.

Lyon, David, Kevin D. Haggerty, and Kirstie Ball, eds. 2012. *Routledge Handbook of Surveillance Studies*. Abingdon, Oxon ; New York: Routledge.

Malsch, Bertrand and Sophie Tessier. 2015. “Journal Ranking Effects on Junior Academics: Identity Fragmentation and Politicization.” *Critical Perspectives on Accounting* 26:84–98.

Marginson, Simon. 2009. “University Rankings, Government, and Social Order: Managing the Field of Higher Education According to the Logic of the Performative Present-As-Future.” in *Re-reading education policies : a handbook studying the policy agenda of the 21st century*, *Educational futures: rethinking theory and practice: v. 32*, edited by M. Simons, M. Olssen, and M. A. Peters. Boston: Sense.

Martin, Roger L. 2014. “The Big Lie of Strategic Planning.” *Harvard Business Review* (January-February):2–8.

Mingers, John and Hugh Willmott. 2013. “Taylorizing Business School Research: On the ‘One Best Way’ Performative Effects of Journal Ranking Lists.” *Human Relations* 66(8):1051.

Narins, Craig R., Ann M. Dozier, Frederick Ling, and Wojciech Zareba. 2005. “The Influence of Public Reporting of Outcome Data on Medical Decision Making by Physicians.” *Archives of Internal Medicine* 165(1):83-87.

Nichols, Naomi Elizabeth. 2008. “Gimme Shelter! Investigating the Social Service Interface from the Standpoint of Youth.” *Journal of Youth Studies* 11(6):685–99.

Page, Stewart. 1998. “Rankings of Canadian Universities, 1997: Statistical Contrivance Versus Help to Students.” *Canadian Journal of Education* 23(4):452–57.

Page, Stewart, and Ken Cramer. 2000. “Rankings of Canadian Universities, 2000: Buyer Beware.” *Canadian Journal of Education* 25(2):n/a.

Paul, Ross H. 2011. *Leadership under Fire : The Challenging Role of the Canadian University President*. Montreal : McGill-Queen’s University Press, 2011.

Pence, Ellen. 2001. “Safety for Battered Women in a Textually Mediated Legal System”. *Studies in Cultures, Organizations & Societies*, *7*(2), 199–229.

Porter, Theodore M. 1995. *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*. Princeton, New Jersey: Princeton University Press.

Potter, Jonathan. 1996. *Representing Reality: Discourse, Rhetoric and Social Construction*. London ; Thousand Oaks, CA : Sage, 1996.

Power, Michael. 1997. *The Audit Society: Rituals of Verification*. New York: Oxford University Press.

Power, Michael. 2000. “The Audit Society — Second Thoughts.” *International Journal of Auditing* 4(1):111–19.

Power, Michael. 2015. “How Accounting Begins: Object Formation and the Accretion of Infrastructure.” *Accounting, Organizations and Society* 47:43–55.

Power, Michael, Tobias Scheytt, Kim Soin, and Kerstin Sahlin. 2009. “Reputational Risk as a Logic of Organizing in Late Modernity.” *Organization Studies* 30(2–3):301–24.

Rankin, Janet. 2017. “Conducting Analysis in Institutional Ethnography: Analytical Work Prior to Commencing Data Collection.” *International Journal of Qualitative Methods* 16(1):160940691773448.

Readings, Bill. 1996. *The University in Ruins*. Cambridge, MA: Harvard University Press.

Rocki, Marek. 2005. “Statistical and Mathematical Aspects of Ranking: Lessons from Poland.” *Higher Education in Europe* 30(2):173–81.

Rose, Nikolas. 1991. “Governing by Numbers: Figuring out Democracy.” *Accounting, Organizations and Society* 16(7):673–92.

Rose, Nikolas and Peter Miller. 1992. “Political Power beyond the State: Problematics of Government.” *British Journal of Sociology* 43(2):173–205.

Rose, Nikolas. 2000. “Government and Control.” *British Journal of Criminology* 40(2):321–39.

Rose, Nikolas, and Peter Miller. 2010. “Political Power beyond the State: Problematics of Government.” *British Journal of Sociology* 61:271–303.

Said, Edward W. 1975. *Beginnings: Intention and Method*. New York: Columbia University Press.

Salmi, Jamil. 2009. *The Challenge of Creating World Class Universities*. Washington, DC: The International Bank for Reconstruction and Development / The World Bank. Retrieved May 7, 2014 (http://siteresources.worldbank.org/EDUCATION/Resources/278200-1099079877269/547664-1099079956815/547670-1237305262556/WCU_summary.pdf).

