

**ONLINE EDUCATION, CIRCULATION, AND INFORMATION
ECONOMIES OF THE FUTURE**

by
Patrick Love

A Dissertation

*Submitted to the Faculty of Purdue University
In Partial Fulfillment of the Requirements for the degree of*

Doctor of Philosophy



Department of English
West Lafayette, Indiana
August 2019

THE PURDUE UNIVERSITY GRADUATE SCHOOL
STATEMENT OF COMMITTEE APPROVAL

Dr. Patricia A. Sullivan, Chair

Department of English

Dr. Thomas J. Rickert

Department of English

Dr. Samantha Blackmon

Department of English

Dr. Peter J. Fadde

Department of Curriculum and Instruction, Southern Illinois University

Approved by:

Dr. Manushag Powell

Head of the Graduate Program

*This dissertation is dedicated to all the teachers
working to lift up their students every day,
in both online classes and in classrooms.*

*This dissertation is also dedicated to my wonderful wife, Brittany,
who inspires me with her intellect, charm, and radiance every day,
and with whom I am lucky to spend my days.*

ACKNOWLEDGMENTS

I would like to thank my committee for their generous support. Dr. Patricia Sullivan is a staggering intellect to behold, and I wish to thank her for believing in me and always pointing me in the right direction. I would like to thank Dr. Thomas Rickert for inspiring my work and pushing me to accomplish more than I believe I can at the start of a project. I would like to thank Dr. Samantha Blackmon for supporting me and challenging me in equal parts. Finally, I would like to thank Dr. Peter Fadde for expressing such interest in my project and providing me with generous insight.

Additional thanks to the Purdue English Department and the Purdue Rhetoric and Composition program for forming me into the scholar and person I am today. All the friends I've met and students I've taught are invaluable and irreplaceable in my memory. When it comes down to it, justice, security, and community are the sustaining things of life, and I am very thankful that my graduate studies have provided me the time and opportunity to recognize and pursue these things in my work.

Thanks also go to the Global Society of Online Literacy Educators (GSOLE) for the community support and the grant they awarded me to support my research. I also wish to thank the 2018 Patricia Sullivan Dissertation Scholarship award committee for the funding awarded to my research. These funds paid for valuable recording equipment and compensation for my research participants, who otherwise donated their time.

My family, my mother, father, and brother (Susan, Brian, and James respectively), are a constant source of love and joy in my life, and their undying faith in me is a blessing in its own right. Without my family, I would be lost and have no courage to seek this degree or take on projects like this dissertation. My mother, in particular, is one of the hardest working people I know, and she deserves thanks and love for it every chance there is.

Finally, I would like to thank my wife, Brittany, whose life has been entwined with mine for nearly six years, who has seen me through this project from start to finish while writing her own dissertation, and who is my best friend in life. While I am exceptionally proud of this degree and this dissertation, I'd be lying if I said meeting, knowing, and marrying Brittany was not a greater achievement. It is my pride and joy to be her husband.

TABLE OF CONTENTS

LIST OF FIGURES	xi
ABSTRACT	xii
INTRODUCTION	1
CHAPTER 1. THE DEVELOPMENT OF DISTANCE EDUCATION, ONLINE EDUCATION, AND ONLINE WRITING INSTRUCTION	4
1.1 Historical Efficacy of Distance Education.....	6
1.2 Technological Expansion and Mass Distribution of Distance Education (and the Shift to Online)	8
1.2.1 On MOOCs and OERs.....	13
1.2.2 OE Development in Summation	15
1.3 Modern Developments into OWI.....	15
1.3.1 Principle 1: Access	18
1.3.2 Instructional Principles: 2-6.....	19
1.3.3 Faculty Principles: Principle 7-9	20
1.3.4 Institutional Principles: Principles 10-14.....	21
1.3.5 Research and Exploration Principle: Principle 15	22
1.3.6 Summative Thoughts	22
1.4 Issues of Interest in Online Education	23
1.4.1 Time and Space.....	23
1.4.2 Labor.....	25
1.4.3 Population	30
1.4.3.1 Demographics	30
1.4.3.2 Cost.....	32
1.4.4 Pedagogy.....	34
1.4.4.1 Correspondence Pedagogy vs Mass Distribution	36
1.4.4.2 Community and Ecology	37
1.4.4.3 What Students Want	39
1.5 Concluding Thoughts.....	41

CHAPTER 2. CIRCULATION AND INFORMATION ECONOMIES.....	42
2.1 Active Learning and Empirical Knowledge-Making.....	42
2.2 Information and Data Science Influence.....	49
2.2.1 Transport.....	49
2.2.2 Bits and Redundancy	50
2.2.3 Stochasticity.....	51
2.2.4 The Informational Turn	51
2.2.5 Information Theory Summary	54
2.3 Data, Information, Knowledge, and Wisdom for Rhetoricians in the 21st Century.....	56
2.3.1 'Data' and 'Information' for Rhetoricians in the 21st Century	57
2.3.2 'Knowledge' for Rhetoricians in the 21st Century	59
2.3.3 'Wisdom' for Rhetoricians in the 21st Century.....	60
2.3.4 Rhetorical DIKW	63
2.4 Rhetoric, Information, and Circulation	65
2.4.1 Knowledge Ecology.....	68
2.5 Neoliberal Governance of Information	70
2.5.1 Neoliberalism and Neoliberal Filtering of Knowledge.....	71
2.6 The Ecology of Modern Knowledge: Circulation, Information, and Neoliberalism	79
2.6.1 Circulation and Markets	80
2.6.2 Markets and Information	80
2.6.3 Information and Circulation	81
2.6.4 A Brief Digression on Biopolitics	81
2.6.5 The Macro-State of the Ecology	82
2.6.5.1 Consequences of Marketizing Knowledge Work	83
2.7 The Total Problem: Information Economies of the Future.....	85
2.8 Concluding Thoughts.....	88
CHAPTER 3. RESPONSE AND METHODS.....	89
3.1 Methodology.....	89
3.1.1 Six Key Variables	90
3.2 Methods.....	92
3.2.1 Phase One Procedures:	93

3.2.2	Phase Two Procedures:	93
3.2.3	Participant Criteria	93
3.2.4	Local Participant Recruitment	94
3.2.5	National Participant Recruiting	95
3.2.6	General Recruiting Considerations and Outcomes	95
3.2.7	Focus Groups	96
3.2.8	Case Studies	97
3.2.9	Interviews	98
3.2.10	Case Participants	99
3.2.11	Student Surveys	100
3.3	Summary of Methods	101
CHAPTER 4. INQUIRY RESULTS		102
4.1	Focus Group Results	102
4.1.1	What Classes and Why	103
4.1.2	Students and Structure	105
4.1.3	Effective Elements and Elements Respondents Would Like Improved	106
4.2	Case Profiles	110
4.2.1	Case 1: Brett Templeton	110
4.2.1.1	Brett's Students	111
4.2.1.2	Brett's Course Structure	112
4.2.2	Case 2: Grant Christian	112
4.2.2.1	Grant's Students	113
4.2.2.2	Grant's Course Structure	113
4.2.3	Summary of Case Choices	114
4.3	Interview and Observation Data Narrative	115
4.3.1	Case Data I: Initial Interview and Observations of Course Structure	115
4.3.1.1	Case Data I: Brett	116
4.3.1.2	Case Data I: Grant	118
4.3.1.3	Case Data I Summary	122
4.3.2	Case Data II: Course Design and Labor	123
4.3.2.1	Case Data II: Brett	123

4.3.2.1.1	Time and Retention I.....	124
4.3.2.1.2	Video and New Media.....	125
4.3.2.2	Case Data II: Grant	126
4.3.2.2.1	Time and Retention I.....	128
4.3.2.2.2	Video and New Media.....	128
4.3.2.2.3	Survey Input	129
4.3.2.3	Case Data II Summary.....	130
4.3.3	Case Data III: Identity and Accessibility	130
4.3.3.1	Case Data III: Brett Templeton.....	131
4.3.3.1.1	Time and Retention II	133
4.3.3.1.2	One More Thought from Brett	134
4.3.3.2	Case Data III: Grant Christian	134
4.3.3.2.1	Time and Retention II	137
4.3.3.3	Case Data III Summary	137
4.3.4	Case Data IV: The Six Variables	137
4.3.4.1	Case Data IV: Brett Templeton	138
4.3.4.1.1	Time and Retention III	138
4.3.4.1.2	Shared Identity: Brett	138
4.3.4.1.3	Trust: Brett	139
4.3.4.1.4	Awareness: Brett	139
4.3.4.1.5	Coordination: Brett.....	140
4.3.4.1.6	Competency: Brett.....	140
4.3.4.1.7	Conflict: Brett.....	140
4.3.4.1.8	Overall: Brett.....	141
4.3.4.2	Case Data VI: Grant.....	141
4.3.4.2.1	Time and Retention III	141
4.3.4.2.2	Shared Identificaiton: Grant	141
4.3.4.2.3	Trust: Grant	142
4.3.4.2.4	Awareness: Grant	142
4.3.4.2.5	Coordination: Grant.....	142
4.3.4.2.6	Competency: Grant	143

4.3.4.2.7	Conflict: Grant.....	143
4.3.4.2.8	Overall: Grant.....	144
4.3.5	Interview and Observation Wrap-Up.....	144
4.4	Student Surveys	144
4.4.1	Section I: Students on the Six Variables.....	145
4.4.1.1	Shared Identity.....	146
4.4.1.2	Trust.....	148
4.4.1.3	Awareness.....	151
4.4.1.4	Coordination	154
4.4.1.5	Competency	156
4.4.1.6	Conflict	158
4.4.1.7	Six Variables Overall.....	160
4.5	Concluding Thoughts on Results	162
CHAPTER 5.	DISCUSSION AND CONCLUSIONS FROM THE INQUIRY	163
5.1	Original Research Questions.....	163
5.1.1	RQ1: How can online education network together individuals and their embedded places without emphasizing virtual space as the primary site of learning?	163
5.1.2	RQ2: How can online education teach expertise rather than competency through its unique networked affordances?	166
5.1.3	RQ3: How can distributed, mobile education teach research as a daily practice that scales to different needs/inquiries and surfaces new information for the researcher, instead of as a one-size-fits-all approach or is a means to validate (virtual) hypotheses?	167
5.2	Generative Case Observations	168
5.2.1	Course Structure	168
5.2.2	Networked Meritocracy vs Democracy	170
5.2.3	Information Supplementing and Knowledge-Work	171
5.2.4	The Ephemerality of Student Idea-Markets.....	173
5.2.5	The Entrepreneurial Trade-Offs of Accessibility	175
5.2.6	Flexibility and Intersectionality	176
5.2.7	Conflict and Uberfication	177
5.3	Broad Conclusions	178

CONCLUSION.....	181
APPENDIX A. FOCUS GROUP PROTOCOL	184
APPENDIX B. CASE INTERVIEW PROTOCOLS	187
APPENDIX C. SURVEY PROTOCOL.....	193
APPENDIX D. DISSERTATION INTERNAL SURVEY REPORT	211
APPENDIX E. DISSERTATION EXTERNAL REPORT	230
REFERENCES	248

LIST OF FIGURES

Figure 2.1. The DIKW Pyramid Model of Knowledge Production in Data Science.....	46
Figure 2.2. Expanded Pyramid Model of Knowledge Production.....	46
Figure 2.3. Buckland’s Four Forms of Information.....	58
Figure 2.4. Expanded Rhetorical DIKW Pyramid of Knowledge Production.....	64
Figure 2.5. Twitter Profile Page Example	69
Figure 4.1. What Classes Were Taught by Participants.....	104
Figure 4.2. Focus Group Participants: Effective Elements vs Elements Needing Improvement	107
Figure 4.3. Survey Results – Brett and Grant’s Classes: Shared Identity (Question 4)	146
Figure 4.4. Survey Results – Randomly Selected Classes: Shared Identity (Question 4)	147
Figure 4.5. Survey Results – Brett and Grant’s Classes: Trust (Question 6-2)	149
Figure 4.6. Survey Results – Randomly Selected Classes: Trust (Question 6-2).....	150
Figure 4.7. Survey Results – Brett and Grant’s Classes: Awareness (Question 9-3)	152
Figure 4.8. Survey Results – Randomly Selected Classes: Awareness (Question 9-3).....	153
Figure 4.9. Survey Results – Brett and Grant’s Classes: Coordination (Question 11-4).....	154
Figure 4.10. Survey Results – Randomly Selected Classes: Coordination (Question 11-4)	155
Figure 4.11. Survey Results – Brett and Grant’s Classes: Competency (Question 13-5)	156
Figure 4.12. Survey Results – Randomly Selected Classes: Competency (Question 13-5)	157
Figure 4.13. Survey Results – Brett and Grant’s Classes: Conflict (Question 15-6).....	158
Figure 4.14. Survey Results – Randomly Selected Classes: Conflict (Question 15-6)	159
Figure 4.15. Survey Results – Brett and Grant’s Classes: Overall Rating (Question 17)	160
Figure 4.16. Survey Results – Randomly Selected Classes: Overall Rating (Question 17)	160

ABSTRACT

Author: Love, Patrick. PhD

Institution: Purdue University

Degree Received: August 2019

Title: Online Education, Circulation, and Information Economies of the Future

Committee Chair: Patricia Sullivan

Circulation studies, as the theory of ecological spread of information, impacts public perception of knowledge-making, and digital circulation (i.e. online information sharing) impacts what people expect online knowledge-making and online education is or should be. Online education is becoming a new norm for students and universities at a time when economic pressure is pushing both to be more austere and expedient; at the same time, circulation collapses together the complex ways we communicate, making them harder to differentiate. This dissertation responds to these conditions by focusing on the labor behind circulation and Online Writing Instruction (OWI) in order to study knowledge-making online. Through focus groups with instructors, case studies, and surveys of students in online classes, this dissertation identifies strategies that benefit both teachers and students and improve Online Writing Classes. This work intersects with recent considerations of how mis- and dis-information spread online, the impact of Data Science and Information Theory on communication and knowledge-making, and how to make universities accessible to more people.

Chapter 1 overviews the history of Distance Education (DE) and Online Education (OE) as well as the relevant disciplinary distinctions OWI makes for itself. Chapter 1 also identifies theoretical and practical challenges OE finds for itself and overviews recent shifts in OE student populations. Chapter 2 contextualizes the challenges OE and OWI face in a larger ecology of Information Theory, Rhetoric and Composition theory and practice, Technical Communication theory and practice, and Neoliberal economics, positing ecological links between modern data science, digital circulation, and economics. In doing so, Chapter 2 offers a rhetorical interpretation of the DIKW pyramid and definitions of data, information, knowledge, and wisdom (D, I, W, and W respectively) for rhetorical practitioners. Chapter 3 follows up on Chapter 2's arguments to respond with research on teacher and student labor in online classes with methods for such inquiry, through focus groups, case studies, and surveys. Chapter 4 presents data from all stages of that inquiry, and Chapter 5 connects together observations from the data with theory from Chapters 1 and 2 to draw more concrete conclusions.

INTRODUCTION

We live in a time where more information is available to more people than in most of human history. Eric Schmidt, former Executive Chairman of Google and Alphabet, estimated in 2010 that humanity, and its technological infrastructure, created as much information in one day as it had in all of recorded history up to 2003, an amount he estimated at 5 exabytes (1,000,000,000,000,000,000 bytes or 1 billion gigabytes¹ (Siegler 2010). We have such an embarrassment of riches in this area, and many more resources devoted to accumulation than processing, that the problem we often confront is how to manage all this information, under the assumption that it will help us process it and make knowledge more efficiently. At times, we grasp at the air around us, assuming we still lack the information necessary to solve social inequality or climate crisis; at other times we are confounded by the inability of others to see what we see plainly in the information in front of us. As has been done in the past, humanity looks to new technology and economic forces to generate solutions to these problems and those problems our information wealth may help us fix: social unrest and ecological catastrophe that span the globe and threaten to override more pleasant concerns. Therefore, part of what we seek is methods for making knowledge that contributes to these problems and prepares new generations for new incarnations of these challenges. While we accumulate more information, we still must grapple with what to *do* now, particularly at a time when the world we've built seems on the brink of collapse.

Online education is a pressing issue on some fronts and on less urgent on others for a similar set of reasons: on the one hand there are more people seeking higher education than at any time before, while the foundations of knowledge and knowledge-making seem destabilized and massive ecological problems facing humanity and the planet go unaddressed. This dissertation seeks to show the importance of online education through a theoretical exploration of the shared issues facing education, online or otherwise, and knowledge-making in the 21st century. Ultimately, if there are massive issues needing solving, education is one of the components of addressing them, and our knowledge-making processes and practices feed back into education: how we make, share, and believe knowledge impacts how we teach 'knowing,'

¹ In decimal measurement.

‘making,’ and ‘discovering’ knowledge. We are not at an ‘end of knowledge,’ though our expedient access to information makes it feel that way. There is always more for us to know about ourselves, each other, and our relationships, and we must look for way to teach that in an ecology where shifts in ideas and material conditions are more immediately and violently perceptible.

Online education is representative of a growing norm in civilization: more and more communication happens through digital documents than ever before, likely surpassing direct communication between individuals (i.e. speech). “Documents” are the generic term for recorded information that communicate across time and space, including all books, correspondence, digital files, and more (Buckland 2017). Documents form the basis of internet communication and, either because of that fact or simply concurrent with it, they also form the basis of distance education. Documents, often text based, form a portable standard of communication and accessibility that online education relies on and champions for greater access to information and knowledge-making. Communication through documents is also the domain of Rhetoric and Composition and the purview of technical communication. As such, the future of Online Education is connected to Technical Communication and Rhetoric and Composition theory and practice reciprocally: writing and communication is a way we make meaning and knowledge, and online education is a microcosm with far-reaching consequences.

This dissertation is grounded in a few key ideas that grow in complexity when examined in the chapters that follow. First: Teddie Fishman’s research on Distance Education that ‘correspondence’ education—education that mitigates time and distance barriers through writing—has historically been a force for social mobility in working classes that works because access, individualization, and interpersonal communications are at its core. Second, James Berlin’s observation that higher education typically prepares students for positions in the economic power structure as it exists ‘at a given time,’ teaching them how to skate to where the puck *is* instead of how to figure out where it is going. Third: privatization of public institutions—part of a process of neoliberalization—is shaping the development of knowledge-making, decision-making, and education. The results are more thrifty approaches to all three that look shallower and shallower into the future, exacerbating the wicked problems facing these pursuits and the world. Neoliberalization is also contributing to gaps in society—wealth, knowledge, and

power—that stratify people and naturalize this stratifications, bring about the kind of education paradigm of which Berlin is critical.

Throughout this dissertation, I take the position that online education, specifically online writing instruction (OWI) can be a positive force in how we define, communicate about, and work on these problems because of its ability to reach more people and, contrary to how social media circulation seems to work, network together their experiences through knowledge-making and experience sharing rather than intensify the enthymemes driving their lives and decisions.

Economics is a driving force in information circulation, knowledge-making, and political development, and online education is a microcosm or nexus point for studying it: overwhelming options are filtered through economic activity using indirect measures of quality, and large-scale online education mirrors this logic and, in doing so, can reinforce it or create alternatives. The future is going to require not just that we educate everyone, but that that education does not contribute to stratification, elitism, and anti-democratic governance.

This inquiry proceeds in 5 chapters. Chapter 1 overviews the history of distance education (DE), online education (OE), and online writing instruction (OWI), highlighting the links between technology, pedagogy, and humanity. Chapter 2 demonstrates the theoretical links between information theory, circulation studies, and neoliberal market theory that shape the context online education currently exists in, bringing challenges facing it into sharper focus. Chapter 3 describes the methods of this inquiry in an empirical response to these conditions, chapter 4 accounts for the data collected across 3 segments of inquiry, and chapter 5 organizes discussion of those results into legible conclusions for the reader to do with what they will.

Knowledge is information with an audience and a dialog. Therefore, all the work of this inquiry is nothing without you, the reader. May what you find here be something you take with you and find meaning in.

CHAPTER 1. THE DEVELOPMENT OF DISTANCE EDUCATION, ONLINE EDUCATION, AND ONLINE WRITING INSTRUCTION

The relationship between education and knowledge-making is reciprocal. How people think and how they learn to make knowledge results from their education and, though education is often disciplined to follow dominant cultural developments, changes in education shape knowledge-making for its participants.

Education, whether it's Online, Distance, or Onsite, is at its best when it does five things:

1. **Communicate through real-world problems:** students seeing a real problem and learning about ways it can be solved demonstrates the real-world accomplishability of problems and encourages engagement with the problem itself, not just the mechanical or rote actions involved in it. Engaging with problems calls attention to the ways they noticeably build on each other in the real world (Merrill 45).
2. **Activate previous experiences (or “knowledge”):** learning new things should connect to prior experiences, strengthening both the new and old knowledge by adapting what the learner already knows as part of reconciling something new (Merrill 46 & 47).
3. **Demonstrate what is being taught (as opposed to telling):** education should materially demonstrate the objective or meaning of an endeavor with consistency and guidance from the teacher, and appropriate media, rather than merely *tell* the learner what they have ‘learned’ (Merrill 47-48).
4. **Require learners to apply the knowledge or skills they have seen demonstrated on the problem themselves:** application is where learning can be assessed, supported with appropriate coaching (gradually withdrawn), and challenged with sequences of increasing difficulty (Merrill 49).
5. **Integrate new knowledge into daily life:** when students can publicly demonstrate, critically reflect on, or defend something they have learned, they have acquired new knowledge or acquired a new skill (Merrill 50).

The whole education process is a knowledge-making process, in this case bringing general “information” together with situated “portrayals” of limited knowledge to show problems, planning, and action in the context of a bigger picture that learners can navigate *by*

learning (making knowledge) (Merrill 48). Through this active process, students are taught to identify problems, observe and collect data on that problem, identify and make patterns in that data, and test the resulting information to build robust experiences of what works and what doesn't to connect what they *do* and *know* to their past and make it a stable part of their future. In short, the goal of education is to teach students to *make knowledge* and not to *merely remember things*. What 'knowledge' means changes as knowledge-making changes, but the constant is that, under ideal circumstances, students learn to make ideas and refine them.

The reciprocal relationship between education and knowledge-making is foundational to both education and knowledge-making. Online Education (OE) is a venue of knowledge-making with more potential reach and, under certain circumstances, more flexibility and less cost. A perennial fear of educators about OE is that it will replace the majority of higher education, and act more as a credentialing factory. This fear materializes more under financial austerity. The emergence of more and more online courses and schools—of various for-profit, non-profit, and public-private partnership varieties—offering budget or schedule-friendly versions of traditional onsite classes appears akin to MedExpress clinics overtaking hospitals, offering budget, same-day versions of hospital treatments as an apples-to-apples substitute. The rising costs of both healthcare and education create more parallels along these lines: economic pressure robs people of time and energy they could otherwise spend on rehabilitation or education, making the “traditional” experiences more and more luxurious. Healthcare and education are both, as well, essential to higher standards of living, as wider visibility of disparities and expenses of both generate debates over whether they are rights or privileges, how much they should cost, and who *should* vs who *does* have access to them. In both cases, access doesn't equate to quality practices and outcomes. In the case of education, success is less concrete than life or death, but distributed along a continuum of quality of life, equitable opportunity, and social mobility. The efficacy of onsite, classroom-based education itself is an ongoing project, so OE faces these same, and often more intense, scrutinies, plus the baggage assumption that OE is a deficit model of onsite education (Hewett 2015 p35). The challenge of planning and doing online education is to capitalize on the different affordances distributed location and distance-delivery (now digital) add to OE, rather than how they compromise pedagogy developed for onsite education.

1.1 Historical Efficacy of Distance Education

Historically, the efficacy of Distance Education (DE) is located in 3 properties (Fishman 2002, DePew, Fishman, Romberger, and Ruetenik 2006):

1. **Access:** expansion of educational means to people who's restrictions on their material means or abilities, time, location, finances, or otherwise would ordinarily bar them from traditional onsite education experiences
2. **Flexibility:** the ability to fit education into an existing life-structure either conveniently or complementarily. The crux of this point is that both students and teachers have the opportunity to make time for teaching and learning around other things because their lives are not bound by discrete time-and-place configurations of learning. While some may argue this deemphasizes discipline or structure in learning, the reality is that discipline and structure are shifted around more onto the individual participants, to both productive and, potentially, sinister ends (institutional support becomes 'personal responsibility'). Alternatively, both teachers and students do not have to put pressure on one time and place to squeeze in set hours of learning and knowledge-making, and instead become free to let inspiration strike as it may, catalyzed by events outside the classroom and interleaved with real experiences of life.
3. **Individualized Communication:** Distance Education originates in correspondence schools, where the primary mode of instruction is letter-writing. In this pedagogical model, all learning is carried out through dialogic exchanges crafted by both teachers and students with the overall purpose of recreating personal communication (Fishman 2002, DePew et al 2006). Correspondence individualized communication because, for practical reasons, teachers can't write the exact same letter to multiple students (except for possibly in early stages), and because dialogic correspondence creates a relationship between the teacher and each student based on the students' needs (Fishman 2002). Through correspondence, students can ask specific questions of the instructor and the instructor can address each student as in individual, making the interactions more meaningful and effective.

The common thread of these three properties is that DE works because, while all students and teachers can't be in the same place at the same time, DE (based on correspondence) relies on

and maintains stronger personal relationships between the students and instructor. Dialogic Interaction (i.e. person-to-person correspondence) pulls these elements together because 1) correspondence is a process of reading someone else's work and crafting responses to it to further an ongoing relationship, 2) correspondence is asynchronous, meaning it fits conveniently into both parties' lives as something they can pick up and put down as time allows and 3) given the right technologies, correspondence can happen from any time and place using the tools each party chooses individually, meaning people with different resources and abilities can customize their writing/learning environments to their needs and come together in conversation. The relative low-barrier to entry for correspondence and the highly flexible and personal nature of it makes it something non-traditional, working, or differently-abled students can do more easily than the alternative: coming to a specific place at a specific time, paying for multiple classes at once, and sometimes having to relocate in the process. DE takes the communicative, knowledge-making space of the classroom and relocates it to the distributed places of each member of the classroom (i.e. both teachers and students), distributing education across multiple times and places instead of sequestering it in specific rooms and institutions. In other words, correspondence-based DE works because it is real-world knowledge-making through an easy-to-access communication mode that all participants can pick up and put down as they need to and can combine with their lived experiences, cross-pollinating their education and their existing lives.

Distance Education in North America and Europe grew out of industrial era need to instruct workers in pseudo-skilled or specialized labor practices associated with mining (Fishman 2002, p18). The first American institution to offer DE was Wesleyan University, and the first for-profit Distance Education based American school was the International Correspondence School². While technical education of this time can be criticized as helping to maintain economic status quo by educating workers to more efficiently perform the jobs they have instead of move up to new or better jobs, not all miners experienced it that way. After accessing classes on

² ICS's status as "for profit" raises some flags. The history of for-profit education is overall predatory, giving the classification an ill reputation, especially with professional educators working in public schools. While the legacy of for-profit education is tainted, it's worth noting that it promises students something valuable: flexible entry into higher education for people who's time, financial, and/or ability constraints might bar them from otherwise. To acknowledge that for-profit education is predatory is not to throw out this vision of socially mobile and flexible education, but to recognize that we must pursue these ideals for students who need them through ethical, equitable means.

different kinds of engineering, bookkeeping, and English, workers mobility in their fields and others, either because of the virtue of having degrees of certification or because their skills allowed them to traverse the divisions of labor set by their supervisors (Fishman 2002, p19). John Mitchell of United Mine Workers of America said in an address to the organization that education makes “(people) intelligent and sanely discontented,” giving leverage to working people when dealing with bosses, and preventing them from being “blindly discontented, or (...) sullenly contented” as a collective group (Fishman 2002, p20). In other words, DE, despite its baggage and reputation as ‘less-than’ classroom education, provided tangible benefits and mobility opportunities for working class people in the early 20th century. Technological advancements drive the big shifts of DE after these humble beginnings, impacting this accessible, flexible, and individualized practice both positively and negatively.

1.2 Technological Expansion and Mass Distribution of Distance Education (and the Shift to Online)

The expansion of Distance Education (into Online Education) tends to look like the expansion of a small business, locally operated and community driven, into a large franchise, stumbling blocks and all. Through this evolution, technology and distribution change, altering the ways teachers and students interact (Beldarrain 2006). As DePew et al and others point out, the correspondence model of DE lends itself to Information Theory paradigms (a persistent issue that Chapter 2 deals with in depth) in the Shannon-Weaver tradition: Communication, in Information Theory, is a matter of moving information around, and content is not relevant to delivery (DePew et al 2006). In other words, Information Theory dictates that a message’s meaning and delivery are separate, so one method of delivery is as good as any as long as the message (information) gets there. This apolitical and content-agnostic view of communication is a perennial thorn in the side of DE and OE, as well as the larger rhetorical ecology of communication that Information Theory and Information Science helps build, and that we now inhabit (again, the subject of Chapter 2). As it relates to DE historically, two major trends extend from this tacit adoption of Information Theory: mass-distribution substitutes for individualized correspondence from an Information-perspective, and Current-Traditional Rhetoric (CTR) pedagogy expediently accommodates product-focused, content agnostic, structure-driven writing instruction, particularly for science and business education (DePew et al 2006). Current

Traditional Rhetoric also aligns with Information Theory's predisposition for "efficient" communication. CTR notably functions as a method for communicating information to an intended audience in a manner to which they most expediently understand and acquiesce, similar to the principles of Information Theory as enumerated by Claude Shannon in the 1940s³. In other words, both CTR and Information Theory see meaning as secondary to, or dependent on, the encoding or form of a message, meaning saying something is a matter of "correct" presentation first, and actual argument second (Berlin 1982). Under CTR, rhetorical concepts and dialogic value are "flattened" into presentation of documents and sentences, most notably through prescriptive grammar and paragraph structures (Berlin 1982).

As far as DE is concerned, the idea that one communication medium is as good as another enables DE itself to get off the ground: correspondence as a communicative, knowledge-making analog to classroom interactions enables DE to be viable in the first place (DePew et al 2006). However, flatness of communicative media also enables practices that degrade or alter the relationships between teachers and students. Information Theoretical communication models principally change human communication because they mitigate or "distort" time and distance barriers between members of the class (and society) (Beldarrain 2006). Therefore from a Shannon-Weaver Information Theoretical perspective (and Current-Traditional Rhetorical perspective), any medium that accelerates or advances that distortion (to make it seem like communicating parties are closer in time and space) could be considered an advancement for that sole reason. Through this logic, broadcast classes of several varieties came into vogue with each new mass-distribution platform advanced to a consumer level. Radio, video, podcasting, screen casting, and video essaying have all been considered mediums for instruction because they transfer information quickly to more people (Fishman 2002, DePew et al 2006, Beldarrain 2006). Broadcast mediums like radio and video succeed where correspondence fails by creating a lively, material embodiment of the instructor in Distance classes, but at the expense of flexibility and dialogic interaction (Fishman 2002). Blogs, podcasts, and videos recover some of the flexibility,

³ Information Theory solves an engineering problem: how to increase signal range without solely increasing the power of the signal, since multiple powerful signals broadcast at once would add "noise" to each other. Shannon's solution, in brief, was to encrypt signals, relying on inductive or deductive tools of the sender and receiver to "understand" the messages once they reach their destination (Gleick 2011). This engineering solution to a communication problem is where the idea of "content" being inconsequential to a message's delivery comes from, since that feature enables signals to travel through noise by treating all signals as noise until they are decided by the designated receiver (hence "signal" vs "noise" in Information Theory shorthand).

but still cannot recreate dialogic correspondence because they are public and performative (Beldarrain 2006). Discussion boards, email, and chat rooms have also been used in OE/DE, recreating correspondence or onsite classroom-style discussion while distorting the time and space barriers necessary to such interaction (Beldarrain 2006). Blogs and wikis are also popular online education venues of the 21st century (Beldarrain 2006). These modes bring back dialogic elements, but also enlarge the sphere of dialogue to the whole class in semi-public spaces. Email is still individual correspondence-based, but it carries different security and confidentiality affordances than written letters, since it is digital. Shifts since the turn of the 21st century are toward creating an ecology of learning in classes, where students interact with each other through network mediums, each member of the class (students and teacher) functioning as a node through which learning and information flows (Beldarrain 2006).

It was, however, in the late 20th century when DE moved “online” and large-scale, online education became a feasible dream. It was also in this time that “Distance Education” became a formal realm of pedagogical research, making it possible to chart theoretical developments and pedagogical concerns. Zawacki-Richter and Naidu (2016)⁴ did just that, noting three key phases in DE research:

1. **Organizational, structural, and professional challenges with starting Distance Education organizations.** Throughout the 80’s, DE scholarship emphasizes foundational institutional concepts like “Distance, students, research, institutions” and the idea of “open universities” (Zawacki-Richter and Naidu 2016). The early 80’s focus on the challenges of starting “single mode” Distance Education schools (that is, Distance schools that are not offshoots of onsite institutions) (Zawacki-Richter and Naidu 2016). The late 80’s brought out focus on professionalization and consolidation of practices, with Instructional Design becoming a prominent topic (Zawacki-Richter and Naidu 2016). Instructional Design emerges because new media educational materials explode at this time, creating a need for quality control and measures of pedagogical effectiveness—in other words, now that computers *can* be used in education more regularly, educators must now figure out *how* their use is effective.

⁴ Zawacki-Richter and Naidu accomplished this by parsing article titles from Distance Education Journal (DEJ) from 1980-2014 using Leximancer, deducing trends and focuses from the titles. DEJ is the oldest DE journal, making it an authoritative source for historical trends.

2. **Quality Assurance and Preventing Student Attrition to bring Distance**

Education to parity with conventional (face-to-face) education. Major trends of the 90's were concerns about quality assurance and student support, particularly in early stages of learning. Two big contributing factors to the development of DE in the 90's were audio and video conferencing technologies aiding mass distribution of DE (Zawacki-Richter and Naidu 2016). However, along with wider distribution came increased attrition rates (Zawacki-Richter and Naidu 2016). While larger student population could simply be leading to more attrition (increasing the overall number of students increases the number of students failing), it's more likely that the change in technological implementation led to the rise in attrition. Distance and online education is constrained by the capabilities and limitations of the technology linking students and teachers together for dialogue, and broadcast technologies like TV and radio offer little interactivity and narrow consumption surface for students (Zawacki-Richter and Naidu 2016). All synchronous communications, for that matter, reduce flexibility and scalability of dialogic teaching, undermining the favorability of DE (Zawacki-Richter and Naidu 2016). Therefore, the late 90's bring students-centered research fore, and Instructional Design becomes a topic of interest again. Interest in virtual learning inspired by the world wide web also emerges at this time, hoping to bring interactivity back to mass-distribution education. Again, the broad expansion of DE circles back to questions of quality and student success.

3. **Digital and web technologies revolutionize the ability to offer Distance Education and bring it into mainstream use (out of peripheral applications); Open**

Educational Resources (OERs) and Massive Open Online Courses (MOOCs)

begin life, but are quickly cast as critical in education's future. In the early 2000s, ideas of "online" or "virtual" universities come into mainstream, with "Instructional Design" remaining and joining sustained research interest in "learning, education, and analysis" (Zawacki-Richter and Naidu 2016 p257). Interest in "blended," or what now is called "hybrid," education crops up at this point, called so for the "blending" of face-to-face and Distance Education principles in instruction (Zawacki-Richter and Naidu 2016 p258). Around this time, issues and challenges facing online education seem similar to those facing face-to-face education. In the late 2000s, OE research

becomes the face of DE research disciplinarily because OE is driven by technology, making it interesting or fashionable to people outside the pre-existing educational research community. (Zawacki-Richter and Naidu 2016 p258). As a result, people and organizations with no prior experience with DE adopt and engage in OE, mixing methods unsystematically (Zawacki-Richter and Naidu 2016). Interest in DE in the United States, a region with little previous interest in DE, also spikes in the late 2000s, because the links between OE, technology, and business make it an attractive new market (Zawacki-Richter and Naidu 2016 p259). Major research trends at this time shift to collaborative learning and online interaction patterns, forecasting emphasis on discussion and distributed learning to come in the late 2000s (Zawacki-Richter and Naidu 2016 p259). In the late 2000s, researchers begin looking for connections between digital media and online collaborative or social learning, i.e. learning through social media platforms (Zawacki-Richter and Naidu 2016 p260). Along with these shifts in research comes the revelation that large-scale OE is a challenge for institutions of all sizes, indicating it is a goal, because responding to the dynamics of millions of students is extremely difficult (Zawacki-Richter and Naidu 2016 p 260). Research on these two points implies that institution-wide innovation in OE is likely doomed without support for faculty and professional staff development on this front (Zawacki-Richter and Naidu 2016 p260). The early 2010s focus on research in “interactive learning⁵,” along with MOOCs and OERs (Zawacki-Richter and Naidu 2016 p260). Emphasis on MOOCs and OERs grows with invocation of “social” in education (Zawacki-Richter and Naidu 2016 p261). In other words, as OE becomes mainstream and technologists and other organizations become interested in it and expand it, the burden of students on the system becomes so much that research starts investigating new ways students can teach themselves or teach each other through social interaction. MOOCs and OERs both rely on this principle in some way.

⁵ The distinction makes one wonder how OE became uninteractive or why it was not an area of concern up to this point.

1.2.1 On MOOCs and OERs

Open Education Resources and Massive Open Online Courses (OERs and MOOCs respectively) originate in the 2002 Budapest Open Access Initiative under the premise that “knowledge is a public good that should be distributed via the Internet without cost to the user. Open access to learning resources is seen as a way of responding to the huge demand for education and training worldwide” (Zawacki-Richter and Naidu 2016 p261). This statement, which links the need for education to training and employment, also embraces the democratic core of education: knowledge is (or should be) public property. The statement expresses public ownership and access in terms of cost, but it is nonetheless staking public claim to ownership to “knowledge.” This statement, as a rallying cry, highlights two important things: de-institutionalized democracy expressed through economic imperative (no-cost or low-cost, training and employment needs) and education/knowledge-making on the internet is about *access* to information and de-regulated circulation. While knowledge as public property is an inherently democratic ideal worth championing, this statement stops at expressing it as matters of cost and access.

The statement also helps illustrate the kind of demands on learning infrastructure OERs and MOOCs respond to: namely that learners in the 21st century want, among other things, constant connection, prompt responses, real-world communication, and choices representative of their diverse backgrounds (Beldarrain 2006 p144). MOOCs are designed to meet this challenge by substituting broadcast of education “content” with constant connection to peers and, theoretically, an instructor. MOOCs broadly fall into two categories: c-MOOCs and x-MOOCs. c-MOOCs are based on discussion and debate, and x-MOOCs pair mini video lectures with discussion forums and quizzes (Zawacki-Richter and Naidu 2016 p262). The c-MOOC model emphasizes distributed conversation between students as the knowledge-making model, while x-MOOCs rely explicitly on testing and progress gatekeeping (Zawacki-Richter and Naidu 2016

p262). In rhetorical terms, c-MOOCs adapt a rhetorical-political framework for knowledge-making⁶ (Spinuzzi 2008) while x-MOOCs digitally augment a banking model⁷ (Freire 1970).

Peer to peer (P2P) contribution and collaboration constitutes education through access to the technologies and platforms, in the MOOC models (Beldarrain 2006 p145), based on Information Theory principles of communication and information transfer. The argument in favor of this model is that OE can be problem-based through online communication and role-playing via student blogs, class wikis, and content generation and distribution (i.e. student podcasting), and it can respond to diversity by allowing students to choose how they participate and the pace at which they work (Beldarrain 2006 p147). On the flip side of this proposition, the type and quality of these interactions (and therefore the educational value) is only as good as the technology enabling it (Beldarrain 2006 p146), and students accept a larger proportion of the risk associated with their own learning. In depending on technology and correspondence for correspondence's sake, one can see the relationship between Current-Traditional Rhetoric, Shannon-Weaver Information Theory, and flat communication, assuming that as long as individuals are connected and communicating, they are learning and growing, an assumption that is certainly true but doesn't give rise to better understanding of *what* or *how* they are learning (DePew et al 2006 p52). Chapter 2 explores this connection between flat communication, risk, and knowledge-making in more detail. For now, it's also worth noting that platforms, automation, and economics drive research on MOOCs during their time of ascendancy (2010-2014) (Zawacki-Richter and Naidu 2016 p262). Institutional research on OE focuses on management, organization, and technology—macro level concerns dealing with content delivery rather than the content itself (Zawacki-Richter and Naidu 2016 p262). MOOCs, as a way to involve a large number of students in education and address student desire for connectivity and choice, solve the resource demands of education by offloading the connectivity and choice onto the students themselves.

⁶ Knowledge- and decision-making through debate between a mass of people involved in an issue (distinct from a traditional dialectic which enacts knowledge-making as conversation between two people wherein each respond directly to each other and knowledge is made by completing links in argumentative chains until resolution). Rhetorical-political knowledge-making is more conducive to distributed networks and large groups, wherein participants can rally to 'sides' in an argument and the volume of supporters or support determines the outcome.

⁷ A model of knowledge-making wherein instructors or instruction technologies 'deposit' information into students consciousness through lecture and testing.

1.2.2 OE Development in Summation

Overall, the transformation of DE into OE is driven by the symbiotic relationship of DE with emerging technology and new media, expanding correspondence pedagogy through Information Theory principles into ecologies of learning in the early 21st century. As time progresses in the digital era, institutional and personal concerns alternate in the research, institutional concerns being related to structure and quality of online education and individual concerns being innovation and design-related advances that alter online education in a new way; reciprocally, the individual innovations introduce new concepts and opportunities, and institutional attention adapts them for adoption as broad practices (Zawacki-Richter and Naidu 2016 p262). For example, OERs and MOOCs are institutional reactions to individual (researcher-driven) pushes for online interaction in learning (Zawacki-Richter and Naidu 2016 p262). These specific examples see MOOCs and OERs become an education solution, as it were—a model that can serve a lot of people and structure their experiences.

As mentioned earlier, the development of OE, particularly by the time of digital adoption, is like that of a small business or artisan craft transformed into a franchise by outside capital through mainstream attention and praise for its quality. In similar fashion, OE explodes when business and tech industries ‘discover’ it and fuel its development. Researchers try to keep up with the expansion, but the quick growth generates issues faster than research can respond. Despite this, researchers and professional educators are committed to quality education through OE. MOOCs, for their ability to provide education to a large number of people, explicitly by offloading the communicative load onto the students interaction with each other, seem to be the inevitable future of OE at this time in the research.

The development of modern DE and, particularly, OE calls into question not just what is a school or place of learning, but also *what* is education, whether it be dialog and instruction, information transfer, communication, or practice and problem solving.

1.3 Modern Developments into OWI

Online Writing Instruction (OWI) is a Research and pedagogy subdomain of OE specifically concerned with the teaching of writing in fully online or hybrid class environments (Hewett and DePew 2015 p9). OWI extends from the pedagogical tradition of composition

studies, encompassing broad influence of its major movements and areas of study, as well as digital rhetoric and technical communication. As such, OWI grapples with and is involved in the political and social issues of composition studies in addition to issues of access and inequality caused by technology and dependence on technology OE engenders. OWI is often referenced as a deficit model compared traditional, onsite (meaning face-to-face) pedagogy because the element of shared, collective space (i.e. classroom) is missing and teachers miss opportunities to see/hear/experience the bodies, faces, or voices of their students (Hewett and DePew 2015 p9). However, as DE and OE history attests, and as economic shift coerce student choices, being able to attend a synchronous, onsite classroom-based class represents a kind of privilege and access that is, sadly, becoming luxurious. This state of affairs is worth lamenting, but it's is not worth putting aside the concerns it raises in the same breath. OWI scholars and practitioners seek to achieve OWI research and scholarship that is *principled* in its approach in order to improve the reality of OWI as a practice that is here to stay. To that end, the CCCC OWI Committee produced 15 principles to guide OWI research and pedagogy (CCCC Committee for Best Practices in Online Writing Instruction 2013). Together, they form the framework of what principled OWI is supposed to aspire to in the foreseeable future.

1. Online writing instruction should be universally inclusive and accessible.
2. An Online Writing course should focus on writing and not on technology orientation or teaching students how to use learning and other technologies.
3. Appropriate composition teaching/learning strategies should be developed for the unique features of the online instructional environment.
4. Appropriate onsite composition theories, pedagogues, and strategies should be migrated and adapted to the online instructional environment.
5. Online Writing teachers should retain reasonable control over their own content and/or techniques for conveying, teaching, and assessing their students' writing in their OWCs.
6. Alternative, self-paced, or experimental OWI models should be subject to the same principles of pedagogical soundness, teacher/designer preparation, and oversight detailed in this (position statement).

7. Writing Program Administrators (WPAs) for OWI Program's and their Online writing teachers should receive appropriate OWI-focused training, professional development, and assessment for evaluation and promotion purposes.
8. Online writing teachers should receive fair and equitable compensation for their work.
9. OWCs should be capped responsibly at 20 students per course with 15 being the preferable number.
10. Students should be prepared by the institution and their teachers for the unique technological and pedagogical components of OWI.
11. Online writing teachers and their institutions should develop personalized and interpersonal online communities to foster student success.
12. Institutions should foster teacher satisfaction in online writing courses as rigorously as they do for student and programmatic success.
13. OWI students should be provided support components through online/digital media as a primary resource; they should have access to onsite support components as a secondary set of resources.
14. Online writing lab administrators and tutors should undergo selection, training, and ongoing professional development activities that match the environment in which they will work.
15. OWI/OWL administrators and teachers/tutors should be committed to ongoing research into their programs and courses as well as the very principles in this (position statement).

The CCCC statement divides these 15 principles into 5 categories in presenting them:

- Overarching Principle: principle 1
- Instructional Principles: principle 2-6
- Faculty Principles: principle 7-9
- Institutional Principles: principle 10-14
- Research and Exploration Principle: principle 15

Together, these principles form the framework for what OWI aspires to be. They represent the combined work of the Conference on College Composition and Communication

OWI committee, based on surveying OWI research literature, surveying OWI instructors, and debating the issues as a committee (Hewett and DePew 2015).

1.3.1 Principle 1: Access

Principle 1 is the overarching principle of OWI because it codifies its mission with what makes OE unique in the educational landscape as a whole: the needs of people marginalized by the traditional campus experience come before all other concerns, as they should in any OE. This includes, but is not limited to, physical and learning disabilities, multilingual backgrounds, and socioeconomic challenges related to the “digital divide” or device access (Hewitt 2015 p38). Principle 1 is based partly on the idea of Universal Design, a design paradigm under which products and buildings should be designed to be used by the widest range of people possible (i.e. everyone) to the greatest extent possible in the spirit of social inclusion, as opposed to fulfilling functional requirements or creating a standard of experience that design supplements for people with “special” needs (Iwarsson and Ståhl 2003 p60, 61). In other words, Universal Design approaches design as a social process of changing society by representing diversity at the start of projects, rather than trying to retrofit for diverse needs (Iwarsson and Ståhl 2003 p61). Universal Design tries to displace the idea that diversity separates groups of people by taking the position that diversity is part of the natural state of humanity that can be normalized by taking it as a premise of design (i.e. all users will have some “special” needs and that's a normal thing).

As such, OWI Principle 1 adopts principles of Universal Design as baseline practices for OWI pedagogy:

- Equitable Use
- Technological Equality
- Flexibility in Use
- Simple and Intuitive
- Perceptible Information
- Tolerance for Technological Error
- Tolerance for Mechanical Error in Writing
- Low Physical Effect
- Size and Space for Approach and Use (Hewett 2015 p39-40)

In other words, OWI should be designed to equitably include any kind of physical, cognitive, or communication differences, be financially accessible, flexibly fit wide ranges of schedules, accommodate prior experiences, not require specific or stable ambient conditions around the participants, and not be easily undermined by failures of technology (Hewett 2015 p39). In doing so, OWI should also subordinate mechanical errors in student writing to coherently communicated ideas, not seek to physically fatigue students as part of classes, and physical spaces, when provided, should accommodate all body types, postures, and kinds of mobility (Hewett 2015 p40). In other words, with Principle 1, the CCCC committee signaled that inclusivity and accessibility in the interface of learning is the top pedagogical priority of OWI, not an add-on or retrofitted concern (Hewett 2015 p44).

This focus on inclusivity is a radical rethinking of education that is easy to understate. College campuses are primarily designed for able-bodied middle-to-upper-class people, as the establishment of the ADA (1990) to retrofit campuses for accessibility and the establishment of the GI Bill and financial aid systems (1944) to mitigate costs attest. The Civil Rights Act of 1964 and the Title IX amendment to it in 1972 further concede the inaccessibility of college campuses to people of color, women, and other marginalized group. These political acts have not alleviated disparities in access to education; treating education as a commodity means one has to trade capital for it, making access to it inherently asymmetrical. The above acts, and others like them, attempt to retrofit education as it existed to those points for new peoples. With Principle 1, OWI takes a stance that inclusivity should be *the* basis for education, and that it should extend beyond establishing standards to being actively welcoming of difference in a way that traditional education has not. It is fundamental that OWI, and all online education, meet its other challenges with this in mind.

1.3.2 Instructional Principles: 2-6

Principles two through six deal with the fundamentals of instruction for OWI students. Together, these five principle create a framework for navigating the ecology of technology and pedagogy the OWI uniquely deals with. The principles establish that OWCs should teach students ‘writing’ and not communication technologies because writing expertise is not limited to the technology used to produce it, and students can learn about technology by learning to write with it (Hewett 2015, pp46-47). Under certain circumstances (but not all), writing-as-technology-

instruction functions to discipline writing as a practice and communication as a social activity. Beyond the technology issue, the instructional principles establish that OWI needs its own teaching and learning strategies for online environments, adapted from onsite pedagogy purposefully, and that teachers should maintain control and oversight over the courses they teach with assistance from administrators and senior instructors. The latter concern conveys that new online teachers need help with structure and pedagogy, but that teacher training and oversight should prepare them to take control of their classes and not function as supervisors for rigid structures already in place (Hewett 2015 pp56). Finally, the instructional principles make clear that “self-paced” or other “alternative” or experimental class structures are not licensed to abandon any of the fifteen principles. Students in those classes should receive the same benefits and their courses should be designed with all the same affordances in mind (Hewett 2015 pp57). MOOCs, for example, should have the same amount of oversight, pedagogical rigor, and opportunities for interactivity as smaller classes if a university is going to engage in offering them.

1.3.3 Faculty Principles: Principle 7-9

These three principles comprise the rights and needs of OWI faculty, as the CCCC committee mandates them. They encompass training, compensation, and working conditions. Together, these principles form the basis of equitable labor practices in OWI instruction. Among them are that OWI teachers should be specifically trained and prepared to teach online, in addition to any other training they receive, their compensation should be equitable with other composition instructors, and that students enrollment in OWCs should be capped at 20, with 15 as a more preferable number (Hewett 2015 p59, 63, 65). These principles are nontrivial because they set the baseline for fair working conditions for online writing teachers and highlight the ways the work is equitable with onsite education—in many ways OWI is more challenging while still upholding the same standards and outcomes as onsite education. For example, online teachers need to make information redundant in their LMSs as a necessity because that is the only way students will locate it reliably, and principle 1 holds them to a standard that is often above onsite resource accessibility because barriers can (supposedly) be mitigated by face-to-face interaction (Hewett 2015 p64). In many ways, teaching online can be described as more labor intensive than onsite teaching because the instructor has to conduct the bulk of the class,

including answering questions, through text, meaning an instructor produces significantly more written text than if they taught face-to-face (Hewett 2015 p68). Principles 7-9 collectively establish the baseline labor rights of online writing teachers, asserting that teaching online is not inherently easier than teaching face-to-face (a reality that the new mediating technologies sometimes obscure to observers and stakeholders beyond the teachers and students themselves) and that online writing teachers need specific support and equitable structure and compensation to achieve equitable educational outcomes. Principles 7-9 establish that, along with access and student needs, instructional labor is a valuable and vital part of effective OWI.

1.3.4 Institutional Principles: Principles 10-14

Principles 10-14 account for how institutions (i.e. schools and administrators) should support the previous nine principles, as well as prepare for issues unaccounted for or unforeseen therein so that teachers and students can occupy themselves with the business of teaching and learning foremost. Broadly, these principles deal with how schools prepare students and teachers to take and teach online classes, how campus offices support online classes equitably, and how the university positions the classes themselves as part of their educational portfolio. For instance, teachers and students should both receive training in using the LMS and other campus-sponsored technologies from designated trainers to ensure teachers can help students and cut down on usability issues once courses start (Hewett 2015 p69). While teachers should expect to introduce students to the unique LMS elements for OWI and personalize the LMS environment for their classes and student population, the institution needs to introduce all parties to the LMS thoroughly because LMSs are institutional decisions. Also, institutions should support teachers in creating online communities that are shaped to the needs and habits of the communities they serve, and institutions should generally ensure that online classes are not second-class citizens in the university curriculum, so to speak, in how they are offered and supported (Hewett 2015 p73, 75). As such, students should be able to get remote support as a primary recourse in case of problems, and online writing lab (OWL) administrators and tutors should be trained to support distance students specifically (Hewett 2015 p78 p83). An important thematic refrain of these five institutional principles is that, when students and teachers are invited to treat learning and the classes as things that are “always on,” institutional support must follow through on that promise, as well (Hewett 2015 p78).

1.3.5 Research and Exploration Principle: Principle 15

Principle 15 concludes the list by affirming that work on improving OWI (and OWLs) must continue to validate and improve implementation of these principles. Specifically, empirical research is vital to the development of OWI, and that research should be done by practitioners of OWI so as to represent them and their existing experiences working with students in the research (Hewett 2015 p86). Empiricism is important because it relies on observing behavior and reacting to it (as opposed to building a model and tweaking it for outcomes) in ways that can be replicated or triangulated (Haswell 2005). This inquiry acts in the spirit of principle 15.

1.3.6 Summative Thoughts

In total, these fifteen principles establish the baseline pedagogical rights of students and teachers, the labor rights of teachers, and the responsibilities institutions have in providing means to fulfill these rights and meet these needs. Through these principles, OWI positions itself as a system designed from the bottom up in the democratic interests of the largest and most vulnerable class involved—students (who likely have other intersectional affiliations marking their social vulnerability)—while stressing the importance of teacher labor rights to fulfill those democratic interests and establishing the institutional objectives of safeguarding that process to maintain instructors' local control and allow them to focus on writing as the content of the class. In other words, these principles establish a division of labor such that students are free to focus on learning from their teachers first and foremost, teachers are free to devote their energy to interacting with their students first and foremost, and institutions, as the group making arrangements for these two groups to meet and share experiences, shoulder the burden of support and maintenance for all the infrastructure and technologies that enable students and teachers to connect to each other. It's an ideal situation that is enabled by the institution's willingness to provide support to people for their mutual benefit and the benefit of society, and the institution's simultaneous willingness to let these groups work out what will be best for them.

The nature of technology and platforms complicates this, as the principles indicate, because every technology introduced into a class adds another layer of support students and teachers may need, and the proprietary nature of private platforms, even when they are made for public use (i.e. Google, Facebook, message boards, chat apps, or applications like them), do not

always render themselves transparent and malleable to their users, meaning that institutions, even under the best circumstances, will be limited in the support and customization they can offer instructors and students. From this perspective, the internet itself makes fundamental decisions about an Online Writing Class (OWC), producing an odd situation wherein online communication is built on the infrastructures that writing and communication produced, but now shapes those activities in the process of granting someone educational access to it. This feedback loop gives rise to other important issues related to online education.

1.4 Issues of Interest in Online Education

1.4.1 Time and Space

Bridging educational access to people with restrictions on their time, finances, and physical mobility⁸ and managing a cohesive class with people in different places at different times form two sides of the same coin in DE/OE design and pedagogy. At the heart of this dual-issue, among others, is “telepresence.” Telepresence is a feeling of being somewhere one is not through a communication medium (Steuer 1993). Specifically, telepresence is feeling, when faced with two simultaneous experiences (one of the “real” world and one technologically mediated), that a technologically mediated experience feels ‘more real’ or a person feels more present in that technologically mediated experience than their “immediate physical environment” (Steuer 1993). ‘Mediation by a communication technology’ means as many myriad things as “media,” “communication,” and “technology” mean separate. A person speaking of being ‘transported’ by a good book could say they experienced telepresence, just as a projected movie in a dark theater and a Surround Sound system creates an insulated experience of telepresence, or a Virtual Reality (VR) headset provides vivid visual, aural, haptic, and other feedback, making a user feel like they are somewhere else while simultaneously existing in their bedroom, spare room, or VR experience lab. In other words, telepresence is one way to make knowledge: experience-sharing through communication mediums.