Sauder, Michael, and Wendy Nelson Espeland. 2009. “The Discipline of Rankings: Tight Coupling and Organizational Change.” *American Sociological Review* 74(1):63–82.

Savage, Mike. 2013. “The ‘Social Life of Methods’: A Critical Introduction.” *Theory, Culture & Society* 30(4):3–21.

Sayer, Andrew. 2000. *Realism and Social Science*. Thousand Oaks, CA: SAGE Publications.

Sayer, Derek. 2016. *Rank Hypocrisies: The Insult of the REF*. London, UK: SAGE Publications. Retrieved February 27, 2016 (https://us.sagepub.com/en-us/nam/rank-hypocrisies/book244105).

Sayes, Edwin Michael. 2013. “Actor-Network Theory and Methodology: Just What Does It Mean to Say That Nonhumans Have Agency?” *Social Studies of Science* 0306312713511867.

Sewell, Graham. 2012. “Organization, Employees, and Surveillance.” Pp. 303–12 in *Routledge handbook of surveillance studies*, edited by D. Lyon, K. D. Haggerty, and K. Ball. Abingdon, Oxon ; New York: Routledge.

Shapin, Steven and Simon Shaffer. 1985. *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life*. 2011 Edition. Princeton, New Jersey: Princeton University Press.

Smelser, Neil J. 2013. *Dynamics of the Contemporary University: Growth, Accretion, and Conflict*. University of California Press. Retrieved June 14, 2015 (http://california.universitypressscholarship.com/view/10.1525/california/9780520275812.001.0001/upso-9780520275812).

Smith, Dorothy E. 1987. *The Everyday World as Problematic: A Feminist Sociology*. Boston: Northeastern University Press.

Smith, Dorothy E. 2005. *Institutional Ethnography : A Sociology for People*. Walnut Creek, CA: AltaMira Press.

Smith, Dorothy E. 2006. *Institutional Ethnography as Practice*. Lanham, Md.: Rowman & Littlefield.

Smith, Peter. 1993. “Outcome-Related Performance Indicators and Organizational Control in the Public Sector1.” *British Journal of Management* 4(3):135–51.

Smith, George. W. 1998. The Ideology of `Fag’: The School Experience of Gay Students. *Sociological Quarterly*, *39*(2), 309–335.

Spector, Malcolm and John I. Kitsuse. 2001. *Constructing Social Problems*. New Brunswick, NJ : Transaction Publishers, c2001.

Soh, Kaycheng. 2013a. “Misleading University Rankings: Cause and Cure for Discrepancies Between Nominal and Attained Weights.” *Journal of Higher Education Policy and Management* 35(2):206–14.

Soh, Kay Cheng. 2013b. “Times Higher Education 100 Under 50 Ranking: Old Wine in a New Bottle?” *Quality in Higher Education* 19(1):111–21.

Stevens, Mitchell L., Elizabeth A. Armstrong, and Richard Arum. 2008. “Sieve, Incubator, Temple, Hub: Empirical and Theoretical Advances in the Sociology of Higher Education.” *Annual Review of Sociology* 34(1):127–51.

Strathern, M. 1997. “‘Improving Ratings’: Audit in the British University System.” *European Review* 5(3):305–21.

Thomas, William Isaac and Dorothy Swaine Thomas. 1932. *The Child in America: Behavior Problems and Programs*. New York: Knopf.

Thrift, Nigel. 2002. “Performing Cultures in the New Economy.” Pp. 201–33 in *Cultural economy: cultural analysis and commercial life*, *Culture, representation, and identities*, edited by P. Du Gay and M. Pryke. Thousand Oaks, CA: Sage.

Tilly, Charles. 2003. Changing Forms of Inequality. *Sociological Theory*, *21*(1), 31–36. https://doi.org/10.1111/1467-9558.00173

Timmermans, Stefan and Steven Epstein. 2010. “A World of Standards but Not a Standard World: Toward a Sociology of Standards and Standardization*.” *Annual Review of Sociology* 36(1):69–89.

Townley, Barbara. 1995. “Managing By Numbers: Accounting, Personnel Management and the Creation of a Mathesis.” *Critical Perspectives on Accounting* 6(6):555–75.

Trottier, Daniel. 2012. “Policing Social Media.” *Canadian Review of Sociology/Revue Canadienne de Sociologie* 49(4):411–425.