Telepresence is important to OE because, critically, people (teachers and students) need to make knowledge in classes in order to learn, regardless of the setting. In onsite classes⁹,

⁸ Both in terms of (dis)ability and commitments to be in certain places at certain times with certain people.

⁹ As in most experiences of immediate physical environment where mediation is believed to be secondary.

telepresence is more of an afterthought or an implicitly ‘solved problem¹⁰,’ since telepresence is an alternate experience to the “immediate physical environment,” and a classroom *is* the immediate physical environment, simply being in the space accomplishes the knowledge-making environment¹¹. Engagement is another issue, one that (again) onsite pedagogy has not definitively addressed and one that online pedagogy has to approach differently.

Online classes face a distinct challenge in that instructors and designers need to make their classes ‘places’ for students to be ‘in’ through telepresence. The most popular way to do this is through creating virtual spaces. Learning Management Systems (LMSs) are the most popular mediums of virtual communication space, though early digital telecommunication platforms like MUDs, MOOs, and their progeny (like online games and chat rooms) have been used as well (Derrick 1986, Haas and Garner 1999, Kolko 1998). LMSs, like Blackboard and Canvas, combine multiple functions into one space that accomplishes technical needs of an online class, but the place-making of Online Education is still largely ephemeral and, consequentially, a challenge that distinguishes a bad online class from a good one, and a good online class from a great one (Hewett and DePew 2015, pp1).

Another issue of importance that collects concerns of time, space, and telepresence, and gives people problems when trying to reconcile onsite and online pedagogy, is the role of synchronicity in online classes. Synchronicity refers to the ability for classes to have a synchronized experience, i.e. like onsite classes have when everyone gathers in the same place and attendance is taken to mark a necessary and productive period of time. Audio and video conferencing technology introduced in the early 90s enabled Distance Education to incorporate synchronous class sessions, recreating class-like environments for distance classes (Zawacki-Richter and Naidu 2016 p253). While this development contributed to expanding distribution en masse (i.e. mass distribution) of lectures, it also lead to increased rates of attrition in distance classes (Zawacki-Richter and Naidu 2016 p253). Much can be made of this simultaneous development—too much to find a single connective argument—but at least one element of this correlation is that synchronicity reduces the flexibility of Distance Education (Zawacki-Richter

¹⁰ Though not a settled issue. The historical legacy of chalkboards, seating configurations, and portable computers/mobile devices are all part of how classroom experience mediation has been shaped and challenged.

¹¹ Again, designed space and personal possessions play into this. Mobile devices, for example, may create competing telepresence for students in a class environment, or an instructor may show a video that transports students to a different telepresence.

and Naidu 2016 p255). In reducing flexibility, DE and OE cut off people who require it to participate and reap its benefits: people who work full time, people who take care of families or other loved ones, and people whose ability limitations prohibit them from accessing traditional onsite education reliably and conveniently. Synchronous telepresence and flexible access operate on a continuum: increasing synchronicity reduces flexibility and vice versa, creating an unpleasant zero-sum game of access, wherein trying to recreate synchronous, classroom-like telepresence reduces accessibility, defeating one of the core purposes of online education and OWI's first principle: instruction predicated on access for all first and foremost.

In sum, issues of time and place that online education raises provide insight into the core challenges and opportunities of online education: they show how much work is required to create a good, longevous online class, and how the traditional classroom experience, as a model, is limited as a teaching framework, because some of its core assumptions contradict online education's social mission of education for all.

1.4.2 Labor

Persistent questions undergirding moves toward online education are 'who benefits and how much?' Educators ask these questions in an attempt to better serve students and improve their own pedagogy. Administrators often ask these questions in attempt to increase the reach and audience of their institution. Students ask these questions in terms of how it will affect their time, financial situation, other commitments, and prepare them for a future they want to live in. Blair and Monske frame the tension inherent in this question by establishing the non-triviality of the move to online and then breaking down the economic factors shaping the outcomes, almost in disregard to the concerns of all three groups (2003). Online writing Instruction grows, both implicitly and explicitly, out of the tradition of computers and networked composition theory of the 80s and early 90s characterized by an optimistic, social constructivist mindset framing networked composition as an anti-hierarchical, inherently collaborative activity that establishes equality by decentering authority (i.e. assuming that networks have no junctions or chokes-points through which asymmetrical power can be exerted on other participants) (Blair and Monske 2003 p443). This charitable assumption of power function in networks aligns with Information Theory in that networks create symmetry between big and small audiences because information technology connects participants to each other with equal reliability, meaning all populations

have a presumed equal ability to produce knowledge¹² (Gleick 2011 p77). This view of networks, among other things, disregards Foucault's warning about their bio-political leverage in scenarios where authorities are rendered ordinary or innocuous (Galloway 2006 p318). Put more bluntly, the view of networks as inherently equitable or even democratic by nature requires belief that existing sources of power, whether it be economic, political, or purely ideological, manage to come into such a system without retaining any of their existing power. Blair and Monske make this clear by pointing out that anonymity and symmetrical network access enable racist, sexist, classist, and homophobic discourse to re-emerge in classrooms because the egalitarian narrative of networked communication does not enable more representation or protection of marginalize folks simply by giving them the possibility of another avenue to share their speech and experiences (Blair and Monske 2003 p445). Ultimately, vastly networked and unregulated communication spaces are contact zones carrying inherent risk for all participants as part of use, almost entirely by design (Blair and Monske 2003 p445). Ultimately, networked communities of this nature make identity more of a fixture, not less, of online discourse because identity is more monitored and recorded—either because platform operators want to know more about their users or because people simply want to know who they are talking to (Blair and Monske 2003 p445). Prophetically, Blair and Monske point out how the promise of possibility for progressive outcomes ends up justifying continued tolerance or enabling of regressive and hateful outcomes.

Blair and Monske ultimately make the point that this social concern is pushed back in most decisions to expand online education in favor of economic growth (Blair and Monske 2003 p 446). In other words, the concerns of OWI Principle 1 first manifested (before being codified, it should be noted) through commodity-driven migration of education online in an attempt to address commuter and non-traditional students (Blair and Monske 2003 p446). In doing so, online education was marketed to students (accurately) as a more flexible way to take classes and (inaccurately) as a consistent experience requiring as little as 4 hours of devoted work a week (Blair and Monske 2003 p446). In order to deliver on this promise, administrators encouraged teachers to treat their classes as archives they could establish, add to, and generally view as autonomous, shifting their labor to maintaining the sites and answering student questions about the material (Blair and Monske 2003 p447). This approach is visible in institutions' emphasis on

¹² More on the connection between technology, ability, and experience below in this section of Chapter 1, and critique of this linked set of assumptions, feature heavily in Chapter 2.

MOOCs and Open Educational Resources (OERs) that render information and knowledge as stable commodities of which digital network access enables more efficient distribution (Zawacki-Richter and Naidu 2016 p261). The instructor, in these frames, becomes a facilitator more than a mentor or teacher; the active-learning model of Merrill's first principles is displaced in favor of making the teacher a network node that students contact for help navigating the class material (Blair and Monske 2003 p446). Ultimately, institutions benefit from having the teachers archived content, and the teacher supplements gaps or inadequacies in the content (which may become legacy) by being unlimitedly available to students (Blair and Monske 2003 p447). Recent studies of student relationships to static course content find that they do not see their immediate value to the course, and in fact often interpret them as filler material or outright not helpful to their composition processes (Harris, Melonçon, Hewett, Mechenbier, and Martinez 2019). Ironically, this model recenters the teacher while taking away their control over their content and making more of their necessary labor invisible.

Invisible labor is work that people do as part of their jobs even though they are not directly compensated for it (not part of their formal job description in other words), i.e. work articulating a problem or clarifying an action in the course of fixing something or cooperating with other workers to combine the results of individual actions (Star and Strauss 1999 p10 and 11). In the case of teaching online, communicating with students to help them understand assignments or answer questions about material is teaching labor that all teachers expect to (and are expected to) do, though there are not reliable ways to measure or codify absolute positive performance; yet, without this work teaching is much harder if not impossible. Work that is invisible can be "de-skilled," i.e. stripped of its status as skilled work people should be hired specifically to do or be compensated fairly for (Star and Strauss 1999 p15). De-skilling tends to happen in three ways:

1. Creating a non-person through de-skilling: visibility of the product overshadows the people producing it, generating belief that the people involved are ultimately inconsequential regardless of the reality (Star and Strauss 1999 p15).
2. Disembedding background work: visibility of the person relegates their work to the background or as a tacit expectation—not something special they should be celebrated for regularly. Nurses often find themselves in the position of being highly visible while their care work is taken for granted (Star and Strauss 1999 p15).

3. Abstracting and manipulation of indicators: both the work and the people are invisible because the quality of their work is measured indirectly, and/or the products of their work are treated as commodities and potentially purchased by people at a distance from the workers. This last kind of invisible work aligns closely with mass, industrial production (Star and Strauss 1999 p15)

Visibility is not necessarily a remedy for de-skilling because it makes work subject to more scrutiny, surveillance, and control by groups that don't regularly engage in that work and view it from an abstract, productivity and efficiency-minded viewpoint (i.e. managers or administrators) (Star and Strauss 1999 p9-10, 11). Teachers in online classes, as described by Blair and Monske (focal point of both students and administrators while their work is measured through enrollment, retention, and production of archival materials) fit the second and third definitions of de-skilled labor most readily, though if static materials-heavy OE becomes the norm then they could easily find themselves in the first category. Invisible and emotional work (caring emotionally for someone else) is essential to teaching, as it is to most skilled interpersonal labor, and learning itself is a kind of invisible work. Learning is measured by abstract, indirect indicators like grades that stand in for the perceived ability students will have to marshal their experiences in future decision-making, because the future cannot be measured other ways. Classroom teaching struggles with this disconnect, but there is at least a measure of acceptance of the tacit effectiveness of classroom instruction through its relative ease in implementing active pedagogy. Online classes, through their inherent dependence on technology (for telepresence, communication, etc) faces a different set of challenges, both pedagogically and in terms of labor of teachers and students.

As described in the previous section (on “Telepresence”), online classes depend on technology *for* their communities, not as an option (Beldarrain 2006 p140). In that sense, it's accurate to say that an online class can only be as good as its technology (Beldarrain 2006 p146). However, this distorts and obscures the relationship between labor and technology, making the distinctions *invisible* and risking de-skilling participants on both sides of the equation (both teachers and students). Work displaced onto technology, of course, does not go away, though workers, in this case teachers and students, are still responsible for the combined outcomes, even though they are handled by technological automation they cannot fully control (Star and Strauss 1999 p20, 22). Furthermore, the ways to measure the impacts of the technology on the process

are often qualitative, meaning they are not part of the indirect measures of success or productivity, and thus they risk being invisible despite the essential and unavoidable nature of the work negotiating and navigating platforms (Star and Strauss 1999 p22). This paradoxical predicament of invisible work and technological dependence is the background of OWI Principles 2-14, dealing with the instructor's rights and responsibilities concerning technology (and not giving it priority over writing instruction) because the institution should ultimately bear the responsibility of maintaining and preparing teachers and students to use online education platforms. Without such safeguards and established duties, teachers and students assume more of the risk of failure by established metrics while being subjected to technological conditions that are out of their control.

Risk to individuals—users, or whatever they are otherwise designated—is a characteristic of the neoliberal turn in Western economic and political models. Neoliberalism is the transformation of social institutions into markets so they can be governed apolitically by capitalist impulses (Busch 2014 p11, 13). Neoliberalism operates under the guiding assumption that humans are ultimately too imperfect to govern anything reliably, so the social responsibilities of humanity must be diffused into market technologies (Busch 2014 p15). Neoliberalism, in the abstract, attempts to motivate what it posits as the innate short-sightedness and self-centeredness of individual humans toward collective good by incentivizing them toward good outcomes through making them responsible for the individual risk of failing to do so (Busch 2014 p18, 19). Markets govern by transforming public and social goods into commodities that can be moved by the market—a foundation of the the third way of rendering skilled work invisible (Star and Strauss 1999 p15).

Neoliberalism reverberates through online education in other ways. For example, technology undoubtedly facilitates greater reach of education and communication, but by the same token the type and quality of these interactions (and therefore the educational value) is only as good the technology enabling it, all while students and teachers accept a larger proportion of the risk associated with their own learning and teaching respectively (Beldarrain 2006 p146). Similarly, OERs and MOOCs transform educational institutions into markets by treating educational institutions as, ultimately, archives of information rather than active sites of growth and mentoring. This point is especially important considering criticisms of schools as sites that produce cultural expectations of students and their places in society: if the kind of education one

receives conditions their expectations of society and their place in it, education should seek to prepare students to navigate and effect a dynamic future, not condition them to be at the mercy of a present that is obsolete soon after they graduate (Berlin 1996 p18 and 38). Information-centric models of education that encourage students to ‘invest’ in information from market-like archives, while de-skilling (or dis-intermediating) the communicative work of knowledge-making their teachers model and engage them in, positions students as individually responsible for figuring out how to be mobile in society by denying them the validity of mentorship and community. The image of solitary, entrepreneurial learners is empowering to a degree, but also atomizing and isolating.

1.4.3 Population

Who is taking online college classes and why is pivotal to any work on Online Writing Instruction, not just to decide how to better serve them, but to know and promote their social, political, and economic interests. The previous section highlights the economic tensions pushing online education into the mainstream, and the relationship between online education and technology makes it clear the ecological entanglement of teachers, students, and technology. Who the students are and what their concerns are completes the rhetorical situation, so to speak, by verbalizing what is possible for teachers to do for students given the limitations of technology and labor. Student feedback is hard act on because 1) is is always local and imperfect and 2) it can devolve to market research, in the sense of treating education as a product that should invariably be altered to the consumers’ taste. Therefore, student demographic and need data is best implemented in promoting, as stated, student economic, political, and social needs so that students can be outfitted to have mobility in society and be prepared for future challenges instead of serve its status quo (Berlin 1996 p18 and 38).

1.4.3.1 Demographics

Online college students as a whole trend toward being female (consistently over two-thirds), single, employed part time, and childless (Clinefelter and Aslanian 2016 p50, 51, 53). The prototypical online college student in 2016 was a 31 year old white female with a \$55,000 household yearly income and a full time job not offering tuition reimbursement (to advance her career) (Clinefelter and Aslanian 2016 p50). Compared to the typical online college student of

2012, who was a 33 year old white female with a \$65,000 household yearly income and a full time job *offering* tuition reimbursement, the overall trend is that online college students are getting younger, poorer, and less financially supported in their studies (Clinefelter and Aslanian 2016 p50). These trends indicate that online students are becoming more like traditional college students or that they are simply leading more precarious lives, but either way it shows early signs of a decline in the stated ability of online education to serve people that are financially or socially blocked from traditional classrooms, indicating that those barriers could be reinstating themselves as online education becomes more mainstream.

While the overall demographic data shows online college students becoming poorer and younger, there are other interesting points in the data. Over half of online students are in households that make less than \$55,000 a year (Clinefelter and Aslanian 2016 p52). African American enrollment is declining while Asian, Pacific Islander, and Hispanic enrollment is slowly climbing, and White enrollment is largely stable or rising (particularly in graduate programs) (Clinefelter and Aslanian 2016 p53). While most online college students do not have children, the remaining 41% of reported undergraduates do have at least one child (Clinefelter and Aslanian 2016 p51). Finally, while most online college students are employed full time (getting degrees in addition to that work), overall that security is starting to wane, trending online students slowly toward part-time work or unemployment (Clinefelter and Aslanian 2016 p53). Overall, this picture of online college as a mostly female, single, not necessarily childless group with falling wages and waning financial security reinforces the idea of online education as a resource for disempowered people seeking independent security and advancement of their life and living conditions. Declining overall diversity in the population troubles this image, and the fall in household income reveals a historical vestige of recent online education as a leisure pursuit of already-stable or experience-seeking middle-aged, middle-class people (usually men) looking for an interesting or novel way to learn something new, possibly on a whim (Christensen, Steinmetz, Alcorn, Bennett, Woods, Emanuel 2013, McAuley, Stewart, Siemens, and Cormier 2010). Either way, the evolving demographic of online college students seem to be motivated by social mobility and addressing their economic precarity.

Social mobility emerges as an explicit motivator in other ways. The overall common denominator in why college students take online classes today is for social mobility, either through wanting a new career, updating their skills, rectifying their under- or un- employment,

meeting a requirement for their industry, or seeking a promotion independently (Clinefelter and Aslanian 2016 p21). Only 15% report their primary motivation as having the satisfaction of completing a degree or more strictly personal reasons as the primary motivator in completing their degree—which does not denigrate these pursuits, but underlines that online college students see themselves as trying to move to a better life or outrun forces threatening to hold them back (Clinefelter and Aslanian 2016 p21). Top degree programs for undergraduates are (in descending order) business, computer science and engineering, nursing, engineering, early childhood education, information technology, and social work (Clinefelter and Aslanian 2016 p19). Common traits among these careers are that they offer the chance to be socially mobile through offering higher salary for skilled labor, and they offer people opportunity to be part of the social and technical infrastructure of society, often either working with other people or serving the social needs of fellow citizens to maintain and improve society. These careers also give insight into the new “working class” of the USA as target fields wherein the socially precarious see their best routes to middle-class life. Just as in the origin of Distance Education, Online college students are looking for careers and ways of attaining them that improve their lives without disrupting them and exposing them to more risk, if it can be avoided.

1.4.3.2 Cost

Cost is the number one concern of online college students when picking a school and program (Clinefelter and Aslanian 2016 p42). Once a student has decided to attend college online, they usually make their decision quickly based on how programs portray themselves on their website, meaning having program and course descriptions that connect course content to real-world application is most important to students, since time is another precious resource in their lives (Clinefelter and Aslanian 2016 p7, 22, 24, 30). Flexibility and convenience remain the top appeals of online education for today’s college students, and along those lines they tend to enroll in schools within 100 miles of their home in case they want or need to visit the campus (Clinefelter and Aslanian 2016 p8, 26). In other words, students that choose to take classes online do not necessarily oppose having a traditional campus experience, they just see it as a luxury or add-on they cannot take full advantage of.

One reason cost is a major factor in online college student choice-making is that the burden of cost is increasingly shifting back on to students directly (Clinefelter and Aslanian

2016 p38). As stated earlier, employer tuition reimbursement is falling, and students recognize the precarity student loans introduce to their lives, making them unappealing options (Clinefelter and Aslanian 2016 p38). 44% of students report that they will pay out of pocket for their classes, but the majority still rely on assistance (Clinefelter and Aslanian 2016 p38). Considering that students choose to take online courses in the service of achieving social mobility, shifting cost to students is a catch-22 at worst, or a tacit acceptance of elitism at best. Consequentially, students hope to shift cost to the schools themselves, preferring scholarships or free class models, if they can get them (Clinefelter and Aslanian 2016 p38). Students are savvy in that they want low-cost or free education options, especially to avoid encumbering them with student loan debt, but the net effect of reduced private support and lacking public funding for students (that are not loans) shows the forces converging on higher education: students know that they want or need education to lead a fulfilling life, yet there is no clear roadmap to getting an affordable, quality education, unless one already has the funds necessary to enroll in classes and pay for associated costs (housing, food, healthcare, transportation, community events and entertainment). Ultimately, the cost burden is shifted back to institutions, most of which face funding issues themselves, as the promise of even a small scholarship will cause a student to favor one institution over another (Clinefelter and Aslanian 2016 p41). To further illustrate how price-sensitive and risk averse online college students are, students would prefer knowing financial aid options available to them individually (i.e. what they are eligible for) before even applying to schools (Clinefelter and Aslanian 2016 p37). Students understand the investment education is in their lives, and naturally seek out the financial assistance they need (Clinefelter and Aslanian 2016 p41).

Overall, online college students are a window into the effects of financial austerity on middle and working classes: they are intensely aware of the threats to their social security and actively pursue remedies, in this case through education, and these same forces communicate to them how the traditional campus experience is not “for” them¹³. Consequentially, students are positioned to manage the conflicts between security and mobility at the individual level, demanding flexible solutions to their educational needs while still wanting for the individualized

¹³ Indeed, the “traditional campus experience” renders more and more as a luxury for those with resources enough to invest in it, surrendering, as it were, four years of their earning lives to submerge themselves in campus culture and its intertwined social and intellectual pursuit. The elitism of 19th century education reemerges through this economically engineered divide, through it is hard to identify a single culprit for this state of affairs.

experience of campus learning. For instance, tension around price causes employers to shift cost to students, who look to government and schools for assistance, avenues that are constrained by austerity, as well. Educators often lament the treatment of education as a commodity by students, but surveying the options available to online students shows how they are driven to see it as such: lacking secure funding for all applicants, schools are encouraged to compete on price by reports such as the demographics survey conducted by Clinefelter and Aslanian (2016 p42). Online college students are increasing in number, they are trending toward being more precarious, and they see themselves as having to optimize a series of trade-offs, accepting some limitations to get the ‘least bad’ option that improves their lives in the long run; the traditional campus experience is not necessarily outmoded or unappealing to them, it is just not a real option for them. Among others, it raises the question of why these students must be asked to risk their security for mobility in the first place.

1.4.4 Pedagogy

Modern Western education, originally designed to prepare nobles to inherit family money and run inherited estates, comes from John Locke’s tutor-student model (Locke 1693). As education democratizes in Europe and the United States, it adopts more industrial qualities and favors competency over teaching its newly enfranchised pupils to see themselves as wielders of power and influence over their living conditions, as it did for Locke’s pupils. Locke characterizes his model as necessarily 1-to-1, playful and non-rigid, and personalized to engage the child (Locke 1693 p110). Overall, Locke’s vision of education is that it be something students should look forward to because it engages their interests and creative impulses, remains relevant to their lives and experiences, and teaches them to appreciate complexity and seek new challenges, similar to Merrill’s five first principles (Locke 1693 p110, 111, 113, Merrill 2002). It is for these reasons that Locke argues education is the most valuable, life-changing thing a child can receive (even more than property or money) because it prepare them them to rhetorically navigate life’s challenges, downturns, and moments of good fortune (Locke 1693 p66-67). Locke’s model also aligns with two of the three ideals of Distance and Online Education that attracts students: flexibility and individualization (Fishman 2002 p123).

Where Locke’s model fails is accessibility. Heavy emphasis on individualization creates precedence for the tutor to assess and adapt to a learner’s specific needs and abilities, but the fact

that education, in Locke's time, is a luxuriant privilege, not a democratic right, is the biggest limiting factor. As education democratized, individualization and accessibility appear to be the components compromised, as the more students enter public, democratized education the more they are subjected to more industrialized, de-personalized conditions. An important corollary of this is that both the teacher and student in Locke's model are likely privileged members of society; as education democratizes, teachers increasingly struggle to identify with their students, creating more cultural divides (Villanueva 1993). Locke's student also benefits from patronage of their parents, giving the educator adequate resources at all times to engineer personalized and novel ways of engaging the student in active learning (Locke 1693 p66-67). As student population scales up and this funding does not, students are subjected to more and more austere and depersonalized education practices, as if the bevy of students become a problem to be solved by educators and educational industrialists.

The way student populations scale up is a good window into the landscape Distance Education entered into: class sizes grow and gender access expands through the 18th and 19th centuries, with play and imagination still heavy emphasis points (Edgeworth 1808 p283, 327). Around the turn of the 20th century, Harvard begins to view incoming students as lacking and implements regimented writing activities to rehabilitate them (known as "forms"), which pave the way for normalizing workbooks and the idea of benevolent, remedial instruction as a gatekeeper between 'inadequate' students and the rest (Brereton 1995 p77, Shaughnessy 1977 p395). The Morrill Land Grant Acts increase available higher education to middle, geographically locked classes, and the GI Bill enables better access by working class folks, including people of color (Brereton 1995 p8). By scaling up demands on educators without corresponding funding per student (i.e comparable with what Locke's pupil would benefit from), education becomes the 'disciplining' or homogenizing process that Foucault or James Berlin criticizes it as, serving the purpose of reproducing society as it is, maintaining power relationships, rather than producing people ready to challenge it (Foucault 1975 p188, 195, Berlin 1996 p38).

In part, this shift toward discipline comes about because of attempts to treat education as a commodity. Distance Education struggles with this in its own way. Because Distance Education uses correspondence to build relationships and individualize the process of learning, Distance Education becomes tied to communication technology, based on the premise that the

learning and relationship is only as good as the technology facilitating it (see previous section on “Telepresence”) (Beldarrain 2006 p139-140). Under this assumption, Distance Education undergoes a series of experiments with mass communication, assuming that the more a teacher can communicate with an increasing amount of students, the more efficiently those students will be ‘educated,’ hopefully for less money. These experiments largely miss the reality that conversation (i.e. interactivity of students and teachers through communication), not simply ‘communication’ drive the learning efficacy of Distance Education (Fishman 2002 p131).

1.4.4.1 Correspondence Pedagogy vs Mass Distribution

Correspondence, or “dialogic interaction,” as conversational exchanges between teachers and students is one of the most successful affordances and effective instruction method of Distance Education because it accomplishes Distance Education’s fundamental strengths and justifications of extending access to non-traditional students, creating capacity to foster individual interaction between student and teacher and instruction customized to the learner (Fishman 2002 p130, 123). Through dialogic interactivity/correspondence pedagogy¹⁴, students can develop individualized relationships with their instructor through engaging conversationally on course material, asking incisive questions in a confidential format that doesn’t disrupt or take time away from other students (i.e. as in a classroom), and having an asynchronous outlet for the course at kairotic moments when questions or inspiration strikes them (because their participation and interaction is not segmented into class periods) (DePew et al 2006 p56). Writing, as a low fidelity modality, can be adapted by students with differing abilities through assistive technologies or the simple addition of more time or of security of a controlled, home environment to work in. Furthermore, writing is a ubiquitous, cost effective expressive mode in the 20th century and beyond, can be accomplished with a wide array of technologies, and, particularly in the early 20th century, benefitted from public institutional support via the United States Postal Service (DePew et al 2006 p51). This appeal, combined with other technological and pedagogical developments in writing in the 20th century, made it susceptible to the “transfer” model of communication. Specifically, the confluence of Shannon-Weaver Information Theory and Current-Traditional Rhetoric (discussed earlier) drive Distance

¹⁴ Here and throughout this work, “Dialogic Interactivity” and “Correspondence pedagogy” are used interchangeably.

Education to pursue time and cost efficiency in the name of accessibility, flattening the rhetorical work and complexity of writing, teaching, and learning, building the perception that mass delivery accomplishes ‘education,’ just as well—what is traditionally criticized as a “banking model” wherein students are treated as vaults into which teachers make educational ‘deposits’ (DePew et al 2006 p51, 52, Freire 1970 p17).

Mass-distribution Distance pedagogies tend to reduce the interpersonal, dialogic elements of Distance Education that are foundational to DE’s early success, despite dialogic interactivity’s positive impact on student learning and student satisfaction (DePew et al 2006 p55). New technologies throughout the 20th and early 21st century for education often emphasize broadcasting the teacher over fostering interactive dialog as well as scheduling over flexibility, undermining the pedagogical affordances of Distance Education in favor of rigid and arbitrary simulation of classroom experiences through different attempts at telepresence (DePew et al 2006 p55). Underwhelming audio and video broadcast pedagogy in the 20th century led to the belief that telepresence is the key problem in Distance Education and that digital technology would solve the problem. The rise of video conferencing in the 1990s led to more focus on synchronous classes, notably causing more attrition in online classes (Zawacki-Richter and Naidu 2016 p253). The central flaw of synchronous broadcast experiences, i.e. those not recorded for on-demand asynchronous viewing, is that they reduce the flexibility and, therefore, the scalability of DE; TV and radio, for example, offer very little interactivity and a narrow consumption surface (very little time and space in which they are available) in addition to asking participants to set aside specific periods of their days to ‘attend,’ undermining to appeal to working and precarious potential students (Zawacki-Richter and Naidu 2016 p255). As noted in previous sections, the 1990s see DE shift to focus on mass distribution and Instructional Design at the same time student attrition reports spike (Zawacki-Richter and Naidu 2016 p255). The internet promises to ‘solve’ these issues, but creates new ones in the process.

1.4.4.2 Community and Ecology

Ecological, community-oriented platforms of the internet promise to return online education to dialogic roots by enabling community experience for location-bound students through technology (Beldarrain 2006 p139-140). 1st gen web tools for doing this are things like email, chat rooms, and discussion boards, which, while they raise the ethical issues of

representation and security Blair and Monske (2003) point out, can also emphasize the dialogic core of effective Distance Education, if this is where energy of the industry was allocated (Fishman 2002 p144, Beldarrain 2006 p140). Moving on to ‘2nd gen’ web tools, such as blogs, wikis, podcasts, and collaboration platforms like Writeboard and InstaColl (now largely displaced by Google Docs and the like) shifts attention to creating learning *contexts* through engaging environments—creating *ecologies* of learning through technological experiences that facilitate circulation of ideas (Beldarrain 2006 p140). Circulation theory coalesces around the idea that information or ideas spread organically through social connections amplified by technology, making human and nonhuman actors (such as the technology) functionally inseparable and unbinding meaning from controlled situations (Edbauer 2005, Seas 2012). Thus blogs, wikis, podcasts, OERs, and MOOCs seek to create *context* for learning based on the idea that circulation will accomplish the education in that ‘context’ organically. Combined with Shannon-Weaver flattening of rhetorical devices and impact, circulation pedagogy returns to seeking better technology to facilitate ‘frictionless’ peer-to-peer sharing between students.

Circulation pedagogy seeks to achieve seven principles of effective Computer-Mediated Communication (CMD)/Distance Education by focusing on 21st-century learner priorities. The seven principles of effective CMC/DE (from Chickering and Ehrman 1996) are: 1) contact between participants, 2) reciprocity of participants, 3) active learning, 4) prompt feedback, 5) emphasis on and respect for time, 6) high expectations, and 7) respect for diverse talents and way of learning (Beldarrain 2006 p144). As of 2006, 21st century learners are rendered as wanting: constant connection to peers, prompt (instructor feedback), real-world communication/task simulation, “respect” for diverse cultures through differential communication options, and group work (Beldarrain 2006 p144). In summation, these lists separately describe how education 1) should be active, humane, foster connection between participants, and not dominate participant lives, and 2) how students want active, humane connections between themselves and their teachers. Circulation pedagogy responds by emphasizing threaded discussion, bulletin boards, and chat features to emphasize student-to-student collaboration, effectively making peer-to-peer contribution and collaboration constitute education through granting students access to those platforms and information (Beldarrain 2006 p145). Circulation education adopts similar principles of social media: posts, threads, and discussion around links to articles constitutes a learning process for students. Under this framework, students and teachers are even more

dependent on having good technology, generating costs that Distance Education, in its lo-fi origin in letter writing, sought to alleviate dependency on (Beldarrain 2006 p146, Fishman 2002 p128). Circulation technology takes flexibility to new heights, but accounts for individualization and access largely through technological means.

At the same time, the role of the teacher shifts to a resource manager responsible for delivering knowledge or facilitating collaboration and discussion (Beldarrain 2006 p149). For instance, podcasts or podcasts-like deliveries of information push information to students asynchronously, fostering a sense of connection in students without making them seek out information (Beldarrain 2006 p142). Collaborative projects, like wikis, serve as exercises in building knowledge repositories for students, treating collaboration as the active, reciprocal, responsive learning mechanism of classes, leaving the teacher as facilitator and grader (Beldarrain 2006 p142-3). Diversity concerns are addressed by circulation pedagogy by letting students pace themselves, or ‘work at their own pace’ as is more common to hear, invoking the flexibility of correspondence education while intensifying the atomization of solitude and without addressing the political and social issues Blair and Monske bring to the fore (2003, Beldarrain 2006 p147). Rather than mentoring students, working through active, problem-based lessons with them, and engaging them as individuals through dialogic interaction, circulation pedagogy emphasizes student-to-student pedagogy, as if the teacher’s role is negligible or is as a community moderator. Circulation pedagogy obfuscates banking pedagogy comparisons while skirting dangerously close to its methods.

1.4.4.3 What Students Want

The ultimate test of any pedagogy should be whether or not it serves students, something hard to measure. Two recent studies shed light on what students, as a general online community and specifically OWI students, hope for in their online classes.

Generally, college students want hands-on learning in their online classes (Clinefelter and Aslanian 2016 p43). Students prefer written instructions over multimedia instructions, and want the option to visit their teachers in-person or work with them one on one (Clinefelter and Aslanian 2016 p44). Less than half of online college students think peer contact is important, but view message boards, group projects, or assigned partners to work with throughout the semester as good ways to build in team interaction (Clinefelter and Aslanian 2016 p46). This creeping

sense of dissatisfaction or disappointment with peer-to-peer learning as a primary mechanism for a class means that peer-to-peer interaction has to be specifically designed for and purposefully implemented into the course (Clinefelter and Aslanian 2016 p46). OWI students surveyed by Martinez et al similarly rate discussion boards as quantitatively impactful, but in comments render them as perfunctory, “filler” in course material, or ultimately non-contribution to their growth in their classes¹⁵ (Martinez, Mechenbier, Hewett, Melonçon, Harris, St. Amant, Phillips, and Bondir 2019). Based on this and other findings, Martinez et al concur that peer-to-peer learning materials need to be carefully positioned and pedagogically rationalized to students in order to be truly students-centered and not set-and-forget ventures in efficiency and pedagogical expediency (Martinez et al 2019). Similarly, OWI student comments demonstrate that static materials like readings or other information (including quizzes) must be understandably connected to class assignments and/or units to make them meaningful and pedagogically effective (Martinez et al 2019). Through this student feedback, facilitating peer-to-peer interaction does not emerge as the silver bullet it may have been conceived of as. Students miss knowing their teachers and want there to be a tangible narrative to the classes they are in so they can orient themselves to it and each other to get invested in the learning process.

On the subject of communicating with teachers specifically, students report turning to their teachers for help readily, especially in ways that teacher labor supplements many of the static materials meant to replace or free up teacher labor, particularly in times of technology malfunction (Martinez et al 2019). Corresponding with the teacher becomes a supplement for shortcomings of online classes, in other words, harkening back to corresponding as the primary activity of Distance Education, and echoing the ways teacher labor is invisibly invaluable outside the teacher-student relationship (Martinez et al 2019 and Blair and Monske 2003). Furthermore, students report feedback from their instructor on their writing is the most beneficial feedback they receive (Martinez et al 2019). Martinez et al note that students have such high faith in instructors because they see them as skilled writers and trust them for feedback, mentoring, and help making decisions, making teacher presence huge factors in student success and retention in online classes (Martinez et al). While technology drives the experience, communication with instructors is the most impactful thing on students, primarily through text (Martinez et al 2019).

¹⁵ Martinez et al render comments as especially good indicators, citing respondent motivation to answer a non-required open-response question indicates significance of the response.

1.5 Concluding Thoughts

All this reinforces the positive traits of Merrill's active learning paradigm, Locke's tutor-student model, and the affordances of Distance Education to accomplish them through dialogic interaction. The growing role of technology helps explain the position Blair and Monske find teachers in: curators of courses that demand they surrender control to technology and static materials while still being the students' focal point, who, according to Martinez et al's findings, see the faults of technology and circulation pedagogy and seek help from their teachers. Tendencies toward dependency on technology in the name of scaling up education and changing interactivity are characteristic of Western austerity-driven economic policy combined with the influence of social media culture, from which circulation pedagogy draws heavily, and on public perceptions of knowledge and knowledge-making. Chapter 2 inquires into the ways knowledge-making is perceived commercially and publicly in order frame an empirical inquiry in response.

CHAPTER 2. CIRCULATION AND INFORMATION ECONOMIES

Chapter 1 focused on the historical development of Distance Education into online education, placing special emphasis on one of the major issues it faces now that perhaps is major because of the historical legacy of education in the west and communication technology. This chapter examines that relationship between thought, communication, learning, and technology more in-depth, putting the struggles of online education into a larger historical, political, and economic context. In doing so, this chapter argues for evaluating how students and teachers allocate their labor in online classes, as that labor is the invisible work of online teaching and learning that is obfuscated in technologically-driven, economically minded models of online education, particularly in Online Writing Instruction (OWI) cases. This chapter starts by drawing connections between Merrill's active learning first principles and empirical knowledge-making, moves to discussing how Information Science and circulation theory coalesce to produce the prodigious information ecology that online education now exists in, and interrogates the links between that ecology and economic-political governance. In doing so, this chapter produces an argument for why competence-driven, large scale online education falls short and how correspondence driven, dialogic interactivity can still function as a productive basis for online education, particularly in OWI, to serve the diverse people seeking education online today. Online education serves as a microcosm of technological, ecological, and informational controversies of note today, with material ramifications in each, as well. Ultimately this chapter argues that information commodified and regulated through markets asymmetrically distributes power and knowledge, and that teachers and students are allies to each other in this struggle against asymmetry.

2.1 Active Learning and Empirical Knowledge-Making

To recapitulate an important point to the connection between learning and knowledge-making, active learning is constituted when:

1. Activities are oriented around real problems
2. Presentation of these problems activates existing knowledge and experiences of students to build *new* knowledge and experiences

3. Teachers demonstrate approaches to solving the problems to students in ways students can relate to and start applying immediately
4. Students can take over and iterate on the problems-solving approaches their teachers demonstrate
5. Knowledge and experiences from the active application of solving the problem can integrate back into the learner's daily life. (Merrill 2002 p44-45)

Merrill's five-phase process constitutes a cycle of educating by means of a dialectic between existing student experience and new problems combined with mentoring to produce new knowledge, worldviews, and approaches to affecting the world that integrates new skills and modes of thinking into how a student exists in the world (rather than a set of ideas that they collect), seeking not to displace student experience *from* them nor displace information *into* them in utilitarian fashion. In short, when operating out of an active learning perspective, effective learning is a knowledge-making process that emphasizes activity and mentoring and encourages action. In this sense, active learning is both empirical and rhetorical: in a rough composite of the two, noticing a problem and seeking to solve it requires one to gather data about the world and the problem, identify stakeholders in it, and arrange arguments combining those observations with other imperatives to move toward a set of actions that change the situation (Bitzer 1968, Locke 1689, Cicero 2001)¹⁶. Given the overlap, it's less surprising to see Locke treat learning as an active, playful, and personal experience designed as such by the teacher (Locke 1693). Western education and empiricism overlap in the Enlightenment because of the Enlightenment's emphasis on experience, observation, and relative democratization of knowledge-making through these principles (Foucault 1984, Locke 1693). Writing and rhetoric are integrally linked to empiricism and networked knowledge-making because of writing's utility in recording experiences and making them portable and persuasively compelling to other people; writing is the highest form of telepresence in the Enlightenment and the most ubiquitous one today (Bacon 1605, Steuer 1993).

This relationship between writing, empiricism, communication, and education is another way of understanding the challenge Distance Education and knowledge-Making face today: if knowledge-making (problem-solving) is an organic consequence of communication, then scaling up knowledge-production and problem-solving is a matter of producing better communication

¹⁶ Though notably beyond Locke's idea of "filling the slate" of a learner.

technology. Implicit in this assumption is that the kind of communication, its rhetorical presentation, and content is inconsequential, because it will mutually benefit from better technology regardless. From an eLearning or Online Education standpoint, this position can imply that technology is the difference-maker in educational practices, making it the growth area needing investment and support instead of teachers or pedagogy¹⁷ (Connel 2009 p25).

Conversely, to say that technology, because it is a constant of educational infrastructure, is inherently less important than pedagogy ignores the way teachers are constrained by technology, and it runs a risk of making them responsible for a technology's faults in the eyes of their stakeholders (students and administrator primarily) (Connel 2009, Beldarrain 2006).

A key tension between the technology deployed and the pedagogical approach driving education represents tendency toward atomization and isolation of particular facets in problem-solving instead of seeing the problem ecologically. Ecology is a load-bearing term today, especially because of its connection to environmental crisis. 'Ecological' and 'ecology' refer to interdependence and/or coexistence of things conventionally established as opposite or discrete (Morton 2010 loc 64). Therefore, an ecological perspective of online education would acknowledge the relationship between teacher and technology as co-constructive, and also acknowledge that treating one as inherently subordinate to the other is ultimately a losing line. In taking an ecological approach, it is important to not take any factor as a constant or given: seeing any one facet of an ecology as stable or renewable-by-default amounts to magical thinking: it assumes the existence of an ecology absolves participants of their actions or effects by excusing them as cancelled out by some other force (Morton 2010 loc98). Instead, a "dark" ecological approach wherein one investigates ecologies with hesitation, uncertainty, and thoughtfulness in pursuit of a truth that, like a noire detective, we find ourselves unwittingly involved in offers more revelatory and actionable results (Morton 2010 loc 234).

When accepting the ecological entanglement of technology and education, in Online Education specifically but certainly in education generally as well, what emerges unaccounted for and difficult to quantify or materialize is the work teachers and students do negotiating with technology across their varied goals (problems) and the technologies they employ. This negotiation is work, and is the every day labor of teaching and learning that Blair and Monske

¹⁷ Either because they are 'already good' or because they can be replaced with better technology that will make less mistakes or improve faster.

find obscured, hidden, or ‘invisible’ in online education as an archival pursuit where the teacher is positioned as a facilitator (2006).

Teaching-as-labor and learning-as-labor also highlight two important things: 1) the ways technology is employed in utilitarian fashion to reduce (or displace) labor while maintaining or increasing production (Smith 1776) and 2) the reality of knowledge-making itself as labor. These linked revelations relate to larger developments in the knowledge and information *ecology*¹⁸ in which teaching and learning happen through growing interest in Data Science across cultural, political, and technological facets. Data Science, as the application of tools and practices to extract patterns from large datasets, seeks to replicate empirical labor in ways that surpass human ability, similar to how manufacturing technology seeks to automate commodity production at a faster rate than a human can (Kelleher and Tierney 2018 p1 and 4). Leaving aside the threats automation makes to workers when no contingency plan is made to care for them post-automation, automation, as the practice of using technology to accomplish human activities (Walker et al 2011), is what online students reject the most about online education, as seen in Chapter 1. However, ecological analysis makes it clear that casting technology as the failure or as inconsequential misses the point and removes valuable opportunities to improve practice. Therefore, the focus of this section and onward in Chapter 2 is how Data Science and Information Theory shape popular conceptions of knowledge and knowledge-making, as well as the co-constructive legacy of Information Theory, Rhetoric, and Technical Communication that work together to produce this moment at which more resources for knowledge-making exist than ever before and yet productive results seem disparate, fractured, and contentious.

Data Science employs a pyramid to formalize the way it produces knowledge. In this pyramid, data precedes information, which precedes knowledge, which precedes wisdom, each the product of the previous category after undergoing a process of distillation (Kitchin 2014), like so (Figure 2.1):

¹⁸ Acknowledging the relation and interconnectedness of all these components

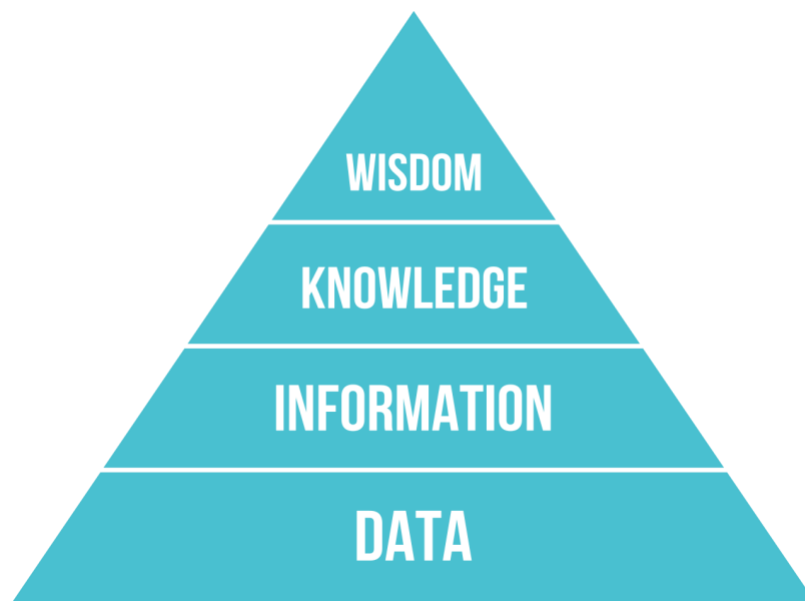


Figure 2.1. The DIKW Pyramid Model of Knowledge Production in Data Science

In reference to its empirical roots, more complex renderings of this pyramid make explicit that the world is the true basis of the pyramid, the lived reality or material basis from which measurements and, eventually, knowledge arise, like so (Figure 2.2):

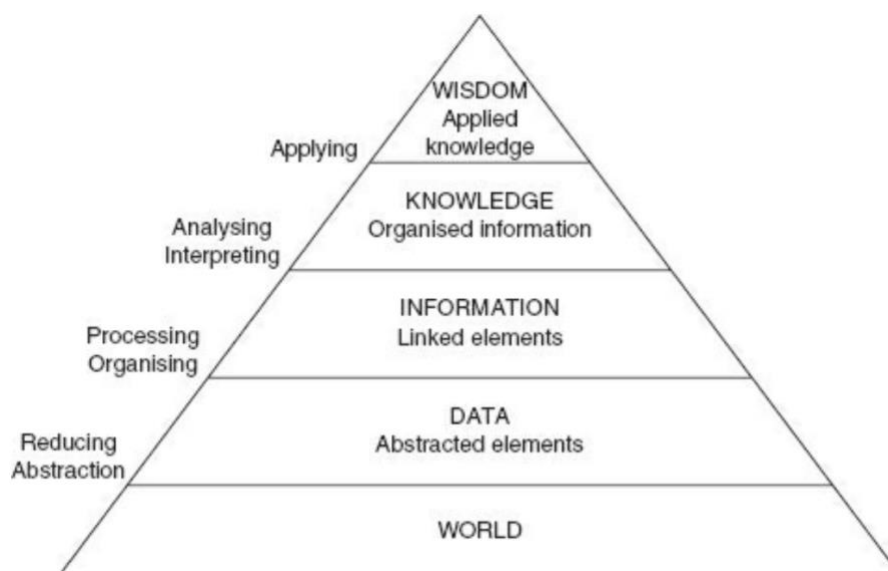


Figure 2.2. Expanded Pyramid Model of Knowledge Production

The rest of this expanded pyramid model (Figure 2.2) labels the work that happens between levels, presumably done by a data machine (an algorithm or other processing process). Figure 2.2 also gives a sense of the temporal connections of knowledge-work in this framework: wisdom is the ability to apply knowledge in the present to affect and shape the future. Specifically, each of these terms are defined in Data Science roughly as follows:

- Data: abstractions or measurements taken from the world
- Information: data structured or organized to be meaningful to humans
- Knowledge: structured information humans can understand and apply
- Wisdom: knowledge applied appropriately (Kelleher and Tierney 2018 p56).

These definitions return us, circuitously, to questions of education and problem-solving: if education functions best as a process of knowledge-making through problem- or task-based activity, how we recognize and define concepts like data, information, and knowledge in a rhetorical and educational context provides a lot of insight into how we teach these concepts and the activities to produce them to students as ecologically-focused skilled labor for the 21st century, rather than relying on automation or commodification. Data Science's implementation of empiricism takes an industrial approach to knowledge production, assuming that if knowledge is needed, it must be produced with as much expedience as possible. There is more demand than ever before for specialized information to solve massive ecological problems—climate change, volatility in food supply and pricing, water supply, energy costs, and general market volatility to name few—yet despite the wealth of usable information, there seem to be few clear ways forward (Busch 2014 p3-7). The historical entanglements that produced this moment, ecologically, are the development of Information Theory, rhetorical empiricism, and Technical Communication in the 20th century. Examining these threads will help understand how the industrial approach to knowledge-making and education are digitally enabled, and it will help establish rhetorical definitions for data, information, and knowledge that rhetoricians and technical communicators can use in conversations with data scientists and other disciplines. Information formation and delivery is a cornerstone of modern economic, political, and cultural operation. The DIKW pyramid's basis in empiricism also means that rhetoric is implicitly pivotal in Data Science-related professions and processes¹⁹, and the explosion of data-driven work

¹⁹ Including Artificial Intelligence (AI) and Machine Learning (ML), both of which rely on using large datasets to build dynamic and automatous systems of decision making that are reactive to dynamism of ecologies they exist in.

thanks to advances in networked communication should validate online education as practice. It is all the more curious and disheartening, therefore, to see that increased communication capability and availability of information to learners has not led to meaningfully improved education, significant work on ecological crises, or alleviation of inequality on global or local levels.

The relationships among rhetoric, learning, empiricism, and knowledge-making are part of understanding these problems, not just as how they relate to online education, but as to how mis- and disinformation spread in ecological ways—online or otherwise—and patterns of mis- and disinformation knowledge-making are insight into another way people are ‘educated’ online, quite effectively in many cases, outside institutional education and to catastrophic material ends²⁰. If we accept that ‘good’ information derived from data leads to positive impact on the future, it is tenable to argue that ‘bad’ information is an impediment, as most criticisms of “fake news” tend to imply. For example, Lazer et al’s 2018 report in *Science* defines “fake news²¹” as fabricated information mimicking news media genres but not their process or purpose, and the report further delineates between “misinformation” (false information) and “disinformation” (false information intentionally spread to deceive) (Lazer et al 2018 p1094). Data and Society’s 2018 “Dead Reckoning” report differentiates between “fake news” as a criticism lobbed at media companies and “problematic content” studied by media scholars, and similarly differentiates misinformation and disinformation as false “information” unintentionally and intentionally spread, respectively (Caplan, Hanson, and Donovan 2018 p6 and 9). “Information,” as a concept, is not defined in these response reports. Information, as part of knowledge-making and as a conceptual designation, operates as a boundary object, connecting different concerns and purposes through abstract meaning (Star and Griesemer 1989, p393). Rhetoricians, technical communicators, and usability researchers, as disciplines connecting domains of expertise and work through research and production, are in a good position to explore the connections made by this boundary concept (Johnson, Salvo, and Zoetewey 2007). Furthermore, ecological crisis and information overload prompt scholars of ‘informing’ to think about what constitutes usable information and reliable knowledge beyond quick comprehension and action. Examining

²⁰ Charlottesville, Dylan Roof, New Zealand, Orlando, to name a few recent examples.

²¹ A colloquialism popular in the wake of the 2016 United States presidential election, grown into a short hand for information one does not believe in addition to a designation by researchers (Caplan, Hanson, and Donovan 2018)

relationships between classical Information Theory, Technical Communication, modern ecological-rhetorical models, and ongoing shifts in the way data and information transform into knowledge illuminates links between information, data, and knowledge from a rhetorical perspective, and proposes a definition of information-as-pattern, as opposed to information-as-usable-unit or information-as-quantified-intelligence. This definition helps map the shift from institutional to market-based knowledge-making, and produces new questions about information that educators and designers can use to guide their labor practices.

2.2 Information and Data Science Influence

DePew, Fishman, Romberger, and Ruetenik (2006) argue that Online Education is engineered primarily for efficiency because of concurrent developments in composition studies (Current-Traditional Rhetoric), Distance Education (correspondence schools), and Shannon-Weaver Information Theory (sender-receiver signal transmission) in the mid-20th century (pp52). To give full weight to this point, and to understand the significance of Information Theory to modern information economy, ecology, and data-driven knowledge-making (i.e. Data Science pursuits) in a whole host of facets of our lives today, specific attention must be paid to its legacy and contributions.

Claude Shannon developed Information Theory in 1948 to solve an engineering problem in communication: getting signals to clearly reach their destination without just boosting their power, since signals of equal power traveling concurrently add noise to each other (hence “signal” vs “noise” in shorthand) (Gleick 2011 p223). Shannon proposed encrypting signals to make them pragmatic cryptograms, functionally indistinguishable from noise when scrambled and clear when decoded. Signals-as-cryptograms can either be inductive or deductive, relying on a noticeable internal logic or using outside clues, instructions, or context to understand the pattern (Gleick 2011 p345). Three particular elements of Information Theory lend themselves to rhetorical interpretations of information: transport, bits and redundancy, and stochastic structure.

2.2.1 Transport

In treating information as a mathematical string (series of characters representing a value) that is legible just at its origin and destination (when it’s encoded or decoded) Shannon created a way to filter noise through one of Information Theory’s major advancements: separating a

message from its meaning in transit (Gleick 2011 p246). In other words, the meaning of a message is not affected by its journey—it is identical (or symmetrical) with noise while moving. Through emphasizing starting points and destinations, Shannon pioneered a transport model of information, a paradigm Ingold describes as emphasizing endpoints in journeys to minimize the ability of journey to transform or affect the message and maximize the transformative effect the message can have on who it's delivered to (Ingold 2011 p150). Advancing transport means finding ways to compress traveling time (of people, things, information), treating time and space as a barrier (hence the importance of telepresence). Distance Education shares this concern for barriers, as the legacy of dialogic interactivity attests to (Fishman 2002). Technologically-driven advances in Distance Education focus on mitigating these barrier technocratically, assuming the mitigation of barriers has constant, proportional positive impact. Transport models of information contribute to ethics of expediency and focus the development of technology on accelerating transfer as the logical way to increase access and reach (Katz 1992). Transport is the first point in which Current-Traditional Rhetoric finds crossover with Information Theory, echoing back to Enlightenment empiricism and telepresence of text.

2.2.2 Bits and Redundancy

Bits are the mathematical subunit of information “quantifying” intelligence in Shannon’s original work (Gleick 2011 p4, p229). On a technical level, bits represent “binary digits:” the uncertainty and meaning of the outcome of a coin flip, a simple ‘yes or no’ that might be meaningless in isolation but, as the aggregation of binary decisions, acquires complexity and meaning in aggregate (Gleick 2011 p229). Because meaning is separated from message in Information Theory, bits are computational units that information is ‘made of.’ Empirically, however, bits are not what information is ‘made from.’ In order to form an idea, one wouldn’t go “get some bits”; rather, one would likely “collect some data” about the world or problem one is trying to address.

Furthermore, a field of true-random bits technically has high information density (a truly heterogenous and unpredictable aggregation of random coin-flips) but lacks redundancy, making it indecipherable. From an information perspective, indecipherability equals meaninglessness (despite being information-heavy) because random bits have no inductive (internal logic) or deductive (contextual cues) pattern to help decipher it (Gleick 2011 p230). In other words,

internal redundancy is an important trait of information, and data is a better rhetorical starting point for information not just for its empirical value but because data is also a start of meaning through observation (Locke 1689 2.1.3).

2.2.3 Stochasticity

Legible information contains redundancy because it proceeds stochastically, meaning its order of events is 1) probable based on previous events and the overall flux of the system, but 2) neither totally random nor 100% calculable from those previous events (though still related to them) (Gleick 2011 p225). Stochasticity is one of the most rhetorical elements of Information Theory and Data Science, because stochasticity is the argumentative basis for saying that recognizable patterns in data represent a trajectory that, while ultimately unknowable, is predictable and interminable based not on the progression of past events. Stochasticity accounts for the inherent unknowability of the future while arguing that it can be acted upon and that justifying those actions can be data-driven. Language is a good example of practical stochasticity: spelling or reading a word references previous characters and predicts upcoming ones as an embodied, linear process by the reader or writer. For now, what this contributes to rhetorical understandings of data-driven action and rhetoric, as well as definitions of information itself, is that redundancy is a key part of what gives information rhetorical meaning because redundancy is a way to identify inductive or deductive patterns in data (Gleick 2011 p247).