Trottier, Daniel. 2013. *Social Media as Surveillance: Rethinking Visibility in a Converging World*. New York: Routledge. Retrieved July 19, 2016 (https://www.routledge.com/Social-Media-as-Surveillance-Rethinking-Visibility-in-a-Converging-World/Trottier/p/book/9781409438892).

Van Dyke, Nina. 2008. “Self- and Peer-Assessment Disparities in University Ranking Schemes.” *Higher Education in Europe* 33(2/3):285–93.

Van Vught, Frans A., and Don F. Westerheijden. 2010. “Multidimensional Ranking: A New Transparency Tool for Higher Education and Research.” *Higher Education Management and Policy* 22(3):31–56.

Veysey, Laurence R. 1965. *The Emergence of the American University*. Chicago, IL: University of Chicago Press.

Walby, Kevin. 2005. “Institutional Ethnography and Surveillance Studies: An Outline for Inquiry.” *Surveillance & Society* 3(2/3). Retrieved October 27, 2013 (http://library.queensu.ca/ojs/index.php/surveillance-and-society/article/view/3498).

Walby, Kevin. 2007. “On the Social Relations of Research: A Critical Assessment of Institutional Ethnography.” *Qualitative Inquiry* 13(7):1008–30.

Walby, Kevin. 2013. “Institutional Ethnography and Data Analysis: Making Sense of Data Dialogues.” *International Journal of Social Research Methodology* 16(2):141–54.

Walters, William. 2006. “Border/Control.” *European Journal of Social Theory* 9(2):187–203.

Whitson, Jennifer R. and Kevin D. Haggerty. 2008. “Identity Theft and the Care of the Virtual Self.” *Economy and Society* 37(4):572–94.

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Appendices

Appendix A: Media and Other Sources Cited

Academia.edu. 2016. “Join 38, 464, 059 Academics”. Retrieved on June 9, 2016 from (http://www.academia.edu).

Academic Database Assessment Tool. 2015. “Scopus and Web of Science”, Retrieved on July 22 from (http://adat.crl.edu/databases#results).

American Academy of the Arts and Sciences. 2015. “Trends in Academic Books Published in the Humanities and Other Fields.” *Humanities Indicators*. Retrieved January 5, 2017 (http://www.humanitiesIndicators.org/content/indicatorDoc.aspx?i=88).

Adema, Janneke. 2016. “Don’t Give Your Labour To Academia.Edu, Use It To Strengthen The Academic Commons.” *OPEN REFLECTIONS*. Retrieved July 8, 2018 (https://openreflections.wordpress.com/2016/04/07/dont-give-your-labour-to-academia-edu-use-it-to-strengthen-the-academic-commons/).

American Academy of the Arts and Sciences. 2015. “Trends in Academic Books Published in the Humanities and Other Fields.” *Humanities Indicators*. Retrieved January 5, 2017 (http://www.humanitiesIndicators.org/content/indicatorDoc.aspx?i=88).

Anderson, Drew. 2016. “MRU Provost Abruptly Leaves after Budget Spat with Faculty.” Retrieved March 31, 2016 (http://www.cbc.ca/news/canada/calgary/mru-provost-leaves-1.3510101).

Axelrod, Paul. 2010. “The Trouble with University Rankings.” *University Affairs*, December, 6. Retrieved October 8, 2013 (http://www.univrsityaffairs.ca/the-trouble-with-university-rankings.aspx).

Baty, Phil. 2009. “New Data Partner for World University Rankings.” *Times Higher Education*. Retrieved December 19, 2013 (http://www.timeshighereducation.co.uk/news/new-data-partner-for-world-university-rankings/408881.article).

Baty, Phil. 2010. “Global Impact: Revamped rankings cause elation and consternation.” *The Times Higher Education Supplement*, September 23, p. 892. London, UK.

Boon, Sarah. 2016. “21st Century Science Overload.” *Canadian Science Publishing*. Retrieved January 5, 2017 (http://www.cdnsciencepub.com/blog/21st-century-science-

overload.aspx).

Bosker, Bianca. 2016. “The Binge Breaker.” *The Atlantic*, November. Retrieved October 24, 2016 (http://www.theatlantic.com/magazine/archive/2016/11/the-binge-breaker/501122/).

Coughlan, Sean. 2014. “France Plans Elite Mega-University.” *BBC News*. Retrieved December 16, 2014 (http://www.bbc.com/news/business-30347441).