2.2.4 The Informational Turn

In this original formation, Information Theory is used as a way to encode messages and send them—to package content for delivery, in other words. What makes Information Theory’s signal/noise metaphor and associated rhetoric so pervasive today is the shift in Information Theoretic thinking from thinking of it as a method of communication to a method of discovery by assuming that the existence of a “noisy” field of bits constitutes a pattern or patterns waiting to be discovered²². This line of thinking reframes uncertainty or disorder *as* certainty or order simply lacking enough data or bits to complete the pattern (Gleick 2011 p230, 247). Under this assumption, pursuit of knowledge transforms into industrial-scale collection of data. The argument proceeds thusly:

²² Or perhaps “unconcealed,” as the case may be.

- the more data of the pattern you have, the easier the pattern is to figure out (*assuming before hand* that there is a pattern to find) (Gleick 2011 p230)
- random texts theoretically carry more information because they are not redundant, *and*, because a bit is always coin toss, encoding and decoding is dependent on prior knowledge of structure (to adequately judge the bits or data) (Gleick 2011 p230)
- Therefore, the larger a text is, the more redundancy it will mathematically contain, making it easier to recognize patterns *and* fill in gaps intuitively (Gleick 2011 p247)

In other words, while Information Theory cannot technically develop a new idea or system of thought, it *can* rationalize that its application has discovered something hidden in the system all along (Gleick 2011 p231). Through a combination of Western Enlightenment traditional influence (ecologically or directly) and technological advance, Information Theory recreates the discovery of empiricism as divorced from meaning and centered on statistical processes (Gleick 2011 p246). Data Science takes up the work of Information Science at the point that humans cannot collect or process the data necessary for this pattern finding at the scale industrial acceleration demands (Kelleher and Tierney 2018).

The Informational Turn, in other words, represents a shift across disciplines in recognizing information or bits/data as the basis or as building blocks of cognitive and social disciplines, making the mind important in that it processes or builds from information; information becomes the essential ingredient of the mind, and Information Theory (and cybernetics by extension) gives us a way to believe we “know how we know” things (Gleick 2011 p242, 262). There are two very important consequences of this shift: 1) conceding that Information Theory cannot argue any “new” information exists, instead arguing that information-theoretic discoveries amount to acknowledging an underlying or constant truth that pre-existed the inquiry, and 2) accepting that the designed analytic system is the source of all findings, making the importance of analytic and experimental design crucial (Gleick 2011 p231).

The consequences come into focus when acknowledging that no model can include the complexity of the real world or nuance of human communication, especially because classical Information Theory treats language as a series of coin tosses (bits) that cultural context and memory enables people to put together (O’Neil 2016 p20, Gleick 2011 p247). Practically,

algorithmic models²³ reflect the “judgment and priorities” of their creators, because they represent their values and goals and fill gaps in the data with their own intuitions, and don’t directly measure all properties they judge, as Data Scientist Cathy O’Neil describes them (2016 p21).

On the data-industrial scale, this means that Data Science fields, that apply industrial scale and automation to data collection and processing, create self-fulfilling feedback loops by assuming that the model is inherently surveying a complete body of data, uncovering truths waiting to be discovered, and using its discoveries to strengthen the algorithmic models (O’Neil 2016 p29). For example, when crime statistics are fed into algorithmic models to predict crime and shape police movement, the most readily available data prioritizes violent crime (over, say, white collar crime), and places where violent crime has occurred (i.e. where people have been arrested and convicted) are where models direct police to go (O’Neil 2016 p89). Surges in police surveillance at those places produces more arrests, which serve as data to feed the model, proving the efficacy circuitously and continuing the intensification of police presence (O’Neil 2016 p27, 91). Consequently, models like this criminalize poverty by increasing police presence where violent crimes are reported *and* divert resources away from policing white-collar/financial crimes, because police outfit themselves for what models tell them to prepare for (O’Neil 2016 p90, 91). Because the models are privatized and black-boxed, the public has no direct sense of the accountability of effectiveness of these models, and the scientific/empirical legacy those apparatuses are built on lend an ethos of objectivity to the models by proxy (O’Neil 2016 p25).

These clear faults established, combined with the reality that models are outdated almost as soon as they go into practice because of the shifting complexity of reality, incentivizes pursuit of more or “better” data (O’Neil 2016 p22). Hence Data Science and associated fields and businesses prioritize data collection in an attempt to fix their models or make them more reflexive (Zuboff 2019 p20). Because private companies are motivated by shareholder value, that means that “fixing” models is fundamentally limited by creating short-term gains in value for the firm before any other change can take place (O’Neil 2016 p44). This blunt empirical approach to uncertainty limits the ability to map long-games because it treats uncertainty more harshly than

²³ Algorithms are complicated step-by-step instructions for doing something, growing out of mathematical tradition and augmented by computing advances that increase the speed at which they can be processed, allowing engineers to make them more complicated (Gleick 2011 p57). Machine Learning (ML) refers to design and evaluation of algorithms for extracting patterns from data (Kelleher and Tierney 2018 p1).

rhetoric does: rhetoric, oddly enough, has more tolerance for probability than this kind of blunt empiricism.

The relationships between empiricism, rhetoric, and market governance are the subject of section 2.5, “Neoliberal Governance of Information.” As it relates to the connection between Information Theory and Rhetoric, while the informational turn likely ecologically influenced deemphasis on invention as a rhetorical canon, the Data Science turn, as well, has likely influenced the rise in concern for data and methods in the late 20th century. The 21st Century is now the time when these technologies and methods have grown sophisticated, and commoditized, enough to be part of every day experience, part of the fabric of material existence that supports us and that we struggle against.

2.2.5 Information Theory Summary

The technical and mathematical side of Information Theory is vast and best left to information theorists. From a human-centered point of view, information’s important traits are: 1) it emerges from analysis of a larger corpus, 2) its tendency toward discrete packaging and transportation, and 3) its possession of patterns a receiver can decipher based on existing knowledge and abilities. From a user-centered perspective, the mechanics of Information Theory are inherently audience-focused, but the relationship between sender and receiver is narrow: the sender assumes the receiver can decode the information somehow, at which point its meaning is self-evident. In other words, the receiver assumes that the information is “good” or worth understanding before deciphering it, and that it arrives as it was sent.

The emergence of Shannon-Weaver Information Theory is co-constructive with Current-Traditional Rhetoric because both take the position that writing (or other composition mediums) is a transport method for ideas (Berlin 1982 p770). In both classical Information Theory and Current-Traditional Rhetoric, some other set of scientific or mathematic apparatuses produces ideas, and style/encryption is the gateway to making them palatable or understandable to their audience in order to spread the shared experiences (Berlin 1982 p770, 771). This viewpoint extends from the Enlightenment belief that writing is tool for making memory durable and transplanting thought (as opposed to being a transformative and/or productive act of creation itself), making rhetoric a task of presenting one’s experiences or empirically-discovered truth as compellingly replicated through prose as possible, just as Information Theory foundationally

positions the content of a message as irrelevant so long as it is packaged or encoded properly for the intended audience to decode it (Bacon 1605 p244, 249, 261). Hence, Current-Traditional Rhetoric and Information Theory cooperatively appeal to science and business discourses as a rhetorical and communicative framework for assembling collected observations (data) into objective reports through emphasis on format, time and cost efficiency, and general expediency—effectively trying to compress movement of ideas across time and space into a more instantaneous experience (i.e. Telepresence) (DePew et al 2006 p51, 52). Though in different disciplines, their parallel (and ecologically note-worthy) rises to prominence in the mid-20th century demonstrates their alignment, in both humanities and sciences, in emphasizing functional language to “flatten” rhetorical concepts and heterogeneity in expression and invention of thoughts (DePew et al 2006 p52). This parallel/shared (ecologically interwoven) history partially explains how Distance Education evolved in technologically-driven, industrial fashion, and at the same time expresses the importance of technical communicators and Technical Communication to rhetoric in the 20th century and the future of Distance Education.

In this context, technical communicators and rhetoricians, as professionals of human-centered research and decision-making, already critically engage students and other members of the public with the information they receive by teaching information arrangement (i.e. design, architecture, documentation) and critical thinking (information literacy and argumentation) (Salvo 2004; Johnson, Salvo, and Zoetewey 2007; Redish and Barnum 2011; Hewett 2015; Busch 2014).

Institutional shift and advances in circulation technology and theory, however, change the ways users judge relevancy and realism, as well as changing the relational value of experts and their institutions (Latour 2013). Institutional erosion would, on the one hand, prevent institutional technocracy, but it also removes barriers to technocratic dogma emerging from private entities or other network members with pre-existing power. For example, take climate change: in the Introduction to his 2013 book *Modes of Existence*, Latour describes a confrontation between a professor of climatology and an industrialist in a policy meeting in France. After the professor presents their argument for regulatory policy responding to human-made climate change, the industrialist replies simply with ‘why should we believe you more than someone else?’ (i.1.2). Latour expects the professor to cite specialized knowledge from disciplinary methodology. Instead, the professor responds by describing his institutional and

disciplinary structure, arguing that, though it is imperfect, it is set up to provide checks, balances, and test mechanisms to produce the most rigorous information possible (Latour 2013 i.1.3).

Latour compares this to a priest producing an org chart of the Vatican to prove the existence of God, citing *trust* in the institution itself (Latour 2013 i.1.4, i.1.5). This example illustrates the difficulty of ‘informing’ while institutions shift and circulation decreases public demand on institutions for rigorous empiricism; the voices of experts are still necessary, but their input is not especially valuable when skeptics overtake the domain of certainty against rigor, and uncertainty implies all sources are symmetrical (Latour 2013 i.1.7). Technical communicators and rhetoricians need to study these shifts to support the public’s involvement in research and restore faith in empirical inquiry. Part of this is developing theories of data, information, and knowledge that extend beyond the time and place of consumption and account for the rhetoricity and labor involved in producing and processing them (Sullivan 1989, Ingold 2011).

2.3 Data, Information, Knowledge, and Wisdom for Rhetoricians in the 21st Century

As fields with empirical traditions, Technical Communication (specifically) and rhetoric (broadly) benefit from conceptions of data, information, and knowledge that express their disciplinary values while fostering engagement with them as boundary objects. To define data, information, and knowledge rhetorically, we have to identify what rhetoric adds to their definitions. Rhetoric is a discipline of transformation through assessing situations, ecologies, and experiences to make decisions, participate in developments, and work for mobility and equity (Aristotle 2007, Edbauer 2005, Hinks 1940). Rhetoric values both evidence and experiences because evidence devoid of humanity can be collected unethically or become dogma intentionally or unintentionally (Hinks 1940, Katz 1992). Therefore, rhetorical definitions of data, information, knowledge, and wisdom should focus on the rhetorical labor to transform one into the other—rather than how they transport content.

While empirical inquiries into Technical Communication and design often render Technical Communication as the study of transporting information expediently and actionably (Spinuzzi, Hart-Davidson, and Zachry 2006), Technical Communication also develops theories of audience to change the way information is made and rendered through usability, and it uses that research to promote equitable relationships between experts and non-experts (Johnson, Salvo, Zoetewey 2007 and Sullivan 1989). Rhetorical descriptions of data, information, and

knowledge work for the second goal and impact the first. It also furthers the value of “information” as a boundary object and prepares for continuing to make information equitable and actionable under shifting institutionalization mechanisms.

2.3.1 ‘Data’ and ‘Information’ for Rhetoricians in the 21st Century

Data: purposefully collected measurements of the world (stored or recorded as measurements, either quantifiable or qualitative)

Information: data organized to be meaningful or usable (a ‘pattern-making’ process over ‘quantified intelligence’ or a ‘usable unit’)

Kelleher and Tierney aggregate definitions of Data and Information in the Information Theoretic and Scientific tradition into data as ‘abstractions of real-world entities (variable, features, attributes)—not the thing observed itself but a record of the thing’ and information as ‘data structured to be meaningful to humans,’ starting a hierarchical process of systematic reduction from observing something to making it meaningful (2018 p39, p56). The distinction between data and information is usually a matter of audience: one person’s data is another’s information. Defining information is troublesome because Latin and Greek origins of the word (*informatio*, *morphe*, or *plērophoria*) connote the act of conveying something to someone or giving form to ideas (i.e. design) (Buckland 1991). Information-as-quantified-intelligence (assembled bits) renders it as a persistent thing, beyond a contingent form for conveying. Information also has material and cultural form, as ‘documents’ (bits, bytes, and books, for example), meaning, and processes (Buckland 2017 loc327, 342). Rhetorical descriptions of information and data, then, should account for the transformation of one into the other based on the purposes they serve for people interacting with them, while still accounting for the trouble and mess inherent in working with them (Law 2004).

Michael Buckland distinguishes between information in four forms spread across 1) tangibility and 2) whether or not it is a process (Figure 2.3) (1991).

INTANGIBLE		TANGIBLE	
ENTITY 2.	Information-as-knowledge Knowledge	3.	Information-as-thing Data, document
PROCESS 1.	Information-as-process Becoming informed	4.	Information processing Data processing

Figure 2.3. Buckland's Four Forms of Information

Data, in this matrix, is one of the ways information takes form, but informing also takes place through processing data (Buckland 1991 p352). Salvo (2004) identifies data as the product of analysis, and describes information as a unit emerging out of an “ocean” of data (p45). Buckland further describes data as collected records available for processing, either virtually or in a physical place (1991 p353, p354). Based on these interpretive relationships between data and information, any description of data has to take into account the possibility of data “to inform,” but that it has to be processed first. “Raw data” is a misnomer, but to say a dataset “informs” without processing labor is disingenuous. *Therefore, data, as untransformed information, could be described as records purposefully chosen or collected, manually or through automation, for processing. The “Results” section of a report presents the collected “data,” for instance, before the researchers “discuss” the results, producing their major conclusions.*

Data transformed into a legible, stochastic pattern for readers is information from a rhetorical perspective. Information-as-quantified-intelligence for encoding and transporting and information-as-usable-unit describe its form, and both are useful to technical communicators doing usability tests of documents, infographics, and other informational texts. Information-as-pattern-making enables heuristic questions about information and the way it extends in time and space from its moment of creation, such as:

- What labor went in to making this pattern?
- What data was collected to contribute to this pattern? How was it collected?
- What resources did this pattern consume?
- What resources will this pattern enable more consumption of?
- Who will benefit from the continuation of this pattern? Who will suffer from the continuation of this pattern?

- Will this pattern align with patterns made elsewhere?

Questions like these focus on the ethical and social consequences of information, instead of on the “unit” itself, making the context and consequences of the information part of its literacy. The last question in particular connects to the rhetorical function of information in knowledge-making and calls attention to the gatekeeping going on in the pattern. Definitions such as these aid in rhetorical critiques of industrial data-gathering and information rendering by emphasizing the active processes in each: ‘collecting’ in data and ‘organizing’ in information. By emphasizing verbs instead of nouns or stability in these definitions, they hope to continue the rhetorical tradition of contributing to active, malleable, transformative, and progressive arguments about these things that center the people and processes involved in them as much as the technical matters. Questioning the alignment of informational patterns references the Enlightenment empirical influence on rhetoric while leaving room to interrogate the spatiotemporal and distributed nature of power and knowledge in the 20th century and beyond. It also invokes emphasis on time, place, and futurity in questions of knowledge-making to engage Data Science (and other knowledge-industrious models) in discourse on the future itself.

2.3.2 ‘Knowledge’ for Rhetoricians in the 21st Century

Knowledge: shared experience of information, through communication or application

Kelleher and Tierney aggregate knowledge definitions into the industrial Data Science model as ‘information structured to be understood or applied’ (2018 p56). Knowledge is the transition of information from a legible pattern into a worldview through social circulation. Information known by one person constitutes a belief. Knowledge is belief shared with others, but knowledge-making is not just storing a pattern two or more places or held by two or more people (Gleick 2011 p409). Knowledge has to be information experienced by multiple people.

Information patterns come together in knowledge-making (question 6 of the above heuristic), and knowledge-making invokes concern for futurity and power whether it is always acknowledged. Foucault’s argument about the Enlightenment is that truth in knowledge moved out of the domain of the monarch and into the domain of (more) people, making it social (Foucault 1984, p37, Foucault 1975, p174, Foucault 1975, p192, Foucault 1978, p265). Buckland differentiates information-as-knowledge when it is solely the possession of one person’s mind, like a belief or opinion (1991, p351, p352). Therefore, in order for information to be knowledge

to more than one person, it has to be socially shared. Crucially, networked information (a pattern replicated through a network) is not the same as knowledge (Gleick 2011 p76, p416). *Information that multiple people share experiences of—that they find legible and the pattern of which fits the extensions of the other information or knowledge they possess—is the rhetorical transformation of information into knowledge, when multiple people can rely on and defend it (Merrill 2002 p50)*. Citing a report—either for its data, conclusions, or methods—is a sign that information aligns with others’ experiences. Building communities around these practices is the process of institutionalization. Technical Communication and usability directly participate in sharing experiences to make knowledge, as they have since the Enlightenment (Bacon 1605, Yates 1989). Because Enlightenment communication technology was slower, institutions took on infrastructural work of verifying experiences and validating those who claim them, such as universities or government agencies.

Technical Communication and design are integral to sharing experiences, whether through document and interface usability that assesses and optimizes the transport of information as the ‘last mile’ of knowledge-making, or through theories of audience and systems that affect how and why data is collected, patterns are made in it, and experiences are shared. Regardless of the approach, Technical Communication and design are part of the labor of collecting and making data, information, and knowledge, sometimes visibly and sometimes not (Star and Strauss 1999). The labor of knowledge-making, therefore, is a good organizing concept for online writing classes because it accounts for disciplinary concerns or rhetoric and Technical Communication while directly invoking active learning principles of Merrill’s first principles while teaching a set of skills that remain relevant both in data-industries and outside in other cultural institutions.

2.3.3 ‘Wisdom’ for Rhetoricians in the 21st Century

Wisdom: future-oriented application of knowledge promoting democracy, equity, and survival

Wisdom is likely the most contentious aspect of DIKW from a rhetorical perspective (or any, for that matter) because rhetoric directly engages with the moral implications of the concepts generated by other fields. Data Science adds ‘wisdom’ to the data—>information—>knowledge shorthand guiding Information Science. Kelleher and Tierney aggregate wisdom

definitions into ‘knowledge applied appropriately’ (2018 p56). Wisdom represents the phase of DIKW where Data Science and data-driven fields acknowledge their role in shaping the future. Up to that point, DIKW emphasizes clarity and organization, providing the impression that the empirical mission of knowledge-making is to wrangle data into docile, usable forms to *inform* users/people of the ‘information’ therein (traditional Technical Communication from the post WWII, mid 20th century—the rhetorical era of Current-Traditional Rhetoric and classical Information Science). Wisdom directly deals with the ramifications and futurity of this work that is present in the whole process already, from an ecological-rhetorical perspective. Because Data Science relies on high-performance computing and novel applications, it is a growth sector through its viability in business and private contexts (Kelleher and Tierney 2018 p56). The empirical link between Data Science and the world give latitude to argue that “wisdom” can be a data-driven path to predicting and positively affecting future events, which is profitable in its own right (Zuboff 2019 p14). However, being able to convince people of ability to predict the future makes productions of the future a commodity in markets that hinge on selling and buying of views of the future (Zuboff 2019 p14). Having a claim on the future is powerful enough, but the ability to intervene and push people toward a given predicted model, fulfilling it whether it would have actually happened or not²⁴, formalizes the link between power and knowledge (and data and information) argued by Foucault (Zuboff 2019 p15).

Because Rhetoric is a field emphasizing decisions and mobility it stands that rhetorical conceptions of Wisdom in the 21st century must promote democracy, equity, and survival from an ecological and intersectional perspective with concern for futurity and sustainability. In more blunt terms, industrial data uses empirical precedent to argue that the future can be planned, making the relevant next questions ‘by whom?’ and ‘for whom?’

While I list survival as a concern last, it should be covered first for the urgency it gives the following aspects. Survival, as the act of imagining a future and being able to go about actions that bring it into being, reinforces the simple fact that one must have a tangible future in order to survive (Kohn 2013 p194). One’s inability to imagine a future for oneself can be interpreted as an empirical indicator of one’s overall security and ability to continue life, in many senses of that phrase. Uncertainty or the absence of perceivable future is a potentially debilitating and/or traumatic state of existence, depending on its pervasiveness and expansiveness into the

²⁴ Demonstrably unprovable in Schrödinger's cat-fashion

future. Industrial data can provide such certainty, but its private nature suggests technocratic or deceptive application, an anti-rhetorical stance (Zuboff 2019 p40, Johnson, Salvo, and Zoetewey 2007). Survival, also, is a human, political problem: it has to do with human-made institutions, power, and the nature of humans-in-the-world (Kohn 2013 p194-5). Survival is something that comes about through human planning and cooperation. Survival is an ecological project.

Democracy as an ideal of rhetorical wisdom refers to symmetrical value of people in participation of power. Critically, this does not mean an *assumption* of symmetry but a tireless and rigorous *actualization* of symmetry for all people. Going about pursuing that symmetry and equity for people through rhetorical-industrial data can only be achieved through an intersectional approach, i.e. one where the greatest ills affecting people are identified as the most urgent projects (Crenshaw 1989 p167). Application of rhetorical wisdom must identify the greatest asymmetrical disadvantages suffered by people and apply proportionally asymmetrical positive responses to address the intersecting injustices evidenced by the suffering. Statistical significance of an issue in a large dataset may indicate a solvable problem, but it does not mean its solution will have the highest value impact. For example, sharing economy services like ride-hailing applications have changed how people hail rides and marginally lowered prices, but have not broadened the accessibility of ride-hailing to lower income people or done anything to make large, modern cities more traversable or navigable, particularly to low-income brackets (Hall 2016 loc605-618).

Focus on futurity emphasizes concern for ramifications and consequences in knowledge-making (and therefore data collection and arrangement into data) and applying knowledge as social worldviews. Futurity, in the New Materialist sense, invokes emphasis on materiality and lived experience of everyday life as the starting point for response, particularly as a way to identify (bio)political issues and include environmental justice (Coole and Frost 2010 p6-7). Futurity binds together rhetorical Wisdom practices under the assumption that there is no infinite time scale to address wicked problems, so ecological and social justice will be likely partners, in the sense that addressing human and ecological suffering can uncover common causes, and that there is likely an “ecological” relationship between them already (Morton 2010). Futurity, as study of consequences beyond the moment of production where things circulate and transform across time and space, has to do with how circulation and circulation platforms complicate the

spatiotemporal movement of information that Information Theory and technology seeks to wrangle and make docile for users (Gries 2015 p14).

2.3.4 Rhetorical DIKW

Reframing the DIKW pyramid from a rhetorical perspective attempts to account for a baseline concern for movement, mobility, and justice in a dynamic way that reflects concern not just for the here and now, but for the consequences sustainability of that justice in the future (Aristotle 2007, Edbauer 2005, Hinks 1940, Gries 2015). It also serves to build metalanguage for DIKW driven fields, particularly in science, technology, engineering, and math (STEM) fields that rely on these concepts as their gateway to dealing with human, and humanities, issues. The DIKW pyramid exists, in part, to rationalize the way human experiences can be filtered and translated for machine and autonomous processing, so it follows that humanities scholars need metalingual ways to interact with these boundary terms that don't alienate their own disciplinary concerns (Kelleher and Tierney 2018). Furthermore, re-engagement with DIKW will help rhetoricians and DE practitioners re-engage with what 'knowledge' means to the public, whose experiences with knowledge-making is shaped by the ecological relationship between humans and circulation platforms and technology (Gunkel 2009 p63). Therefore, a rhetorical rendering of the DIKW pyramid would transform it from the traditional model (shown in Figure 2.2) to something reflecting the recursively and futurity rhetorical inquiry requires, such as the model in Figure 2.4:

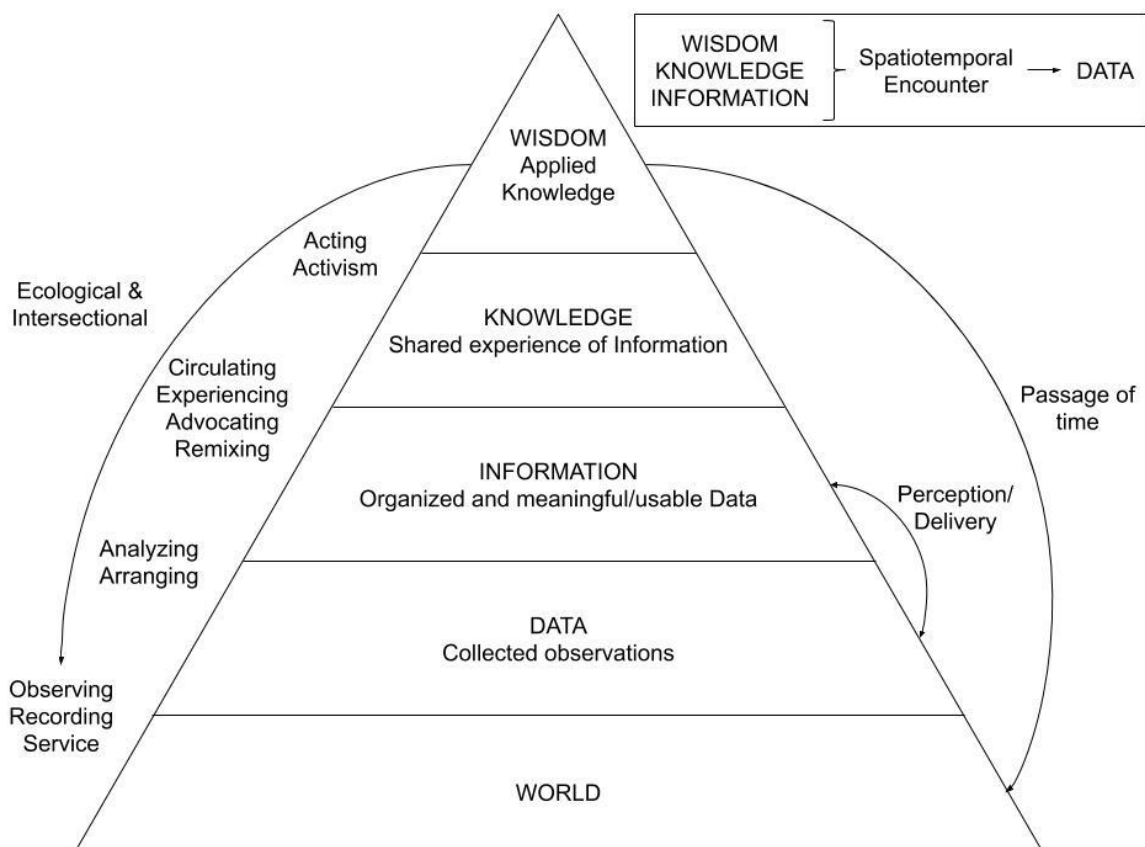


Figure 2.4. Expanded Rhetorical DIKW Pyramid of Knowledge Production

This pyramid seeks to capture rhetorical relationships between each successive level and guide thinking about the ecological relationships the levels have to each other, and the productive trouble inherent in recognizing their recursive nature (Law 2004)²⁵. This pyramid purposefully employs as many verbs as possible to emphasize the plastic and movement-oriented nature of rhetorical inquiry and resist docile practice of it. The relative messiness of this second pyramid represents the reality of rhetorical encounters, similar to the shift from rhetorical situation to rhetorical ecology, all of which is made more lucid by specific attention to circulation theory and its cultural impact. Circulation deals practically with the way experience-sharing is revolutionized in the 21st century, but it also provides precedence for understanding the

²⁵ One goal of this pyramid is to generate a model that a variety of rhetoricians can recognize, not just because it is based on the traditional DIKW pyramid but because it aligns in some way with their personal or professional experiences—a practical example of the move from information to knowledge.

recursivity involved in knowledge labor and what DE must accomplish to move further toward active learning based on knowledge-making in online contexts.

2.4 Rhetoric, Information, and Circulation

Technical Rhetoric has been part of experience-sharing knowledge-making since Enlightenment (Bacon 1605, Yates 1989), when communication technology was slower and institutions started serving as infrastructure for collecting experiences and validating those who claimed them.

The ties between Technical Communication, UX, and information are well-established by Barnum (2011) and others. Technical communicators and usability researchers share skills and background, and they often take on project roles that deal with making the informative patterns in websites and products, at various stages (Redish and Barnum 2011). Broadly, the goal of usability is to shape the best future for people, and rhetoric research helps UX develop advocacy models for users as part of the design process (Redish and Barnum 2011, Williamson and Kowalewski 2018). As such, designers and technical communicators are already aware of how virtual interfaces naturalize fragmented information and how things like algorithms and data visualization templates act as “silent partners,” shaping information and knowledge-making (Johnson-Eilola 2001, Appen and Stephens 2018).