Bond, David. 2016. “Thomson Reuters in $3.55bn Sale of IP and Science Business — FT.com.” Retrieved July 19, 2016 (https://next.ft.com/content/81697af2-4778-11e6-8d68-72e9211e86ab).

Boyer, Paul, and William Bruneau. 2006. “University Rankings Distort Higher Education [College Rankings Exposed: Getting Beyond the Rankings Myth to Find Your Perfect College].” *CAUT Bulletin* 53(1):A11,A8.

Business School, 2014. “Business School Point System”. Retrieved December 12, 2015. Personal communication.

Charbonneau, Léo. 2008. “Margin Notes: The Rankings That Rankle.” *University Affairs*, November 25. Retrieved October 8, 2013 (http://www.universityaffairs.ca/margin-notes/the-rankings-that-rankle/).

Chou, Chuing Prudence, ed. 2014. *The SSCI Syndrome in Higher Education: A Local or Global Phenomenon*. Vol. 29. Rotterdam, Netherlands: Sense Publishers.

Cooper, Christine, Cameron Graham, and Brendan O’Dwyer. 2013. “Social Impact Bonds: Can Private Finance Rescue Public Programs?” Retrieved (https://pure.strath.ac.uk/portal/en/publications/social-impact-bonds%28a376dd30-45f8-4b6b-a440-713a63130edc%29/export.html).

Cookson, Robert. 2015. “Elsevier Leads the Business the Internet Could Not Kill.” *Financial Times*, November 15. Retrieved July 19, 2016 (http://www.ft.com/cms/s/0/93138f3e-87d6-11e5-90de-f44762bf9896.html).

Craig, Meaghan. 2014. “Fired Dean Is Offered New Position at University of Saskatchewan | Globalnews.ca.” Retrieved July 13, 2016 (http://globalnews.ca/news/1334381/fired-dean-is-offered-new-position-at-university-of-saskatchewan/).

The Canadian Press. 2014. “University of Saskatchewan Fires President Ilene Busch-Vishniac amid Controversy over Professor’s Dismissal.” *National Post*. Retrieved July 13, 2016 (http://news.nationalpost.com/news/canada/university-of-saskatchewan-fires-president-ilene-busch-vishniac-amid-controversy-over-professors-dismissal).

Drolet, Daniel. 2006. “Many Quit Maclean’s Survey.” *University Affairs*, June 5. Retrieved October 8, 201 (http://www.universityaffairs.ca/many-quit-macleans-survey.aspx).

Eisenkraft, Harriet, and Peggy Berkowitz. 2007. “Critics Call for More Data.” *University Affairs*, January 15. Retrieved October 8, 2013 (http://www.universityaffairs.ca/critics-call-for-more-data.aspx).

Elsevier. 2013. “Elsevier Announces Its Scopus Book Titles Expansion Program.” *Elsevier*. Retrieved January 5, 2017 (https://www.elsevier.com/about/press-releases/science-and-technology/elsevier-announces-its-scopus-book-titles-expansion-program).

Elsevier. 2015. “Scopus Content Selection and Advisory Board.” Retrieved June 24, 2015 (http://www.elsevier.com/solutions/scopus/content/scopus-content-selection-and-advisory-board).

Elsevier. 2016. “Scopus Content Coverage Guide.” Retrieved January 5, 2016 (https://www.elsevier.com/__data/assets/pdf_file/0007/69451/scopus_content_coverage_guide.pdf).

Epstein, David. 2005. “Early Exit.” *Inside Higher Ed*, May 18. Retrieved January 4, 2017 (https://www.insidehighered.com/news/2005/05/18/yale).

Eustice, Kerry, Libby Page, and Nancy Groves. 2013. “Who Are the Winners and Losers in the World University Rankings?” T*he Guardian*. Retrieved October 16, 2013 (http://www.theguardian.com/education/2013/sep/10/teacher-stress-student-health-university-rankings).

Fichtenbaum, Rudy, and Hank Reichman. 2013. “‘Obamarank’ Won’t Staunch Rising Costs in the US Academy, Argue Rudy Fichtenbaum and Hank Reichman.” *Times Higher Education*. Retrieved October 16, 2013 (http://www.timeshighereducation.co.uk/obamarank-wont-staunch-rising-costs-in-the-us-academy-argue-rudy-fichtenbaum-and-hank-reichman/2007206.article).

Gladwell, M. 2011. “The Order of Things.” *The New Yorker*, February 14. Retrieved January 16, 2014 (http://www.newyorker.com/reporting/2011/02/14/110214fa_fact_gladwell).

Haggerty-France, Marion. 2016. “Governance 101, February 8 2016.” Retrieved March 20, 2016 (http://www.governance.ualberta.ca/LearnAboutGovernance/~/media/Governance/Documents/GO11/GOV/ED/Gov-101-February-8-2016-General.pdf).

Hazelkorn, Ellen. 2011. “Questions Abound as the College-Rankings Race Goes Global.” *The Chronicle of Higher Education*, March 13.

Holiday, Leah. 2014. “University of Alberta President Samarasekera Calls Recent Ranking ‘inconsistent’ | Metro News.” *Metronews.ca*. Retrieved July 19, 2016 (http://www.metronews.ca/news/edmonton/2014/10/02/university-of-alberta-president-samarasekera-calls-recent-ranking-inconsistent.html).

Holmes, Richard. 2012. “Self-Citation.” *University Ranking Watch*. Retrieved June 23, 2018 (http://rankingwatch.blogspot.com/2012/08/self-citation-in-2010-mohamed-el.html).

International Ranking Expert Group. 2014. “Berlin Principles on Ranking.” Retrieved January 29, 2014 (http://www.ireg-observatory.org/index.php?option=com_content&task=view&id=41&Itemid=48).

Jashick, Scott. 2013. “George Washington U. Admits That It Incorrectly Told Applicants It Was Need-blind | Inside Higher Ed.” Retrieved October 26, 2013 (http://www.insidehighered.com/news/2013/10/22/george-washington-u-admits-it-incorrectly-told-applicants-it-was-need-blind).

JISC Collections. 2015. “Academic Database Assessment Tool.” Retrieved June 22, 2015 (http://adat.crl.edu/databases#results).

Jobbins, David. 2005. “Moving to a Global Stage: A Media View.” *Higher Education in Europe* 30(2):137–45.

Knafo, Saki. 2016. “A Black Police Officer’s Fight Against the N.Y.P.D.” *The New York Times*, February 18. Retrieved February 25, 2016 (http://www.nytimes.com/2016/02/21/magazine/a-black-police-officers-fight-against-the-nypd.html).

Kreitzman, Maayan. 2016. “UBC’s Leadership Crisis Revealed in Unintentionally Leaked Gupta Docs | UBC Insiders.” *UBC Insiders*. Retrieved March 20, 2016 (http://ubcinsiders.ca/2016/01/ubcs-leadership-crisis-revealed-in-unintentionally-leaked-gupta-docs/).

Labi, Aisha. 2010. “‘Times Higher Education’ Releases New Rankings, but Will They Appease Skeptics?” *The Chronicle of Higher Education*, September 15. Retrieved October 16, 2013 (http://chronicle.com/article/Times-Higher-Education/124455/).

Ma, Alexandra. 2018. “China Has Started Ranking Citizens with a Creepy ‘social Credit’ System — Here’s What You Can Do Wrong, and the Embarrassing, Demeaning Ways They Can Punish You.” *Business Insider*. Retrieved July 11, 2018 (http://www.businessinsider.com/china-social-credit-system-punishments-and-rewards-explained-2018-4).

Maclean's. 2013. “Maclean's On Campus”. Retrieved October 18 (http://oncampus.macleans.ca/education/rankings/).

Marcus, Jon. 2013. “Obamarank: US Academy up in Arms over President’s Plans.” *Times Higher Education*, August 29. Retrieved October 16, 2013 (http://www.timeshighereducation.co.uk/news/obamarank-us-academy-up-in-arms-over-presidents-plans/2006852.article).

Matthews, Chris. 2015. “Here’s Why Buzzfeed Could Be Worth $1.5 Billion.” *Fortune*. Retrieved January 6, 2017 (http://fortune.com/2015/07/31/buzzfeed-nbc-universal-valuation/).

Matthews, David. 2016. “Do Academic Social Networks Share Academics’ Interests?” *Times Higher Education (THE)*. Retrieved July 8, 2018 (https://www.timeshighereducation.com/features/do-academic-social-networks-share-academics-interests).

Menz, Kevin and Sarah Plowman. 2015. “Fired University of Saskatchewan President Suing School, Premier | CTV Saskatoon News.” Retrieved March 31, 2016 (http://saskatoon.ctvnews.ca/fired-u-of-s-president-suing-school-premier-1.2405152).

Mitchell, Nic. 2015. “Big Is Beautiful for Merging Universities.” *BBC News*, November 25.