Usability’s rhetorical function is to bridge people’s experiences to create realistic, ethical, and mutually-affirming alignments in belief through usable documentation, products, and building theories of audience that effect design and technology (Johnson, Salvo, Zoetewey 2007 and Sullivan 1989). In this sense, Technical Communication has always been part of helping traditional information theoretic models identify information (signal) and help it reach its intended destination through design (encoding) and literacy (decoding) at the most actionable speed possible (transport).

Circulation Studies of rhetoric complicate this mission by building on ecological communication models and studying context (Edbauer 2005, Seas 2012). Circulation is the unfolding and fluctuating of a thing as it flows across time and space, entering diverse associations and materializing concretely and abstractly; Circulation Studies is the study of how discourse is produced and distributed, delivered and circulated, transforming and affecting change through its movement (Gries 2013 p333, 335). Circulation Studies, from a rhetorical

perspective, attempts to study consequences and ramifications of ideas and artifacts as they move, a provides guiding frameworks for understanding the circulation of *information*, a crucial factor in modern information infrastructure (Gries 2013 p335). Circulation Studies builds on the assumption that meaning exists in the movement of ideas and artifact between people, not in artifacts themselves, and that meaning is the function of movement in a distributed network of participants (Ahmed 2004 p46). “Distributed” in network terminology, refers to a network architecture wherein the nodes/participants are equal, can communicate freely with each other, share a lot of consistency or “redundancy” (familiarity), and are not governed by any internal hierarchy²⁶ (Galloway 2006 p317). Circulation Studies values the bottom-up potential for distributed circulation to destabilize existing hierarchies (emphasis on *potential*), but as a baseline accepts that distributed technological networks make it harder for institutions to regulate speech and, therefore, knowledge-making (Galloway 2006 p318). Distributed Circulation has a net democratizing effect on knowledge-making, at least when viewed from a bird’s eye view²⁷. In short, movement (i.e. circulation) generates and accumulates thoughts and feeling about something, which people express by sharing things through the networks they (co)inhabit; ideas or information are not inherent in the things being circulated, rather they are signifiers of an idea that accumulates through sharing it (Ahmed 45). Meaning, under circulation theory, is a rhetorical run-off product of circulation, and circulation is a form of labor because it generates the norms we wish to have in our collective lives (Gries 2013 p335 and Ahmed 2004 p201).

Circulation, as set of distributed practices, accounts for how information transforms into knowledge: usable, organized beliefs and observations are shared amongst participants, such that they come to have communal meaning through alignments and worldview they generate for the participants. In keeping with Information Theory, the artifacts themselves are less important than the knowledge produced, but the structure and artifacts codify and enable the sharing.

Rhetorical Circulation Theory is particularly perceptive in the way it accounts for sprawling and seemingly random spread of ideas and images. Often invoked in the study of “viral” events, Circulation Theory’s first big theoretical breakthrough is favoring an “ecological” view of rhetoric over the traditional situation-bound model (Edbauer 2005). Bitzer’s “Rhetorical

²⁶ Most of these traits are ideal and easier to proclaim about technology than to actually find functional in culture.

²⁷ Ironically, this is a top-down perspective. The reality of distribution destabilizing hierarchies is debatable, and will be debated at length in section name

Situation” model posits that moments of ‘rhetoric’ can be identified and bound to situations wherein there is an audience, a speaker, and constraints the provide context (Bitzer 1968 p6-8). Bitzer’s model is more clinical and sterile compared to circulation models, making it more suitable to laboratory-like analysis of rhetorical events but harder to align with real-world, ongoing events because it posits arbitrary separation between events that we might otherwise recognize as linked directly or ecologically (Edbauer 2005 p9). Edbauer (Rice) argues that the function of rhetoric is more like a virus: always expanding and mutating through exposure to new actors in new forms, and that therefore it cannot simply be bound to discrete situations (i.e. situations “bleed” into one another to the point of amalgamation, from a technical perspective) (Edbauer 2005 p9, 13).

In taking an ecological perspective on rhetoric and meaning-making, circulation theory acknowledges that meaning is rarely the results of any one particular agentive force but rather that whole context (i.e. the distributed will and force of all the ecological participants, human and otherwise) (Seas 2012). In this frame, information needs to be designed to recirculate easily in order to be impactful or influential in the ecology—and circulation theory requires accepting that ecology is the reality of most, if not all, interactions (Ridolfo and Devoss 2009). The term for something useably designed for recirculating is when the thing possesses “rhetorical velocity,” referring to gathering speed because very little re-working for new audiences or mediums is required (Ridolfo and Devoss 2009). Because Circulation Studies generally find that context contributes most to information taking hold in an ecology through velocity (constant motion as opposed it inherent stability), studying context provides a way to map the consequences of information as it travels, showing how it becomes knowledge (shared experience). Gries’s Iconographic Tracking methodology is an example of this work (Gries 2013 p335, 2015).

Because it emphasizes context as the key productive element (or rather aggregate of inseparable ecological elements) Circulation Theory aligns well with the informational turn-perspective on knowledge/meaning production²⁸. From the perspective, “ecology” is a way of referring to the world as it already exists producing information through collecting observations empirically, as in Iconographic Tracking for example (Gries 2015). Where circulation theory differs, critically, is in a concern for the impact of meaning on the future, something that Data

²⁸ Likely because, as a product of the 21st century, Circulation Theory rises after the Informational Turn in the late 20th century.

Science acknowledges (though naming ‘Wisdom’ as applied knowledge) but tries to remain apolitical on (Gries 2015, Kelleher and Tierney 2018). Circulation Theory also accounts, humanistically, for how meaning is made when the transfer of and interpretation of artifacts has more import than the content of the message itself, as Information Theory foundationally assumes. Circulation Theory, therefore, is a good lens, in partnership with Technical Communication and Usability Theory, through which to accomplish rhetorical critique of Information Theory and Data Science in the 21st century—most crucially the ways they shape knowledge-making, providing new insight into how educators can accomplish active learning centered around knowledge-making with students through these distributed networks.

2.4.1 Knowledge Ecology

Circulation Theory tends to align with practical experience in communication networks—i.e. it tends to accurately reflect the reality of living in a massive communications network accessible at rates better than ever before. It accounts for a spatiotemporal reality wherein anyone can create and broadcast information from virtually anywhere (via smartphones) or make peer-to-peer communications via the same devices (Schmalstieg and Hollerer 2016 loc577). It accounts for the way technology creates a sense of symmetry between big and small audiences by distributing communication: enabling small or disparate groups to make knowledge at the rate of larger or institutionalized groups (Gleick 2011). This theoretical relevance to practice is what makes Circulation Theory a critical lens studying the evolution of knowledge-making.

The effect of Circulation on this DIKW Pyramid (Figure 2.1) is analogous to the effect of Edbauer’s critique of the Rhetorical Situation: just as sender-receiver models of rhetoric presume a static relationship that doesn’t account for the ecological reality of circulation (Edbauer 2005 p6), so too does the DIKW triangle, though useful as an organizing and grounding concept, not adequately recognize the recursive and circular nature of knowledge-making, particularly at the scale enabled by circulation technologies and platforms available to the public. Hence, the new triangle presented (Figure 2.4) attempts to capture some of that messiness in a legible form, while acknowledging the impossibility of mapping such a complex and shifting arrangement.

The impact of circulation comes through in how it accelerates Figure 2.1. Figure 2.1’s DIKW pyramid represents knowledge-making from a traditional, laboratory or institutionally based model of knowledge-making: first data collection, then refinement into a legible pattern or

explanation of the data (i.e. “results” and “discussion” sections of an IMRD article). Social approval of the explanation makes it knowledge, and the successful and productive application makes it wisdom.

Circulation stretches, widens, or makes this pyramid an ecology. On a circulation platform, like Twitter (Figure 2.5), everything is potential data, and every tweet is a piece of information. Twitter allows people to connect directly, it allows broadcast of thoughts, and facilitates participation from other people. Twitter also translates its users’ actions into data, both literally for itself and figuratively for users²⁹, and organizes conversations around hashtags and responses. Twitter provides a distributed platform for making knowledge in public without traditional institutions, although it’s likely more accurate to say platforms act as institutions themselves. Likes, retweets, responses etc. codify the social mechanisms, but all tweets are ultimately disposable. That is how Circulation changes the public perception of knowledge: circulation turns the traditional DIKW model into an ongoing, never-ending, ephemeral and unstable process (Edbauer 2005 p12).



Figure 2.5. Twitter Profile Page Example

²⁹ Semi- or unstructured, captured and indexical to Twitter and exhaust or derived attribute data as users encounter it (Kitchin 2014 p5-8).

Because platforms make it is easier to claim things as data and information, it's also easier to make world views, which is how knowledge functions in our lives. Twitter, for example, makes it very easy to find ideas that you can agree with and treat as a worldview to impact your future, because that is human prerogative regardless of the technology involved. This expedient usability is also what contributes to the idea that facts or world views are not stable or reliable. Disinformation, or "fake news," uses the same knowledge-making process (forthcoming Love and Karabinus). Together, usability and circulation theory track information's role in ecologies, and the consequences it has for users, especially at times when they need quick answers to urgent problems. Bringing a rhetorical perspective to information adds a way to rationalize the challenge of users facing information overload: when information and data are omnipresent and endlessly produced (i.e. when complexity over simplicity is a feature and not a bug of our knowledge infrastructure (Gleick 2011 p336)), institutions struggle to keep pace with the production (not to mention individuals have limited control over the contextual ecology, so individual mobility becomes a negotiation with the whole network). The crucial question, then, is if this system constitutes democracy. De-institutionalized knowledge-making through distributed circulation networks posits an inherent symmetry between participants, which is contrasted by intensifying inequality as we move further through time. Knowledge-making doesn't have to happen in an institution any more, and institutions aren't designed to handle that kind of speed and turnover. In situations like these, markets usually step in to govern fast-moving, always dynamic things. In general for the future of democracy, but also in particular for navigating new complexities in knowledge-making and education, the relationships between circulation, knowledge, and markets need to be carefully investigated.

2.5 Neoliberal Governance of Information

Catherine Chaput, in 2010, connects the rise of market governance to the emergence of circulation theories of rhetoric. Chaput argues that the values of market governance of society, under the name "neoliberalism," are reflected in circulation theory's critique of traditional rhetorical situations: neoliberalism argues that everything is united by economic flows and logics, and as a dominant ideology, circulation theory reacts by recognizing that shift as a move toward trans-situational overdetermination wherein things cannot be rationalized as spatially or temporally separate, but always connected by a continuum (Chaput 2010 p2-3, 4, 7).

Neoliberalism, as a joint economic and political theory, seeks to govern through intervening only to increase market activity through increasing competitive opportunities (in theory), and circulation theory responds by examining how things move, change, and bleed together to create meaning, rather than what the things are themselves, since neoliberalism resists stability (Chaput 2010 p4, 6, 13). Rhetorical ecology describes the way rhetoric becomes non-Euclidian and trans-situational, breaking away from the geometrically-limited (and arbitrarily imposed) boundaries of rhetorical situation models, mirroring the flow of neoliberal capitalism collapsing together private and public (work and non-work) time and places (Chaput 2010 p2-3, 10, 12). In this sense, Circulation Theory is doubly productive in that it aids in explaining the role of modern communication networks in meaning/knowledge-making *and* the connection of that system to contemporary politics and economics. However, Neoliberalism is generally anti-welfare, militaristically opportunistic, and ultimately focused on privatizing public institutions under the auspice of relocating public governance in economic rationality (Chaput 2010 p4). These practices generate more suffering under a rational banner, running counter to the intersectional mission of rhetorical wisdom, so we must also look upon circulation theory as a venue for critique of neoliberalism. Circulation Theory not only links contemporary knowledge-making to the partnerships between technology, Technical Communication, and humanity, but to neoliberalism and how it shapes, or filters, knowledge-making.

2.5.1 Neoliberalism and Neoliberal Filtering of Knowledge

Circulation provides a framework to argue that knowledge-making and knowledge-work is, today, neoliberalized. Neoliberalization and neoliberalism are loaded terms requiring clear definition.

- Neoliberalism, in this work, refers to the post-WWII political and economic movement to decentralize and distribute power and decision making so that centralized power (fascists) can never again make mass tragedies (Busch 2014 p14, Chaput 2010 p4, Hall 2016 loc156).
- Neoliberalization, in this work, refers to conversion of public institutions, or public institution services, into markets (Busch 2014 p11, Chaput 2010 p4, Hall 2016 loc107).

Extending classical Liberal notions of liberty derived from owning property, Neoliberalism theorizes converting institutions into markets so that their power is decentralized and distributed into the purchasing power of individuals (Busch 2014 p14, Chaput 2010 p4, Hall 2016 loc156). Market-based decisions are treated as emergence-like events, wherein the incalculable will of the crowd produces inherently-positive decisions because they represent consensus in distributed, unorganized will (Busch 2014 p15-16). Practically, neoliberalism endorses deregulating institutions and promoting individual freedom under the assumption that freedom to do things is more important than protection from harm, since a state of unpredictable vulnerability and acceptance of an always-shifting assemblage motivates people to engineer solutions to their problems (Tsing 2015 p20; Busch 2014 p18).

Under neoliberalism, governments have two directives: 1) to create markets as a precondition of laissez faire governance through competition, and 2) subsequently withdrawing from the public except to enforce the rule of law so that markets ultimately rule the people; promoting markets and capitalism is apolitical under neoliberalism (Busch 2014 p13).

Neoliberalism has six essential and guiding tenets:

1. **Human knowledge is limited and imperfect:** Because everyone has limits in their knowledge, no one person is qualified to have a position of ordained power. Instead, power must be distributed in a way that is participatory, but not reliant on direct influence. Therefore, large-scale power must be distributed and measured with indirect metrics as an assemblage of wills (Busch 2014 p15).
2. **Markets (Prices) reflect collective wisdom/wills enacting and negotiating with each other, and therefore are more logical than humans are capable of being even through concerted effort** This belief overrides empirical tests of its validity, since neoliberalism posits that empirical accounts are undermined by the dynamic and shifting nature of collectives (Busch 15-16). In Neoliberalism, price indexes are the only geometry that has stable, irrefutable, and Euclidian reliability; everything else is part of the shifting assemblage that price indexes represent (Busch 2014 p16). Therefore, the government must be the market's steward in neoliberalism by protecting its sanctity (Busch 2014 p16).
3. **Institutions must become as market-like as possible by conforming to the logical model of markets.** The government's role in markets should be limited to forming

them (Busch 2014 p17). Neoliberalism assumes everyone has equal access to the market, equal access to information, and equal ability to wield knowledge as a baseline (Busch 2014 p17). As such, there is little inherent risk in converting public services into markets.

4. **The government's' ability to intervene in markets must be limited:** Again, because governments are made of people who prove unreliable in some way at some point, governments are an inherent threat to freedom (Busch 2014 p17).
5. **Justice under neoliberalism means the 'freedom to' do things over 'freedom from' harm:** Neoliberalism posits that freedom comes from ability to act and participate in the market, which reflects collective wills; by the same token, freedom to participate in the market is more important than freedom from oppression or violence (Busch 2014 p18). Notably, social justice is not a topic of concern to neoliberal governance, because increased market governance is theorized to elevate the social standing of oppressed people more than direct assistance or protection of their rights (Busch 2014 p18).
6. **Everyone is discrete and entrepreneurial:** Individuals *become* part of their own capital and their agency is produced by their navigation of the market using that capital (Busch 2014 p18). This is crucial because it establishes people-as-market actors as their primary mode of subjectivity, encouraging (coercing) everyone to adopt a business outlook to guide their actions. Neoliberalism assumes the people will over perform the average because it is in their own self-interest, therefore elevating the mean over time; neoliberalism assumes any goals outside a person improving themselves and their position in the world is facetious, seeking instead to harness self-interest to promote collective good through market incentives (Busch 2014 p19).

Neoliberalism works by extending capitalist market logic to everyday life through values like entrepreneurship, competition, individual choice, self-interest, and self-empowerment (Dingo 2012 p10); these values reason that atomized individuals can work together only through assemblages of their individual drives, accomplished by placing them in a market together to produce, essentially, price indexes through competition for efficiency (Hall 2016 loc152). Because neoliberalism argues everyone is ultimately discrete (i.e. inherently unconnected to those around them; atomized), collective projects cannot motivate people, and therefore people

can only be motivated by their sense of vulnerability to other forces—unpredictable transformative encounters emblematic of a lack of stable supporting (infra)structure (Tsing 2015 p20). “Precarity” is the name given to a person’s acceptance of a shifting, unstable assemblage that defines their existence, directly threatening their ability to inhabit a future (survival) at all times and motivating them avert this constant crisis (Kohn 2013 p194). In other words, borne out of distrust in institutions, neoliberalism seeks to aggregate that mutual distrust to recreate what institutions would otherwise provide: security, justice, and infrastructure.

Criticisms of Neoliberal thought and logic are that it generally mis-characterizes humanity, takes an explicit top-down approach to generate supposed bottom-up solutions, and has a somnambulistic and short-sighted approach to future matters and futurity in general. Seven criticism systematically address Neoliberalism:

1. **The human self is social:** from the moment we are born we start learning who we are by interacting with other people (Busch 2014 p21). Though we may develop autonomous abilities, we never are fully alone, either from other humans or the world (Busch 2014 p21).
2. **Institutions promote certain selves and reject others:** for better or for worse, the “self” cannot be independently identified apart from the institutions it grew from or in (Busch 2014 p22). For example, the legacy of slavery in the United States affects the lives of African American and Black Americans today, and, while it *may* be possible to repair that damage, nothing can erase it or its legacy from the past, present, or future. Neoliberalism posits everyone is an entrepreneur and promotes science and engineering research in the name of efficiency and productivity over discovery similar to how the Soviet Union did (Busch 2014 p23). Liberty and freedom as ideals require, conversely, that people be granted reflexive awareness of others’ influence of on us, the ability to decide who we are, and ability to change ourselves throughout our life rather than be shunted into roles by market forces (Busch 2014 p23).
3. **Institutions are assemblages of people and things, not a unidirectional product of one entity:** People, institutions, and things make society together, and to reject the ecological nature of institutions and society in favor of establishing a new one is ahistorical and arbitrary; it reflects a desire to wipe the slate clean and continue as if

nothing existed prior rather than grapple with the problems as they appear to us to begin with (Busch 2014 p24).

4. **Market-created knowledge is one dimensional and utilitarian:** Certainly no one possesses complete knowledge. Therefore, we must rely on communities to produce it. Market-produced knowledge amounts to determining prices or other metrics for competition, relevant largely in the short term (because the assemblage will always shift) (Busch 2014 p24). In addition, specialized communities (such as schools and universities) provide a lot of invisible labor to markets in the form of training workers or, in the case of agribusiness, forecasting ecological conditions, themselves unstable, that agribusiness and food supply production rely on, all while being attentive to local situatedness required of ecological research (Busch 2014 p24, 76, 91-94). Such communities produce more infrastructural knowledge that can be applied across multiple pursuits and are not bound by the constraints of being immediately profitable (Busch 2014 p24).
5. **Making institutions into markets and claiming they are not governments is sleight of hand because they still govern through indirect methods:** Supply and demand function as price indicators only within circumstances that promote scarcity and surplus (Busch 2014 p25). When markets are imposed, it's disingenuous to argue they reflect an irrefutable or logical model—as in, if markets reflect a default mode of order, then why do they need to be enforced (Busch 2014 p25).
6. **Information and Education need to be public goods, not market-dependent commodities. Otherwise, democracy is illusory:** Neoliberalism assumes, and therefore requires, that everyone has the same access to markets, information, and power as a precondition, but market logic based on supply and demand requires there be asymmetries (i.e. demand, absence of something, creates supply). To solve this, neoliberalism would logically advocate creating “education markets” and “information economies” driven by the same supply-demand disparities. Therefore, nothing ensures people equitable/equal access to markets, power, or information in Neoliberalism because markets die when they reach equilibrium (Busch 2014 p26). This is a crucially important point, not just to this dissertation but to the world in general, because education is crucial to democracy: Education (i.e. liberal education

stressing exposure to a wide variety of topics and disciplines) fulfills democracy by 1) giving students opportunities to learn how their selves were formed, 2) exposing students to a wide range of political views, 3) learning critical thinking (skilled knowledge-making), and 4) learning to evaluate existing and new policies, programs, technologies (i.e. attend to future matters) (Busch 2014 p26). Neoliberalism, in its focus on pricing and return on monetary investment, renders schools as profit-producing entities and students learn to see it as a personal choice to increase their earning potential—made all the more precarious by the debt they must take on in the process. Materially, education becomes a luxury, undermining not just neoliberalism’s requirement that everyone have it but also democracy, wherein citizens are granted equal ruling power, itself (Busch 2014 p26).

7. **Technology of the present cannot save the future, only our ability to reimagine our collective future can:** This simple statement collects the previous six criticisms into a statement on scale: Neoliberalism functions practically on short-term, utilitarian feedback loops of incentivized behavior; if the incentives are based on what is valuable in the present, the neoliberal system necessarily cannot remake itself to prepare for the future (Busch 2014 p28). Imagining the future borders on unethical to neoliberal believers, because it implies unidirectional force of one entity. Neoliberalism argues that humans are incapable collective future-making—that humans are incapable of collective survival (Kohn 2013 p193)—except through disorganized markets.

Because Neoliberalism believes human interaction is only a product of incentives and survival, it accepts that indirect, economic indicators (price indexes—either of goods or stocks) are the only ethical way to consolidate human nature into decision-making, and therefore exertion of power is a matter of incentives. Under neoliberalism, all outcomes are a “good” product of humanity, because human interaction is ultimately value-less except as expression of desires and decision-making, codified through market prices (much like how ‘Information’ is assembled from the aggregated yes/no coin flips of bits in classical Information Theory). Hence, even though Neoliberalism concedes that individuals are imperfect, it also argues that collective, organized decision-making is irreparably flawed, instead focusing on incentivizing individuals to improve themselves over seeking to rely on each other (Tsing 2015 p31). Neoliberalism’s focus

on “freedom to” do things and rejection of “freedom from” as a liberating mode, combined with preoccupation with precarity means that it focuses on removing protections for people and regulations preventing exploitation, arguing that the market will punish bad actors instead. Because of this, Neoliberalism has no conception of social justice³⁰, as a guiding value or a practice, especially given that opportunities to increase “freedom to” do things increases chances of mutating into routinely harming other people in the name of quantitatively-indicated progress (better pricing, more efficient supply chains, or excluding potential clientele from job ads or housing opportunities in violation of civil rights laws³¹).

Neoliberalism, to recapitulate, reduces government and other institutional intervention in the name of promoting individual freedom. Neoliberalism is, essentially, capitalism unbound from social responsibility or institutional parity with some other decision-making apparatus (like an elected government); capital has all the ruling power in Neoliberalism and power is expressed through movement of commodities (i.e. circulation) (Tsing 2015 p110). Perhaps the best summary critique of this arrangement comes from Galloway (2006) in his warning that treating distributed networks and protocols (technocratic mechanisms) as inherently empowering to marginalized people ignores the fact that decentralizing power and deregulating institutionalized limits of power launders the influence of the existing power that distribution seeks to mitigate or disrupt (318). Neoliberalism assumes that capital accumulation is a validation of organic value or worth, meaning those that weather transitions to decentralization (through marshaling their existing capital) will emerge as ordained organic actors. Furthermore, Neoliberalism relies on asymmetry/inequality, whether in the form of supply and demand or precarity, to motivate all action, so it will never eliminate inequality. Distributing and decentralizing power will not make it easier for oppressed groups to rise when distributed networks become the source of power for the oppressors, as well, echoing Audre Lorde’s assertion that “the master’s tools will never dismantle the master’s house,” only move the goals posts to a new position that oppression can reorganize itself around using its existing resources (Galloway 2006 p320, Lorde 1984 p112).

³⁰ Neoliberalism values diversity, but in the pursuit of viewpoints over identities. For example, Neoliberal interpretations of Free Speech doctrines argue for protecting hate speech and hate tropes in the spirit of extending “freedom to” more speech and allowing the market to sort it out. This is a particularly odd approach to diversity, since it promotes violent ideology antithetical to Democratic interpretations of Free Speech and liberty.

³¹ Angwin, Tobin, and Varner (2017), for example, uncovered this exact practice on Facebook’s targeted ad platform. The “freedom to” reach specific people is deemed more important than granting people “freedom from” discrimination and oppression.

Finally, because Neoliberalism biases quantitative measures that are necessarily indirect, it participates in de-skilling workers by increasing surveillance to materialize (i.e. count) results, making the qualitative aspects subordinate to quantitative measurements, and hence more invisible and de-valued (Busch 2014 p36). This is the kind of de-skilling that makes the worker highly visible while measuring them through quantifiable things other than their interaction with others (i.e. grades and student satisfaction with classes indicate a good teacher, boiling away the complex factors that contribute to those things in favor of prizing the outcome, and ignoring things like promotion of anti-elitist access and academic freedom) (Busch 2014 p34, Star and Strauss 1999 p15). The quantitative bias of Neoliberalism also tends to produce technocratic, system-wide (top-down) approaches to management that push the division of labor toward automation and expediency whenever possible, assuming that that assemblage of humanity around the automating machinery will make the best decisions through the market, and disregarding the need to maintain and support laborers, since their entrepreneurial spirit will presumably see them through hardship (Tsing 2015 p110). This ethic of expediency is historically linked to corporate ineptitude and the practice of fascism itself (Katz 1992).

The “Sharing Economy” is emblematic of Neoliberal social order. The Sharing Economy is a socioeconomic ecosystem organized around providing information to people so they can share (i.e. monetize) their own property efficiently in the name of reviving community values and addressing scarcity of resources through consumption (Hall 2016 loc95, 98). Businesses such as Uber (ride sharing) and Airbnb (hospitality sharing) typify the sharing economy. The Sharing Economy is a coping mechanism of austerity-induced unemployment, precarity, income inequality, large discrepancies in property ownership, high debt levels, and low class mobility, and it is an example of how Neoliberalism replaces institutional solutions to these problems with market-based solutions by insisting everyone is always-already an entrepreneur capable of monetizing their underutilized asset (seats in vehicles, rooms in properties) (Hall 2016 loc103, 107, 115, 159). Notably, the sharing economy accomplishes this on the basis of information sharing and data gathering: the service provided by Uber and Airbnb (and others) is claimed to be a platform for sharing information so people can make decisions independently about how they spend their time and monetize their assets (time, property, body/labor) (Hall 2016 loc107). In other words, The Sharing Economy advances privatization, deregulation, and reduction of state and public sector agency, particularly in the wake of the 2008 housing crash (Hall 2016

loc131). The Sharing Economy establishes Platform Capitalism, the belief that everyone is a technologically-enabled on-demand supplier of something (transportation, hospitality, information, etc.) (Hall 2016 loc151). Again, it is notable that platform capitalism relies on making information sharing into a market itself, fueling private demand for Information Technology innovation/infrastructure and data management (hence growing numbers of online degree seekers pursuing degrees in IT) (Hall 2016 loc 160). This kind of privatized, benefit-less, and independent-contractor fueled economy is more reminiscent of Victorian precarity, with employment (i.e. socially moderated participation) determined by rating systems devoid of anti-discrimination regulation, and workers replacing infrastructural needs (transportation and housing) communally without liability protection while unable to build wealth (Hall 2016 loc162, 189, 202). The Sharing Economy is a prime example of how work is deskilled through the removing institutional support and replacing publicly-owned knowledge-making with privatized information markets.

Overall, Neoliberalism is based on some central tensions that are assumed to even out in the wash of every day practice, so to speak: individual freedom is prized while the individual is seen as fundamentally incapable; danger is pervasive and survival requires cooperation, but public organization is not viable; competition and deregulation produce practical, utilitarian responses to problems, but cannot account for the future. In the end, Neoliberalism's emphasis on privatization pushes to have unelected corporate leaders in positions of high power and social influence. Neoliberalism, circulation theory, and Information Theory together are major ecological forces surrounding online education (and knowledge-making). Their domains fit together to fill gaps in each other and explain the shifting role knowledge plays to the public.