Mohdin, Aamna and Aamna Mohdin. n.d. “A Wave of Mergers Is Sweeping over European Universities.” *Quartz*. Retrieved May 27, 2018 (https://qz.com/560422/a-wave-of-mergers-is-sweeping-over-european-universities/).

Noble, Steven. 2010. “New Kid on the Block Scoring High Grades.” Retrieved December 20, 2013 (http://www.mtroyal.ca/AboutMountRoyal/MediaRoom/Newsroom/FTDATA_Maclean_022510.htm).

ORCID. 2017. “ORID Distinguish Yourself.” *Wiley Online Library, Canadian Review of Sociology*. Retrieved January 6, 2017 (http://onlinelibrary.wiley.com/doi/10.1111/j.1755-618X.2012.01302.x/full).

Perimutter, David D. 2015. “Academic Job Hunts From Hell: The Fake Search.” *The Chronicle of Higher Education*. Retrieved January 3, 2017 (http://www.chronicle.com/article/Academic-Job-Hunts-From-Hell-/233609/).

Perimutter, David D. 2016. “Academic Job Hunts From Hell: Why You Weren’t Picked.” *The Chronicle of Higher Education*. Retrieved January 3, 2017 (http://www.chronicle.com/article/Academic-Job-Hunts-From-Hell-/236635/).

Perpektywy. 2015. “Perspektywy University Ranking 2014 - Home.” Retrieved March 24, 2015 (http://www.ranking.perspektywy.org/2014/).

Quacquarelli Symonds. 2013. “QS: The World’s Leading Network for Top Careers and Education.” Retrieved November 12, 2013 (http://www.qs.com/qs-worldclass.html).
Researchgate. 2016. “Gary Barron Scores”. Retrieved on June 9, 2016 from (https://www.researchgate.net/profile/Gary_Barron/reputation”).

Rivard, Ry. 2013. “Political Campaign-style Targeting Comes to Student Search | Inside Higher Ed.” Retrieved October 26, 2013 (http://www.insidehighered.com/news/2013/10/24/political-campaign-style-targeting-comes-student-search).

Rock, Allan. 2009. “Research Dollars Should Follow Great Ideas”. *Ottawa Citizen*, September 3, A11.

Ruff, Corinne. 2016. “Scholars Criticize Academia.Edu Proposal to Charge Authors for Recommendations.” *The Chronicle of Higher Education*, January 29.

Ryan, Alan. 2008. “University Rankings: A Contest No One Can Win.” *CAUT Bulletin* 55(6):A2,A7.

Saarenketo, Sami. 2014. “Like It or Not, University Rankings Are Here to Stay - News - LUT.” Retrieved June 2, 2018 (https://www.lut.fi/web/en/news/-/asset_publisher/lGh4SAywhcPu/content/like-it-or-not-university-rankings-are-here-to-stay).

Salmi, Jamil. 2017. “Young University Rankings 2017: 14 Mistakes New Universities Make.” *Times Higher Education (THE)*. Retrieved May 27, 2018 (https://www.timeshighereducation.com/world-university-rankings/young-university-rankings-2017-14-mistakes-new-universities-make).

Samarasekera, Indira. 2007. “Rising Up Against Rankings.” *Inside Higher Ed*, April 2., Retrieved October 8, 2013 (http://www.insidehighered.com/views/2007/04/02/samarasekera).

Samarasekera, Indira, and Carl Amrhein. 2010. “Top Schools Don’t Always Get Top Marks.” *Edmonton Journal*, October, 3.

Samarasekera, Indira. 2011. “What Global Rankings Ignore.” *Inside Higher Ed*, July 12. Retrieved September 12, 2013 (http://www.insidehighered.com/views/2011/07/12/essay_on_one_of_the_flaws_of_international_rankings_of_universities).

Samarasekera, Indira. 2014. “President Samarasekera’s Weekly Bulletin—Oct. 3, 2014.” *Colloquy@uAlberta - The Official Blog of the University of Alberta*. Retrieved July 19, 2016 (http://www.ualbertablog.ca/2014/10/president-samarasekeras-weekly.html).

Sample, Ian and science correspondent. 2012. “Harvard University Says It Can’t Afford Journal Publishers’ Prices.” *The Guardian*, April 24. Retrieved July 19, 2016 (https://www.theguardian.com/science/2012/apr/24/harvard-university-journal-publishers-prices).