2.6 The Ecology of Modern Knowledge: Circulation, Information, and Neoliberalism

Taking an ecological perspective on Circulation, Information, and Neoliberalism maps their overlaps and the gaps they fill for each other, bringing specificity to the challenges posed to online education through the changes in knowledge-making to which they contribute. The following ecological mapping forms the background of the current inquiry:

2.6.1 Circulation and Markets

Neoliberalism is a passion-driven form of governance, in large part because it downplays creating formal structure in favor of aggregating the desires of participants into opaque, indirect indicators through market activity, sublimating social irrationality under economic rationality through creating spaces for “competition” (Chaput 2010 p3, 4). Rhetorical circulation/ecological rhetoric reflects a keen observation of neoliberal bio-politics changing meaning-making from a discrete, situation-bound model into an everyday (entrepreneurial) pursuit that cannot be regulated (Chaput 2010 p6). Circulation Theory is a way to understand meaning-making in the overdetermination of everyday life: the always-connected continuum of shifting spatial and temporal relations that direct our lives while always remaining fluid—part of the precarity we accept and have to continually adapt to in order to survive (Chaput 2010 p7, Tsing 2015 p20). While meaning is ultimately determined by context—interplay with the environment through circulation (Edbauer 2005, Seas 2012, Gries 2015)—circulation, like neoliberalism, requires commodities for actors to *circulate* amongst each other to generate meaning (knowledge) (Chaput 2010 p13). Rhetorical Velocity (citations, recirculation, remix, etc.) is the name Circulation Theory gives to the circulation value commodities generate as they move spatiotemporally: the ability to recirculate and spatiotemporally persist (Ridolfo and Devoss 2009). Information, as meaningful or usable organized data, is that commodity in neoliberal knowledge-making.

2.6.2 Markets and Information

Information, materially, codifies people’s dependence on each other by helping navigate every day complexity (Buckland 2017 loc152). The division of labor ³² across time and space requires information, as units of documentation, to be portable and circulatable (i.e. velocious) (Buckland 2017 loc241 382-397). From that perspective, markets are systems for managing information, with better information optimizing the market (Buckland 2017 loc248). Crucially, both from an information standpoint and a rhetorical standpoint, aggregated or assembled information cannot constitute Knowledge, only social, shared confidence in the truthfulness of the information can (Gleick 2011 p409, Buckland 2017 loc254). The 21st century is the most

³² Literally, the dividing up of tasks in a process so a group can work together on accomplishing them (Smith 1776 p106)

information-dense point in recorded history, meaning information is collectively less precious (i.e. it is plentiful) than it was 20 years ago (Gleick 2011 p407). This surplus requires filtering to make manageable, and circulation theory explains how neoliberal market logic is employed to filter the flood (Gleick 2011, Chaput 2010).

2.6.3 Information and Circulation

Information Theory assumes separation in the content and form of any message circulated (Gleick 2011 p246). Circulation Theory accounts for how both content and form can make meaning independently through shifting to rhetoric to an ecological model, making the ecology the whole producer of meaning/knowledge from traversal of documents/images (Edbauer 2005, Seas 2012, Gries 2015). Hence Rhetorical Circulation treats meaning as a rhetorical run-off of circulation because the meaning of a lone piece is indicative of very little on a spatiotemporal scope (Gries 2013, 2015). Information Technology, via circulation platforms and other forms of metadata tracking, provides metrics to measure circulation indirectly, creating technologically validated ways to measure the value of information through its velocity. While Circulation does not necessarily take these metrics as sacred, it is dependent on these platforms to surface significant images for study, and necessarily acknowledges them (and their algorithms) as part of the meaning-making ecology (Edwards 2016). Circulation Theory studies the circulation of information (documents, images) because it gives insight into the cultural context producing meaning, which must be done to properly understand meaning and imagine futures/survive (Buckland 2017, Gries 2015). Indeed, it may be Neoliberalization's broad biopolitical shaping of these processes that poses the biggest problems for online education and knowledge-making.

2.6.4 A Brief Digression on Biopolitics

While the Enlightenment made knowledge production more social, it was not free. Foucault argues that expanding the domain of truth and opening the process of making it created new moderation or governing mechanisms that he grouped under "biopower" or "biopolitics": Knowledge-production through peer-to-peer judgements of what is socially acceptable (Foucault 1978). In other words, everyone is "free" to make knowledge, but their freedom is socially confined. Today, we might call biopower the "filter" of knowledge emerging from the

Enlightenment. Beyond social filters, resource constraints also filter knowledge, since empirical inquiry and sharing experiences require literacy, labor, and time. Knowledge institutions are part of filtering, making them oppressive as well as enabling: they serve as a network hub for members' shared experiences. Designers and technical communicators, in both theory and practice, work to make institutions accessible to the public (and the public important to institutions) and to reduce the resources necessary to share experiences between people. The shift in public information access, post-internet, from the web to social media to mobile devices makes information more available and enables anyone to produce it from (almost) anywhere (Schmalstieg and Hollerer 2016, loc577). Whereas getting reliable data and sharing information used to be the challenge, there is now an embarrassment of riches. Enlightenment-era institutions are outpaced by ecological information production and circulation, but information and knowledge are still filtered. When the problem facing users is that they have too much data and information instead of not enough, new filters are inevitable.

2.6.5 The Macro-State of the Ecology

Market-based decisions are treated as emergence-like events, wherein the incalculable will of the crowd produces inherently positive decisions (Busch 2014 p15-16). Practically, neoliberalism advocates deregulating institutions and promoting individual freedom under the assumption that 'freedom to' do things is more important than protection from harm, because a state of unpredictable vulnerability and acceptance of an always-shifting assemblage motivates people to entrepreneurially engineer solutions to problems they encounter (Tsing 2015 p20; Busch 2014 p18). Marketization harnesses the power of crowds to economically filter the overwhelming data and information Enlightenment-era filtering and Technical Communication networks have accumulated and preserved.

Neoliberalizing information through treating it as a market means that information gains meaning through the value it creates rather than the action it links to—value being an indirect economic indicator (Chaput 2010 p13). Economic value of information is not necessarily the same thing as knowledge because making knowledge means potential for future-oriented effect. Neoliberal knowledge is practically geared towards the short-term, arguing that future is too muddy to account for.

In other words, circulation economies address the ubiquitous overload of information through neoliberal filtering. Marketization harnesses the power of crowds to economically filter the overwhelming data and information Technical Communication networks have accumulated and preserved in ways that Enlightenment-era institutions cannot: circulation. Neoliberal filtering is a bio-political matter. Economic value of a commodity comes from market validation measured through capital movement and not participant voting (as in Democracy); in a rhetorical sense, this means what produces the most positive measurable affect for the most people in the present (because positive impact on the future can't be quantified by the technology of today) gains rhetorical import. Only large infusions of capital can punch through this wall, compounding the difficulty of initiatives that address the greatest harm—intersectional justice, decolonization, and climate response, for example—instead of broadest, because these great crises must appeal to economics before they can make moral or ethical arguments. Neoliberal knowledge filtering enacts the trapdoor, shallow single axis model of activism that Crenshaw warns against (1989 p151-152).

2.6.5.1 Consequences of Marketizing Knowledge Work

Market-based solutions are always vulnerable to market manipulation. Markets do not equate with democracy, though they can be founded on similar principles. Neoliberalism assumes access to markets and information is symmetrical for all participants and that accumulation of capital is meritocratic (Busch 2014 p17). Therefore, regulating markets disrupts the natural order emerging through entrepreneurial problem-solving. However, assuming symmetry is a constant can naturalize existing power differentials (Galloway 2006 p320). Capital is also the measure of success in marketization—market value—because disciplinary (I.e. institutional) measures of value centralize power around that discipline or institution. Therefore, marketizing information values it through indirect means, i.e. the capital it generates efficiently (Busch 2014 p25, Chaput 2010). Information capitalizes through circulation impact: citations, recirculation, remix, etc. (velocity) (Ridolfo and DeVoss 2009). These markers communicate success because they represent a network effect of rising approval (citations, remixes, and endorsements keep information relevant in the economy) through user-generated movement and acceleration (Busch 2014 p44-45, p58, p67). For example, Lazer et al's report on "fake news" circulation, produced in cooperation with Twitter and with access to their internal usage data,

reports that engagement of any kind promotes information (tweets, hashtags, keywords) in Twitter's algorithms (i.e. citing something to refute it actually promotes it in the algorithm) (2018 p1095). Modern capitalism assigns value to organizations through growth, so information that circulates has value because it is growing, despite other extenuating circumstances. Information Theory assumes all information is true in order to function (because discriminating and interpreting the information content requires qualitative input) (Buckland 2017 loc 173). In information economies, circulation is the precarity motivating information production and knowledge-filtering.

Indirectly valuing information through circulation is the market validating shared experience. Absent an authority or an institution to endorse patterns as knowledge, economic factors indicate the public's shared experience through indirect capital assessments. Ideally, this creates political-rhetorical network engagement, replicating pseudo-democratic decision-making through discourse: participants support a position by engaging with it (Spinuzzi 2008). In doing so, the decision-making processes, goals, and other circumstances are flattened into the outcome, obscuring other human concerns and vulnerabilities (Simmons, Moore, and Sullivan 2015). It also means that information benefits in the market from discouraging opposing participation, such as in GamerGate when women and people of color were attacked for taking certain positions by GamerGate supporters through abusive acts, such as circulating their personal information and creating network effects to destabilize their private and professional lives (Mortensen 2016; Trice 2015).

Posthuman elements can also manipulate information markets. Lazer et al estimates that 9-15% of Twitter accounts, as of 2018 are bots (2018, p1095). While humans outnumber bots, humans and bots share and engage with information on the platform just as purposefully (Lazer 2018, p1096), meaning bots contribute to experience-sharing during modern tragedies (mass shooting, terrorism attacks), usually promoting alternative narratives (AN) denying the event or stymying the response (Nied, Stewart, Spiro, and Starbird 2017 p265; Starbird 2017 p2, 7, 10). These practices collectively function like High Frequency Trading (DiResta 2017). Mainstream outlets pick up these informative views and incorporate them into their own production in the name equal representation and avoiding accusations of censorship, increasing their velocity (Love and Karabinus forthcoming).

Neoliberalism accounts for these events as inherent risks producing the precarity that motivates users to be more vigilant and protective of the system (Busch 2014 p8, p28). Given the entrepreneurial outlook of Neoliberalism and its tendency toward technocratic solutions, initial reactions to these developments center on calls for renewed information literacy instruction and better design/usability of information to indicate truth/value to readers (Lazer 2018 and others). These approaches enable the market-filtering approach as much as they seek to rectify it, similar to calling for better tax incentive structures to curb greenhouse gas emission.

2.7 The Total Problem: Information Economies of the Future

This dissertation examines the interrelation of information, circulation, and markets at length because it provides insight into the circulation commodity of knowledge-making. If knowledge is more ephemeral, information itself is the stable commodity; information is plentiful, it can be cheap, and can be produced it by harvesting data. Information is the thing that can be both pattern and opinion, and it is the step in knowledge-making that depends on circulation to gain social approval (fig 2). This is part of why information literacy is finding new urgency: because possessing information is no longer enough, rather it is having the capital³³ necessary to move the knowledge market or shape data collection that is impactful.

Information literacy, alone, supports the market structure of knowledge-making wherein the division of labor is such that students (or users, participants, etc) are primarily consumers of information in the process of making discrete decisions. If knowledge is assumed the product of information gathered and spatiotemporally iterated or remixed, then information literacy mitigates the precarity of mis- or disinformation infecting the system. Information Theory, however, establishes that aggregate information is not the same thing as knowledge, both because it is lacking processing labor and because density of information does not alone produce meaning, though it may produce overdetermination (Gleick 2011 p354, Chaput 2010 p7). Assuming an organic product, giving primacy of the product over the forces producing it, is also a process of invisibilizing that work (Star and Strauss 1999 p15). This division of labor could be tolerable if it can respond adequately to ecological problems and systemic injustice. Barring that,

³³ Either monetary or ideological. This creates material representation of the economic weight of the status quo and the effectiveness of conservative argument—they can rely on the accumulation of history instead of having to argue against its misdeeds.

we must consider how online knowledge-making, and therefore online education, can teach knowledge-making as skilled labor.

Furthermore, information literacy alone does not address two pernicious, anti-intellectual practices enabled by information market-logic³⁴: agnotology and surveillance capitalism. Agnotology has to do with the false equivalency enabled by information economics, and surveillance capitalism has to do with the knowledge asymmetry that privatization of futurity and empiricism cause.

Agnotology exploits information market logic by framing all information as equally tainted or externally motivated and asking users to choose which information pattern they prefer. Such a setup often frames the choice between something challenging (i.e. behavior changing) or something comforting (something that makes ‘common sense’ or appeals to “sense making”³⁵.) Agnotology has four facets: 1) cultivating doubt in disciplinary information (data-driven pattern) on the basis that it cannot be 100% verifiable (something no academically trained researcher would claim), 2) arguing through market logic that specialists are ultimately self-serving, and therefore willfully or ineptly corrupt, 3) oversimplifying issues at hand to ameliorate fear of the crisis (as in “specialists overreact to these things”), and 4) offering an alternative data-driven pattern that (narrowly³⁶) challenges the specialist/disciplinary information and creating a space for competition between them where capital accumulation (indirect measures) determine practical, spatiotemporal³⁷ dominance (while allowing both ideas to exist as theories) (Busch 2014 p95-96). Agnotology employs the same information theoretic use of the DIKW pyramid to create (false) equivalencies and alternative narratives in the name of competition, compromise, or obfuscation. Agnotology is apparent in conspiracy or “Alternative Narrative” (AN) construction, in that AN networks circulate data points about crisis moments or social issues to provide data for readers to form into a pattern counter to mainstream (MSM) narratives (Nied, Stewart, Spiro, and Starbird 2017). AN/conspiracy construction directly invokes DIKW rhetorical construction through circulation and market principles (literally providing ‘alternatives’ to compete with mainstream arguments). Questioning AN without accepting the

³⁴ Unless one adopts a severe policy of information docility, wherein strict markers determine validity

³⁵ incorporating new information into an existing worldview or mode of action, finding a way to use existing coping methods to confront a new problem (Weick, Sutcliffe, Obstfeld 2005)

³⁶ what might be called ‘junk science’

³⁷ i.e. what materializes through circulation

AN premise (a staple rhetorical move) requires knowledge of the invisible data-collection and processing work that went into making the information pattern³⁸. Recognition of quality markers or rote trust of certain sources cannot mitigate agnotology. In the case of Latour's professor arguing for climate-conscious industrial regulation, his knowledge of the invisible work of his profession seems to do him a disservice, in fact, because it is seen as intellectual posturing (Latour 2013 i.1.3-7). Knowledge-making must become an every day process to change this norm.

Agnotology contributes to overdetermining the present, and Surveillance Capitalism privatizes the future through privatizing data collection, information processing, and knowledge-making. Surveillance Capitalism formalizes the shift from knowledge to power³⁹ by claiming that human experience is free (uncompensated or not requiring compensation) raw material for behavioral data, and therefore a vehicle for modeling and marketing visions of the future (Zuboff 2019 p20, 21). Seeing that the present is overdetermined and the future is similarly unimaginable, Surveillance Capitalism innovates instrumental power, power from knowing and shaping others behavior, through operationalizing the behavioral surplus of information and communication services (like those offered by Google and other Cloud-based services) gathered through user surveillance into predictions based on the user metadata (data collected beyond that related to improving the product) (Zuboff 2019 p20, 21). According the author Shoshana Zuboff, surveillance capitalism surpasses the adage that "the user is the product" of free services, framing the user, rather, as the resource for the real product: predictions of the future based on the surveilled data. Because the global social networks collecting this data are private, they are not subjected to disciplinary strictures and protection for the public that public researchers (like academics) adhere to, and their data collection is largely unregulated⁴⁰. Hence, Surveillance Capitalism shifts toward a logic of accumulation and asymmetry: stockpiling data and information for strategic deployment as part of privatized competition (Zuboff 2019 p30). In this context, it is even more important for research and knowledge-making to be a human right in order to foster bottom-up solutions that address greatest harm over generating capital.

³⁸ Something that AN architects recognize and shape practices of in their readers.

³⁹ i.e. power from knowledge or power/knowledge as Foucault referred to it

⁴⁰ Cambridge Analytica's Facebook data scandal exacerbates this problem by blurring distinctions between public and private research, and ultimately pushed Facebook to preemptively preclude public-private research partnerships even more.

2.8 Concluding Thoughts

At the heart of this inquiry is how to support democracy, a core tenet of rhetoric in its classical conception. Knowledge-making doesn't have to happen in an institution any more, and institutions aren't designed to handle the speed and turnover modern information networks and circulation practices generate. Markets typically govern fast-moving, always dynamic things, instead. Markets, however distribute things *through* capital asymmetry—not to alleviate them—and through commodities to circulate, and neoliberal markets, in particular, transfer risk to individuals, ultimately favoring the status quo by overdetermining the present.

The DIKW Pyramid Model provides insight into the commodity of circulation: information. Knowledge is more ephemeral, information is more stable, and can be plentiful and cheap given the explosion of data available thanks to mobile-social technology.

This framework helps make sense of issues raised by the so-called destabilization of “truth” in the 21st century. Mis- and disinformation are a feature, not a bug, of this state of affairs because bad actors can manufacture disinformation based on either market demand or sheer surplus of data available to assemble it. Disinformation is a product of knowledge precarity and general economic austerity. Facebook, for instance, gives organizations the ability purchase access to certain people in certain ways, creating market-enabled filters of information that is difficult to track.

As it pertains to this dissertation directly, information-as-commodity and knowledge-making as a market begs the question of the role of institutions like schools. If “information” is a commodity to the public, what is the job of schools and education, especially since, as a commodity, information is not bringing equity or social mobility to underprivileged people.

If information is a widely available commodity and knowledge is its natural product, what does it mean to scale up education online, and what do students actually want out of online classes? Furthermore, if information is a commodity, does circulation have the unintended effect of creating a neo-banking model of learning, and how do we recover the idea of teaching and learning as skilled labor?

Answering questions like these requires studying teacher labor, to highlight the ways teachers are making their online classes active, knowledge-making experiences, as Chapter 3 begins to do.

CHAPTER 3. RESPONSE AND METHODS

Neoliberal ‘education’ positions the instructor as a facilitator of collaboration and discussion (through wikis, discussion boards, or other circulation mechanisms) and a manager of resources (information), eventually interchangeable through being de-skilled as a knowledge-worker (Beldarrain 2006 p149, Blair and Monske 2003). In entrepreneurial fashion, students become producers of their own educational content and knowledge (Beldarrain 2006 p149). Bridging a criticism of Information Theory and Neoliberalism, if students are treated as the processors of data and information, they may become proficient at fitting what they find into an existing worldview, but they will be limited in the ability to make “new” knowledge without mentoring or modeling in the practice. This may be useful in situations where docility is required or rewarded (i.e. traditional workplaces or military hierarchy), but it severely limits the potential for social growth (Beldarrain 2006 p150). Therefore, this inquiry studies labor in online classes to see what invisible and skilled work teachers (and students) are doing to teach/learn knowledge-making and express desire for such skills. Studying these settings and practices may help answer the following questions through focus groups, case studies, and surveys:

1. How can online education network together individuals and their embedded places without emphasizing virtual space as the primary site of learning?
2. How can online education teach expertise rather than competency through its unique networked affordances?
3. How can distributed, mobile education teach research as a daily practice that scales to different needs/inquiries and surfaces new information for the researcher, instead of as a one-size-fits-all approach or is a means to validate (virtual) hypotheses?

3.1 Methodology

This inquiry takes a Technical Communication approach to examining online education communication and information circulation practice; as a discipline studying how information is produced, stored, shared, and put into practice, Technical Communication is an infrastructural part of education. Online education, in attempting to recreate or aspire to be onsite education-in-virtual-space, conventionally relies on circulation practically and theoretically, because

circulation is both an expedient delivery and because it is a social norm. Information becomes inconsumable in large accumulated amounts, but it is foolish to either ask individuals to account for it all the time or to stop the accumulation. A Technical Communication paradigm, wherein experts can more readily communicate their important knowledge to others (expertise not limited to academic domains but encompassing all kinds of specialization), is a more realistic distribution of labor. Communication between experts as a professional value allows information to continue to accumulate and expertise to be a reasonable aspiration while disincentivizing technocratic elitism enabled by inscrutability of specialized knowledge. Online Education as a Technical Communication problem enables empirical examination of the relationship between communication, practices, and technologies, rather than treating them as an assembly beyond critique, as the neoliberal market approach treats it.

Therefore, this inquiry studies communication, correspondence, maintenance, and other learning activities of online classes, specifically OWI, to determine the labor the members participate in and what they understand as most effective. This study treats online classes as professional networks. This approach runs the risk of replicating market logics and market-based assessment methods by being too technocratically focused. Instead, this inquiry takes the position that Professional and Technical Communication (PTC) are empirical research and reporting practices that serve as reciprocal advocates for all parties and take a long-view of the work they are involved in as part of their responsibility to the public, organizations, and any other parties involved (Sullivan and Porter 1993, Johnson, Salvo, and Zoetewey 2007, p328). Part of doing this is in this inquiry is looking at the invisible work being done by teachers and, where possible, students in a usability test-like fashion (Star and Strauss 1999, Krug 2014). Making work invisible by measuring it with indirect means, like broad satisfaction surveys or market performance, is a common effect of neoliberal market logic, so this empirical inquiry into online classes seeks to render them on the terms of those doing the work, so to speak, to reverse or prevent further de-skilling. As such, this inquiry leans on mixed methods case studies and Straussian qualitative emphasis on memoing, field notes, open-to-selective coding, and cases.

3.1.1 Six Key Variables

Failure in/of online courses, like OWI, often occur when either teachers or students perceive a lack of investment in each other's commitment to the overall success to the class,

despite the large investments of time and energy by all involved (Hewett and DePew 2015).

These failures come from invisibility of cooperative work—the actual networking tasks—either because design disguises the conscious links between the participants or because market logic assumes connections are tacit or automatically functioning (Star and Strauss 1999, p10).

Therefore, and in order to establish a human-centered approach to defining success in online classes-as-working groups, Ocker, Rosson, Kracaw, and Hiltz's (2009) six variables influencing partially distributed team (PDT) success are starting points of analysis (p4-5):

1. Shared identification: Shared team identity across distributed locations; despite being separated by time and space, team members feel like they share values and goals with other members of the team/community
2. Trust: Team members feel that all team members are accountable to each other—this includes accountability between students, accountability of the class to the teacher, and accountability of the teacher to the class. Team members trust that other members will do their best (regardless of results) and trust that they can be vulnerable to each other (i.e. be respected in failure).
3. Awareness: Transparency of what other members of the team are doing as part of the team; awareness and transparency do not equate to surveillance. Instead, Awareness is the communicative practice of *making aware* the other members of a team—not a process of extracting information or metadata that indicates productivity but representing one's work—and therefore being safe to represent work in a way that all members feel like all the work is collectively valued and important within the team.
4. Coordination: Logistical and organizing work to keep teams synchronized. Coordination is most readily relatable to invisible work, as it is something one must have in order to work in a team or finish individual tasks, but because of this it is taken for granted unless missing or found lacking (Star 1999). Coordination in online classes is often accomplished through platforms like Blackboard, but also comes under all the preparatory work a teacher does before students even register.
5. Competency: Belief that the team is effective, based on feedback. Teams need to have some way to mark intervals and decide if they've been successful or not in order to adjust for new iterations and projects. Therefore, feedback is very important to

motivation and trust. Teachers provide most of the visible feedback in online classes, and this serves important social as well as educational purposes.

6. Conflict: Simply put, reduction of conflict is a sign of effective teams—not just those that can prevent it, but those that can address and repair it. Notably, emergence of conflict is harder to track (and therefore prevent) in virtual environments because circulation platforms enable conflict to take place in private, sterile-seeming environments and noticing and acting on conflict between participants involves one of participants bringing it to authority's attention (entailing its own risks), or a mediating authority actively seeking to surveille conflict, which carries another set of risks. It is very hard work, simply put.

These six variables are chosen because they reflect values of human connection that provide a sense of safety and security as motivating factors, counter to precarity as a motivator and atomizer. These variables describe ways that communities come together and develop close social bonds on which action is based, and provide indicators of areas to address social discord and injustice. Teachers, as the foundations and architects of their online classes and communities, could be said to be the most important origin of these qualities, but the institution shares technological and ethos burden in establishing these things, as OWI Principles 10-14 establish. Regardless, teachers are the visible promoters of these factors to students, and so their work on these variables should be seen as inherently valuable. Each of these six variables are things that could be called invisible work—essential to a job in some way but not part of the stated compensation agreement, or form a social bedrock of doing work (Star and Strauss 1999)—and attempts to measure them indirectly incentivize things other than their holistic, material contribution to an effective work place. They are not necessarily things that cause good grades, but they build the comfort and security necessary to succeed while being challenged.

3.2 Methods

This study was conducted in two phases: in Phase One, the researcher (myself) collected data on instructors' attitudes and experiences teaching online writing or writing-intensive classes through focus groups (broader) and two case studies (narrower). Focus groups provided broad trends and expectations, and the case studies followed issues raised in the focus groups in more depth. In Phase Two, the researcher surveyed students from the two case classes and four outside

classes to triangulate the results of the case observations and interviews with the instructor's responses about the progression and effectiveness of the class. Since each stage was in some way dependent on the previous stage, the researcher worked with the local Institutional Review Board on accounting for specific protections for each case, and for the questions on the survey itself.

3.2.1 Phase One Procedures:

1. Participants were recruited through LISTSERVS for local writing programs and professional LISTSERVS for writing instructors and writing program administrators.
2. Focus groups were held locally and over Zoom video conferencing software for offsite participants in March of 2018. Focus groups were limited to one hour and sought answers to the following questions: who is taking online writing classes and why, who is teaching classes and why, and what are the concerns and experiences of teacher. Focus group responses were anonymized.
3. Based on the responses to the focus groups, two cases were selected for further study. Cases were selected with priority for contrasting needs and identities of students, and for veteran OWI Instructors. Cases were not linked to the focus groups (answers and identifying information was not carried over from the case instructors' focus group data).
4. The researcher (myself) embedded in the class to observe public communication and interview the instructors four times, at the beginning, middle, and end, of their semesters. The cases took place during Summer of 2018.

3.2.2 Phase Two Procedures:

5. Based on initial case findings, the researcher created a survey for students of the case instructors' classes to triangulate observations of the class from the students' perspective. Students were contacted via email addresses registered to the courses observed by their instructors. The survey was distributed via class email tools and administered through Qualtrics.

3.2.3 Participant Criteria

Participants were instructors of Online Writing Classes (OWCs) or Online Writing-Intensive college-level classes. To be included, participants must have taught an OWC or Online

Writing Intensive class in the past two years from the time of call for participants (2016-2018) or be currently teaching one at a Public or Private not-for-profit Higher Education Institution at the time of recruitment. The researcher tried to cast as wide a net as possible to draw a wide and robust pool of data to analyze and a large pool of potential participants for case studies. Focus group recruiting started with parameters set out in the IRB and snowballed based on programmatic connections made while fulfilling IRB mandates. The majority of instructors were from English departments or had professional backgrounds in them. Following the focus groups, the students of the two unlinked case classes were added as participants, as well. In total, 23 instructors participated in focus groups, and 32 students consented and participated in the survey (20 from case classes and 12 from external classes).

3.2.4 Local Participant Recruitment

After receiving IRB approval to conduct research, I reached out ICaP and PW@Purdue program heads for approval to contact instructors in their programs. Those WPAs directed me to contact their grad student coordinators to help recruit current and immediately former Purdue Online Writing Instructors.

My contact in Professional Writing @Purdue directed me to the English Department Scheduling Deputy for contact info for Current and recent-past instructors of online Professional Writing classes (Technical Communication and Business Writing). She was also able to direct me to Faculty, Limited Term Lecturers, and Continuing Lecturers at Purdue who taught literature courses online. I reached out to these people, briefly explained the project, and waited for their expressed interest.