San Francisco Declaration on Research Assessment. 2012. “Dora - ASCB.” Retrieved January 4, 2017 (http://www.ascb.org/dora/).

School of Business. 2013. “Strategic Plan Draft for Discussion September 2013”. Strategic University. Anonymized, references available.

Scopus. 2015a. Author Analysis Citations by Year, Kevin D. Haggerty. Retrieved April 30, 2015.

Scopus. 2015b. Author Analysis Output Kevin D. Haggerty. Retrieved April 30, 2015 University of Alberta Library.
Scopus. 2015c. Institution Profile, University of Alberta. Retrieved April 30, 2015 University of Alberta Library.

Scopus. 2015d. Author Analysis Kevin D. Haggerty #2. April 30, 2015 University of Alberta Library.

Seidman, Karen. 2014. “Canada’s Top Universities Slip in 2014 World Rankings.” *www.montrealgazette.com*. Retrieved May 2, 2014 (http://www.montrealgazette.com/Canada+universities+slip+2014+world+rankings/9583011/story.html).

Siwinska, Bianka. 2013. “Rise of the World-Class University - University World News.” Retrieved November 26, 2013 (http://www.universityworldnews.com/article.php?story=20131120134504702).

Smith, Oliver. 2014. “Reed Elsevier Leads the FTSE 100 as Profits Soar.” Retrieved July 19, 2016 (http://www.cityam.com/1406251479/reed-elsevier-leads-ftse-100-profits-soar).

Stake, J. 2015. “Play The Ranking Game: The Law School Ranking Game Page: Indiana Law.” Retrieved March 28, 2015 (http://monoborg.law.indiana.edu/LawRank/play.shtml).

Tamburri, Rosanna. 2013. “University Rankings Gain Influence, Despite Obvious Drawbacks.” *University Affairs*, September 11. Retrieved October 8, 2013 (http://www.universityaffairs.ca/university-rankings-gain-influence-despite-obvious-drawbacks.aspx).

Times Higher Education. 2014. “World University Rankings - Home - Times Higher Education.” Retrieved December 16, 2014 (http://www.timeshighereducation.co.uk/world-university-rankings/).

Times Higher Education. 2016. “World Reputation Rankings.” *Times Higher Education (THE)*. Retrieved July 3, 2016 (https://www.timeshighereducation.com/world-university-rankings/2016/reputation-ranking).

Thomson Reuters. 2016a. “Thomson Reuters Announces Definitive Agreement to Sell Its Intellectual Property & Science Business.” Retrieved June 18, 2018 (https://www.thomsonreuters.com/en/press-releases/2016/july/thomson-reuters-announces-definitive-agreement-to-sell-its-intellectual-property-science-business.html).

Thomson Reuters. 2016b. “The Thomson Reuters Impact Factor - IP & Science - Thomson Reuters.” Retrieved June 10, 2016 (http://wokinfo.com/essays/impact-factor/).

Tufekci, Zeynep. 2010. “Wikileaks Exposes Internet’s Dissent Tax, Not Nerd Supremacy.” *The Atlantic*. Retrieved January 23, 2014 (http://www.theatlantic.com/technology/archive/2010/12/wikileaks-exposes-internets-dissent-tax-not-nerd-supremacy/68397/).

United Nations Educational, Scientific and Cultural Organization. 2013. “University Rankings Are Here to Stay – so How Can We Improve Them? | United Nations Educational, Scientific and Cultural Organization.” Retrieved June 2, 2018 (http://www.unesco.org/new/en/media-services/single-view/news/university_rankings_are_here_to_stay_so_how_can_we_impro/).

University of Alberta. 2013a. “Why UAlberta?.” Retrieved October 25, 2013 (http://why.ualberta.ca/).
University of Alberta. 2016b. “Duties & Responsibilities - University of Alberta.” Retrieved March 20, 2016 (https://uofa.ualberta.ca/about/leadership/president/duties).

University of Alberta. 2013c. “2012 Comprehensive Institutional Plan.” Retrieved December 20, 2013 (http://www.provost.ualberta.ca/en/ComprehensiveInstitutionalPlan.aspx).

University of Alberta. 2015. “Enterprise Data Warehousing System Overview”. Retrieved February 24, 2015, personal communication.

University of Alberta Faculty of Arts, 2015. Faculty Annual Report of Faculty Member. Retrieved, October 20, 2015 personal communication.

University of Alberta, Faculty of Science. 2012. “Standards of Performance and Procedures for Merit Increments, Continuing Appointment, and Promotion for Faculty Service Officers (FSOs) Document.” Retrieved November 22, 2015 (https://uofa.ualberta.ca/science/-/media/science/aboutus/documents/faculty-and-staff-resources/human-resources/efec/fso-standards-of-performance-and-procedures.pdf).

University of Toronto. n.d. “Promotion to Full Professor.” *Office of the Vice-Provost, Faculty & Academic Life*. Retrieved May 27, 2016 (http://www.faculty.utoronto.ca/academic-life/full-professor/).

Usher, Alex. 2011. “More Shanghai Needed.” Higher Education Strategy Associates. Retrieved December 19, 2013 (http://higheredstrategy.com/more-shanghai-needed/).

Usher, Alex, and Paul Jarvey. 2012. “Measuring Academic Research in Canada: Field-Normalized University Rankings 2012.” Retrieved October 18, 2013 (http://higheredstrategy.com/wp-content/uploads/2012/08/rankings20121.pdf).

University of Alberta. 2016b. “Roles and Responsibilities - Provost - University of Alberta.” Retrieved March 20, 2016 (http://www.provost.ualberta.ca/en/ProvostAndVPA/ProvostStaffList/pvparoles.aspx).

Usher, Alex. 2011. “More Shanghai Needed.” Higher Education Strategy Associates. Retrieved December 19, 2013 (http://higheredstrategy.com/more-shanghai-needed/).

Van Noorden, Richard. 2014. “Online Collaboration: Scientists and the Social Network.” *Nature News* 512(7513):126–29.

van Vught, Frans A., and Frank Ziegele, eds. 2012. *Multidimensional Ranking - The Design and Development of U-Multirank*. Retrieved October 10, 2013 (http://www.springer.com/education+26+language/higher+education/book/978-94-007-3004-5).

Walker, Sally. 2004. “University ranking criteria should include value judgments, argues Sally Walker”. *The Australian*, December 1, p.42. Sydney, NSW.

Walton, Gerald. 2017. “Academic Underperformers Must Be Called out.” *University Affairs*. Retrieved January 11, 2017 (http://www.universityaffairs.ca/opinion/in-my-opinion/academic-underperformers-must-called/).

Wexler, Ellen. 2015. “What a Mass Exodus Means for Scholarly Publishing - University World News.” Retrieved November 11, 2015 (http://www.universityworldnews.com/article.php?story=20151107060720133).

Wood, Geoffrey and David Peel, eds. 2015. “ABS Academic Journal Guide 2015.”

Yang, Jennifer. 2009. “Oshawa cracks Maclean's annual list; School cited for grants, spending on services.” *The Toronto Star*, November 5, p.GTO2. Toronto, ON.

Appendix B: Academic Evaluation Standards Documentation References

Gravestock, Pamela and Emily Gregor Greenleaf. 2008. “Overview of Tenure and Promotion Policies across Canada.”

University of Alberta, Alberta School of Business. 2008. “Faculty Evaluation Committee Criteria for the Evaluation of Academic Staff.”

University of Alberta, Faculty of Agriculture, Life, and Environmental Sciences. 2011. “Standards and Procedures for Performance Evaluation and Promotion of Faculty Service Officers.”

University of Alberta, Faculty of Arts. 2014. “Faculty of Arts Faculty Evaluation Committee: Standards for the Evaluation of Academic Staff Assessed for Tenure, Promotion and Incrementation.”

University of Alberta, Faculty of Education. n.d. “Procedures Governing the End of First Probationary Appointments, Tenure and Application for Promotion to Rank of Full Professor.”

University of Alberta, Faculty of Extension. 2008. “Faculty of Extension Standards for Salary Increment, Promotion and Tenure.”

University of Alberta, Faculty of Medicine and Dentistry. n.d. “Guidelines for the Evaluation of Academic Staff for Merit Increments, Tenure, and Promotion.”

University of Alberta, Faculty of Nursing. 2012. “Standards and Criteria for Salary Increment, Probation, Tenure and Promotion.”

University of Alberta, Faculty of Science. 2012. “Standards of Performance and Procedures for Merit Increments, Continuing Appointment, and Promotion for Faculty Service Officers (FSOs) Document.”

University of Calgary. 2009. “Appointment, Promotion and Tenure Manual.”

University of Toronto. n.d. “Tenure Information for New Faculty.” *Office of the Vice-Provost, Faculty & Academic Life*. Retrieved May 27, 2016 (http://www.faculty.utoronto.ca/academic-life/tenure/).