The grad student coordinator for ICaP Online Writing Classes invited me to the weekly staff meeting for instructors. I gave a brief presentation on my project there and gave out handouts about my focus groups.

The list of current and recent OWC instructors from the schedule deputy included some people who had recently graduated from Purdue and therefore were eligible but not local to Purdue. My advisor suggested I have the Rhetoric and Composition program assistant director send a message to the program alumni LISTSERV on my behalf. This accomplished both fulfilling my set parameters and widening the participant pool to get as large a response pool as possible, in line with my goals for holding the focus groups.

I also sent messages to the Purdue LISTSERVS for graduate instructors, limited-term lectures, and faculty to make sure any potential

As I heard from people in this population, a small group expressed interest in participating, but the times I'd picked didn't fit their schedule. As a result, I opted to invite them to online focus groups, combining them with participants from national recruiting where applicable.

3.2.5 National Participant Recruiting

National recruiting began with receiving permission from the 2018 Conference on College Composition and Communication (CCCC) chair to promote my focus groups in concordance with the conference. After receiving permission, I sent recruitment messages to the Writing Program Administration LISTSERV (WPA-L). After seeing my recruitment email on the WPA LISTSERV, an administrator of the OWI Community Facebook group cross-posted it on that group's facebook page.

National focus groups were originally scheduled during CCCC. The 2018 CCCC location and political context made it unfeasible to do face to face focus groups, so I opted to hold them online using Zoom. Internet access at the conference proved to be a barrier, so I rescheduled the focus groups for the week after CCCC. All participants who showed interest in the original time rescheduled for the following week.

One additional set of focus groups took place a few weeks later in April to accommodate more respondents interested in my focus groups that could not attend either two focus group sessions.

3.2.6 General Recruiting Considerations and Outcomes

Everyone contacted received an initial informative e-mail asking them to express interest participating in focus groups. I also provided a handout to answer anticipated common questions and made myself open to questions before they expressed interest. At no time was anyone sent focus group sign-up information before they expressed interest in participating.

All potential participants received a description of the study, including 1) its overall purpose, 2) its scope, and 3) a description of the tasks that would be required of participants throughout their participation. Those who decided to participate signed a consent form.

Student participants were contacted via email to make them aware of a survey that would be sent to them following the end of the class they were in. They subsequently receive a link to that survey. At that time, they received a description of the study, including 1) its overall purpose, 2) its scope, and 3) a description of the tasks that would be required through their participation. The survey began with a screen asking for consent from the students, and if they choose not to consent and participate, they did not see any further questions.

I decided to snowball the recruiting process because the causal links between populations and their interest connected naturally and increased the participant pool. I also made allowances and prepared affordances to include as many people as possible, in line with Online Education values of and the goals of this research project in general: to find ways to include and encourage connection between many and diverse people as part of online networking.

3.2.7 Focus Groups

Focus groups were prepared in accordance with recommendations of Breen (2006): Focus groups followed a set introduction; two recording methods were used (microphone connected to a computer and a standalone recording device on the table); handouts were made and distributed to participants presenting introductory information about the group itself in addition to an information sheet as mandated by IRB; participants were all offered compensation in the form of gift cards for donating their time to the research; and the researcher acted as a facilitator of conversation between participants, not focal point of the conversation itself. All participants were anonymized in data collection.

Focus groups were chosen as the first step of research because they help raise new ideas as opposed to probing known issues (Breen 2006). Focus groups were also chosen as a way to provide opportunity for cross-talk amongst participants and let the interaction between participants drive the collection of data by the researcher (Montell 1999).

The focus group protocol is attached as Appendix 1. Focus groups consisted of six questions:

1. A question asking participants to identify classes they did or currently are teaching online.
2. A question about why the participants teach online.

3. A question about how participants would characterize the population of students taking their classes and why they take them (in terms important to them or that come to mind, including demographics, majors, goals of taking the class, etc.).
4. A question about structure, technologies, and/or platforms participants use in their classes and why.
5. A question about what makes the classes effective and what the participants would like to change about them.

Early questions were designed to generate short, quick answers and build comfort with the format to prepare for more complicated questions as the session went on (Breen 2006). Since the other primary goal of the focus groups (besides establishing baseline issues for the instructor community) was to find contrasting classes, the third question (about how teachers characterize their students) was placed to give the researcher awareness of what classes, if any, would contrast. The question relied on instructors self-reporting this information in terms they were comfortable with to avoid confrontation and maintain participant security.

The focus effectively provided insight into broad issues and yielded two suitable cases, results of both of which are in Chapter 4.

3.2.8 Case Studies

Case studies were conducted by interviewing the instructors and embedding the researcher in their online classes in such a way to recreate observing classes, as much as possible. Boellstorff, Nardi, Pearce, and Taylor (2012) were used as a guide, although the researcher did not attempt to participate in the embedded classes because that would interfere with the teachers' relationship to their class and potentially cause more work for the instructor and students of the class (in terms of peer-review, grading, etc.). Observation was limited to public communication of the class. Private correspondence between students was categorically excluded from observation because it would likely disrupt the class. The researcher made no effort to conceal themselves or hide their intentions from students in the interest of ethical transparency. The researcher sought to make their observation of the class an opportunity for the instructor to have an independent observer record their working practices and contribute back to their pedagogy by documenting the work they put into their classes, not scrutinize their students'

performance, and contribute back to the teachers' understanding of their classes and pedagogy through sharing gathered data with the instructors (Kahn 2011).

The researcher observed the class by logging into the OWC Learning Management System (LMS), with institutionally-granted credentials, three out of every five week days, navigating course pages like a student would and keeping field notes. Particularly in the first few weeks of observation, the researcher devoted extensive time to learning the course structure of information design each instructor had built for their course.

Interviews were semi-structured, with a set of pre-written questions for each interview, but with allowances for conversation and for participants to take interviews in directions of their choosing, if so desired (Agar 1996). Overall, this inquiry sought to reflect Strauss's (1987) guidance that cases should drive the theory they produce.

3.2.9 Interviews

Because cases were unlinked from the focus groups, no data from the case participants' focus groups responses was carried over, and they received new pseudonyms, as well. Each case participant was interviewed four times over the course of the Summer 2018 semester that their classes were observed, first within one week of the semester's start, last within one week of the semester's end, and twice between at the most regular interval possible, schedules' permitting. Because interviewing the instructors and observing their classes would be a very personal inquiry asking for significant trust from the instructors, I maintained open communication with them about logistical issues and answered any and all questions they had about the study and the nature of their participation before, during, and after studying their cases. Because the goal of this inquiry is to study labor distribution, I withheld judgements of their specific pedagogies, taking the experimental position that they were inherently skilled and experienced teachers based on their track record of teaching, especially online. In the spirit of respecting their time and labor, I also sought to protect their personal time and not make extraneous demands on them, limiting my inquiries to interviews themselves whenever possible. Interviews were kept to one hour each, were conducted using Zoom video conferencing software, recorded using built-in audio/visual recording of that application, and took place collectively between June 4th, 2018 and August 2nd, 2018.

Interview protocols were created responding to observations of the class and previous interviews. The goal of interviews was, as with focus groups, to capture the teachers' conception of their work in their own words. Protocols for each interview are attached as Appendix 2⁴¹. The goals of the progression of interviews was to collect observations about the instructor's class and how they distributed time and labor as the class's teacher, as well as to prepare them, over the course of interviews, to directly address the six variables of Partially Distributed Teams (Ocker et al 2009) in the final interview. As a series of conversations, the goal was to build a shared language for the researcher and teachers to talk about their online classes and how they choose to allocate their time and labor to most benefit their students.

The overall progression of the interviews was as follows:

- **Interview 1:** Survey the instructor's course, institution, motivation, pedagogical approach, technologies and platforms, the relationships of all these things to each other, and the relationships of these things to interaction with students.
- **Interview 2:** In-depth conversations about the structure of course structure and preparation process, how they design the information structure for students, early participation/retention, and multimedia in online teaching.
- **Interview 3:** Conversation about students and interacting with them, now that the instructor has had time to get to know the class. We also talked about accessibility, competency, and the role of conflict in that semester's class.
- **Interview 4:** Inventory of the six variables in that semester's class, now that it is coming to a close. This interview was intended to triangulate explicitly with the survey for students at the end of the class.

In general, each survey included some kind of explicit check-in about time-spent for instructors, and the six variables were introduced as grounding concepts in each interview whenever possible.

3.2.10 Case Participants

Cases were selected with emphasis on contrasting student populations. While other similarities and differences in the cases would be favorable, the number one priority was

⁴¹ Brett Templeton and I negotiated her pseudonym in early stages, as the first few randomly generated pseudonyms I assigned her did not suit her liking. She eventually picked her own pseudonym (Brett Templeton). For this reason, she is sometimes referred to as "Alisson Franco" in interview protocols and notes.

attempting to find online classes with different student populations and demographics, since one of the promises of online education (and a challenge onsite higher education routinely faces) is reaching larger, more diverse populations. All other factors were secondary in selecting the cases. The cases selected corresponded with two instructors at two different institutions teaching two different classes: the first, “Grant Christian,” and the second “Brett Templeton.” All of the data in the cases comes from interviews with the instructors over the length of their 8-week courses. Details about their institution have been corroborated, but not cited to protect the anonymity of the participants.

3.2.11 Student Surveys

Student perspectives on pedagogy, especially in online classes, are highly desirable, because 1) student needs and experiences are extremely important to information and pedagogical design, 2) student perspectives are hard to come by in OWI research ⁴². Because of the nature of this inquiry as a study of labor, and since teachers’ working conditions are student learning conditions, it made sense to try and record how students experience and value the work of their instructors. Furthermore, since the six variable of PDTs measure factors of community effectiveness, it makes sense to include student perspectives in research on their communities. Student perspectives indicate how the labor of the teachers is perceived and the benefits it offers to students. It also gives insight into what students want out of an online class, whether it be as a portal for information or something else.

Writing a survey is a rhetorical act that must attempt to balance research questions and audience concerns/needs (Rife 2013). The survey, therefore, was broken up into three sections, by order of importance to the methodology. Appendix 3 contains a printout of the survey used for both the internal and extant surveys:

- Section 1 asked student respondents to rate the positive influence each of 12 kinds of communication in their online class on each of the six variables, with an option to add comments about each and the class overall.
- Section 2 collected optional demographic data from the student respondents, both about their motivations in the class and their identity background. This information

⁴² Notable exceptions include research by Boyd (2008), Brunk-Chavez and Miller (2006), Cunningham (2015), Eaton (2005, 2013), and Warnock and Gasiewski (2018).

was optional so as not to make students feel subjected to undue surveillance, but was requested on the basis that it might help better tailor future pedagogy and recommendations to different identities.

- Section 3 asked optional questions about the LMS, information design, and other issues with course usability that myself and the case instructors were interested in knowing.

All respondents were also given an opportunity to comment to the researcher in any way they wished about the survey or class and were given the option of contributing email addresses to a list for future research.

Survey questions were crafted based on concerns from the methodology along with issues raised by the focus groups and case observations and interviews.

After collecting data from the two case classes, the survey was sent to four online classes in Purdue's writing programs to compare results across classes. Both groups received the same survey, except a preliminary question about the class the respondent enrolled in was changed to reflect the new audience. In order to compensate the student respondents for donating their time beyond the requirements of their classes, each respondent was awarded a gift card.

3.3 Summary of Methods

The two phases of this inquiry's research design break down into three components: 1) Focus Groups, 2) Case Studies, 3) Student Surveys. The goals of each method and the progression through the three is to record human experiences of teaching and learning online in language generated by that participants in order to make it visible in a non-exploitative manner. The Focus groups were used to establish a baseline of issues raised by as many participants as possible; the case studies were chosen and observed to provide rich data on the process of encountering or planning for these issues, and the surveys were administered to collect how students interact and value the work of navigating these issues. These methods were also chosen to emphasize the collective needs and challenges facing both teachers and students of online classes, as the two primary constituents who are most effected by decisions of administrators and other stakeholders that shape their working and learning conditions.

Chapter 4 delineates the results of these methods described in this chapter.

CHAPTER 4. INQUIRY RESULTS

This chapter presents the results of the methods described in Chapter 3. In doing so, this chapter will perform a tension in DIKW rhetoric: the slippery nature of presenting “data.” This chapter will give as full an account as time and space (spatiotemporality) will allow, attempting to make a usable bridge between the reader’s attention and the writer’s collected data in an amount of time and space (as it is written and as it is read, the writing itself creating a telepresent bridge). Recognizing that there does not exist an infinite timescale to present and consume the data herein, the writer will make compromises in the name of usability. In making the data usable or meaningful even in the slightest, it may be said that what this chapter contains moves to the level of “information.” This is a crucial display of the faith readers implicitly bring to decide if what they are seeing is “data” vs “information,” and the role presentation and audience play in determining which is which⁴³. Surely, data/information can be both, the difference being made in use. I ask you, therefore, to consider this chapter “data,” as a results section traditionally functions.

This chapter will proceed in four parts: 1) data from focus groups, 2) profiles of cases including rationales for being chosen, 3) data from the case studies, and 4) data from student surveys. This chapter will prepare the way for Chapter 5, wherein the synthesized data will provide more informative discussion⁴⁴.

4.1 Focus Group Results

Emphasis on PTC classes is concurrent with Martinez et al’s (2019) observation that PTC occupies a prominent position in OWI offerings. Focus group data skews a bit in early questions because just over half the participants were from one institution (13 out of 23), as a result of local recruiting, where teaching PTC classes online is more historically prevalent than any other type of OWI. Therefore, questions about institution and type of classes skew toward this one institution and PTC classes in general.

⁴³ Pretentious though this seems, it is worth making the distinction to draw attention to the labor inherent in the production of information from data, both on the reader and writer side; labor makes the difference, as it does in many other cases.

⁴⁴ As in an IMRD rhetorical DIKW structure.

Because focus groups are conversation based and responses are meant to move beyond ‘yes/no’ and other types of mutually-exclusive response, I report what any respondent mentions during a question response. For example, the first question asked (after what institution do you teach for) is about what classes participants teach. Because instructors teach more than one class at a time and have careers of varying length in OWI, I recorded all classes they mentioned to represent the breadth of experience instead of asking them too narrow to certain classes. In addition, when an instructor indicated something as both positive and negative in the last two questions, both those responses were recorded (in other words, one did not cancel out the other or a positive remark was not taken as a negative indication on the second question) based on the premise that there can be good and bad parts of something, and specialists can certainly identify those factors based on their experience. This is in pursuit of visibility on the instructors’ own terms.

4.1.1 What Classes and Why

In terms of what classes participants taught, 47.8% (11 of 23) participants had taught Business Writing (BW) and First-Year Composition (FYC) equivalents online. 26.1% (6 of 23) had taught Technical Communication (TC) and 21.7% (5 of 23) had taught some other Composition class (a writing class in English curriculum that was neither PTC or FYC). 3 respondents (13%) had taught Hybrid FYC, 4 respondents (17.4%) had taught a graduate level class of some kind, and Hybrid Graduate classes and Literature classes had been taught online by lone participants.) (Figure 4.1)

What Classes

23 responses

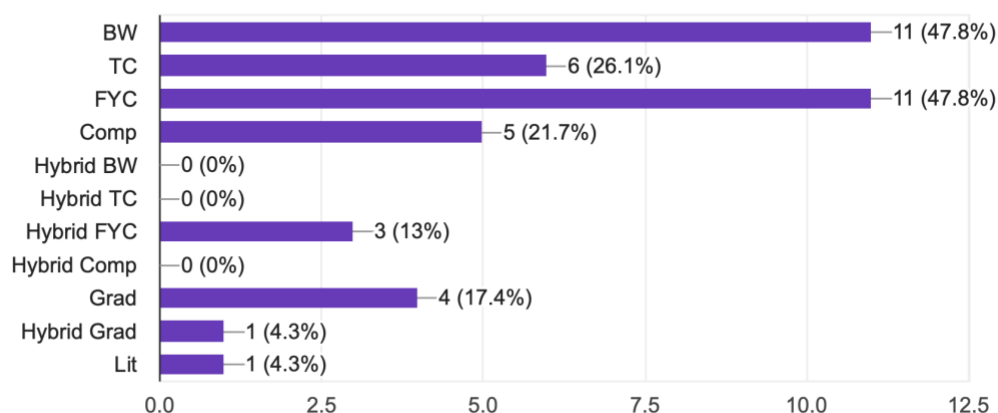


Figure 4.1. What Classes Were Taught by Participants

When asked why the respondents teach online, the top three reasons were: 1) Institutional Demand (14 of 23 or 60.9%), 2) Pedagogical Interest (12 of 23 or 52.2%), and 3) desire for Flexibility in schedule (11 of 23 or 47.8%). This result is in line with institutional trends, especially the desire for flexibility by teachers (and students). “Comfort in Digital or Text” environment and some kind of existing or desire for “Professional Experience” was represented in 8 of the respondents (34.8%). 26.1% of respondent felt the current academic work climate constituted a Demand for Experience they had to fulfill, and 4 respondents sought to teach online because of a previous experience with teaching or learning that motivated them to pursue the career path online (17.4%). It’s quite likely that these responses reflect age and experience disparities, as more experienced respondents more often had adopted teaching online by choice, in an effort to help their departments explore the possibilities of teaching online, while younger respondents feel institutional and market pressure to develop online teaching skills as a competitive advantage or baseline skill. It’s also worth noting that the 4 respondents motivated by previous experiences, both good and bad, reflect a generational impact of online teaching and learning already is able to be discerned. Overall, however, respondents are motivated by fulfilling needs of their institutions and their students, and generally bring professional curiosity to teaching online, as indicated by their overall pedagogical interest in online teaching and their response to institutional demand (i.e. wanting to fill classes offered).

4.1.2 Students and Structure

Overwhelmingly, respondents identified their online students as seeking flexibility (20 of 23 or 87%). Responses to this question varied, given the conversational nature of the focus group format, but this result was consistent and aligns, again, with other research and experience: given the choice of a class that allows students to tailor their schedule to other matters and concerns while still receiving their education, students appreciate that option. Since the overarching goal of the focus groups in the research design was to identify contrasting cases, the researcher tried to provide opportunities to respondents to comment on whether their online classes seemed to serve students of notable diversity compared to their experiences teaching onsite. 10 respondents (43.5%) felt that their online classes match onsite demographics while 8 respondents (34.8%) perceived notable diversity in their students compared to onsite demographics⁴⁵. 9 respondents (39.1%) reported more nontraditional age students in their online classes while 3 respondents (13%) felt secure reporting that their classes were mostly traditional aged students. 9 respondents (39.1%) noted that their online students were motivated by receiving credit or opportunity for something else through taking an online class (Summer students, in particular, take online classes while interning or working other jobs). Only 2 respondents were aware of their students coming to their online classes with relevant previous experience (i.e. professional experience of some kind). 5 respondents (21.7%) noted that their students appeared to come into the class Well/More Prepared, while 2 respondents (8.7%) mentioned their students being Less Prepared for the Challenge of the class. Again, this data is subjective, but was deemed by the researcher the least invasive way to gather data on criteria important to the choice of potential cases. It relied on teachers' lived experiences to shape the cases rather than subjecting random classes nationwide to surveillance-like data-gathering without proper consent and compensation.

Focus groups also asked teachers about the structure their OWCs, and LMSs were nearly ubiquitous in their focus group responses (22 of 23 or 95.7%). All LMS platforms (Canvas, BlackBoard, D2L) were grouped together for this measurement. Correspondence (over email or chat applications) was the second most prominent feature, mentioned by 14 respondents (60.9%) as important to how they conduct their classes. Synchronous Video Conferencing (through WebEx, Zoom, etc.) was the third-most mentioned

⁴⁵ This data is entirely subjective, but further research of this kind is necessary to measure whether or not OE can manage to serve diverse populations better or reinforce one kind of cultural outlook.

feature (10 of 23 or 43.5%). Asynchronous video for instructional purposes or course updates was mentioned by 8 of 23 respondents (34.8%). From there, Collaborative Word Processing (such as through Google Docs), Discussion Forums, and Text-Driven organization and coordination were reported by 7 respondents (30.4%) each. Text-Driven coordination techniques (to-do lists, text documents, or other materials non-new media documents) compared to 3 respondents (13%) utilizing their course calendars significantly and, of course, the 8 respondents mentioned previously using asynchronous video to coordinate their courses. 4 respondents (17.4%) mentioned specifically using tools because they were Institutionally Directed to do so, 2 respondents (8.7%) used TurnItIn, 1 respondent had an Integrated Textbook for their online class, and 3 respondents (13%) reported teaching Visual Design software (such as Piktochart) in their online classes. These responses reflect conventional reliance on LMSs, and a balance between text and video to ‘deliver’ course material to students.

4.1.3 Effective Elements and Elements Respondents Would Like Improved

Focus groups were structured toward providing the most time for respondents to discuss these two questions, as they move toward forward-thinking research on where teachers perceive problems in their classes, along with what they feel is already successful. The three historical strengths of Distance Education (Access, Flexibility, and Personalization) from Fishman (2002) and Ocker, Rosson, Kracaw, Hiltz’s (2009) six variables of effective partially distributed teams (PDTs) were used as a basis for coding these responses, with added emergent codes for “Communication,” “Institutional Support,” “Course Content,” and “Course Platforms/Technologies” based on the responses themselves.

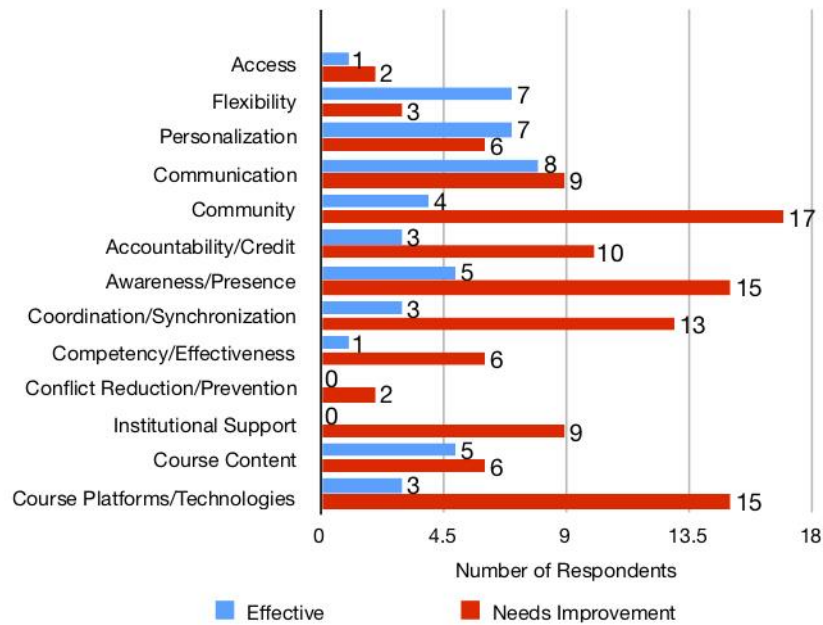


Figure 4.2. Focus Group Participants: Effective Elements vs Elements Needing Improvement

The criteria of these codes was as follows:

- Access: mitigating barriers
- Flexibility: convenience for students or teachers
- Personalization: individualized attention for students
- Communication: correspondence activities and practices
- Community: group tasks and discussion elements
- Accountability/Credit: reward/credit structures and honesty
- Awareness/Presence: feeling the presence of teachers and students
- Coordination/Synchronization: teacher labor providing structure/infrastructure
- Competency/Effectiveness: faith in effectiveness of class units or whole class
- Conflict Reduction/Prevention: disciplinary of interpersonal issues
- Institutional Support: support from institutional levels above instructor
- Course Content: individual activities or assignments, the outcomes/means of the course
- Course Platforms/Technologies: LMS, technologies

Respondents had more strong indications of what needed to be improved in online classes, based on their experiences, than what was effective. This is likely attributed to thinking

modes that focus on improving and optimizing, therefore calling attention to deficits more than successes, but may also indicate that there are more urgent areas needing fixing than those that are contributing positively to OWCs.

The top areas respondents indicated effective in their online classes were “Communication” (8 of 23 or 44.4%), “Flexibility (7 of 23 or 38.9%), and Personalization (7 of 23 or 38.9%). Top areas respondents indicated needing improvement in online classes based on their experiences were “Community” (17 of 23 or 73.9%), “Awareness/Presence” (15 of 23 or 65.2%), and “Course Platforms/Technologies (15 of 23 or 65.2%).

Access, Flexibility, and Personalization in online courses, as seen through these instructors’ eyes, seemed mostly adequate. Accessibility was least remarked on, with 2 respondents reporting Accessibility needed to be improved in online courses versus 1 who thought online classes were effectively mitigating barriers for students. Flexibility was the only criteria reported as a strength over a weakness of online courses (7 favorable over 3 identifying issues around it). Personalization fared about evenly, with 7 favorable impressions over 6 identifying it as an area needing improvement. Personalization has a slight edge, with more teachers finding it easy and effective to personalize their interactions with students than not (due to time or structural limitations).

Communication, Conflict, and Course Content produced more even splits skewing toward negative. Communication with students was the most recognized positive element of online courses (8 respondents), but more found it a problem area (9 respondents). While communication can be a powerful positive tool, it can be viewed as time consuming or imprecise to teachers. Conflict Reduction received no positive mentions, which may be attributable to the way a lack of conflict is not something someone would bring up unprompted—a lack of conflict being the sign of positivity on its own. The mention of conflict as problem by two instructors is, by that same token, likely more remarkable. As Ocker et al indicate, conflict is harder to track online. Course Content is another area where instructors identify even positive and negative aspects. 5 expressed solid faith in their course content in their online courses, while 6 reported course content for online courses needed improvement. This area is hard to disentangle from delivery methods or other platform issues; different teachers will see content as separate from form and other will not, depending on how they approach their courses and partition their time. Overall, there are bigger issues identified by the focus group participants.

Focus group participants also discussed aspects of their classes that needed improvement. Community, Accountability, Awareness/Presence, Coordination/Synchronization, Competency/Effectiveness, Institutional Support, and Course Platforms/Technologies featured large disparities, found overall needing improvement in online courses. 17 respondents felt building Community in online classes needed improvement as opposed to 4 who felt Community was an effective part of their online classes. 10 respondents felt Accountability suffered in online classes compared to 3 who felt it functioned effectively. Awareness/Presence the students and teacher perceive of each other garnered 15 negative impressions opposed to 5 positive impressions. Coordination/Synchronization work was seen as problematic by 13 respondents opposed to 3 who felt it was an effective burden. 6 Respondents felt the perception of Competency/Effectiveness was lacking compared to one respondent who felt comfortable with their online classes. These factors account for the majority of the six variables from Ocker et al (Conflict, the sixth variable, also garnered more negative impressions), indicating that the historical strengths of Distance Education (Access, Flexibility, and Personalization) continue to be effective and motivating factors, but the social supports for learning (i.e. knowledge-making) are weaknesses. Instructors even maintain more faith in their course content over the social mechanisms for delivery that have, indicating that the problems they perceive with Online Education, OWI in this case, are in the forms and connection mechanisms and not the act of interacting with students or with their educational “content” itself.

This line of reasoning comes further into focus when looking at the negative perceptions of Institutional Support and Course Platforms/Technologies instructors have. 9 respondents found Institutional Support lacking or dissatisfying whereas no instructor mentioned Institutional Support as a positive. Course Platforms and Technologies also garnered significant negative impressions—15 over 3 positive—indicating some of the greatest dissatisfaction of focus groups as a whole. Peer review was often cited as a site of needed improvement. Peer review, especially in online classes, combines a social-pedagogical process with a necessary technological layer that has to be negotiated in a way that recreates sharing pieces of paper amounts a seated group, foregrounding the way things an onsite, classroom-bound model of pedagogy takes for granted that have to be deliberate in online classes. Together, the overall negative impressions paint a picture of social learning functions suffering and a void of support from institutions and technologies.

Overall, these final two questions render a vision of online education in these instructors' OWI classes as effective in historical senses and through communicating directly with students, but lacking in whole-community functions with bad institutional and technological support. In other words, the human-to-human aspects are, at least, more effective, than the technological and mass-distributed factors. This is in line with neoliberal ideals that shift institutional work to individuals to negotiate on their own, but these teachers do not see that as a plus. They find their ability to offer better classes hampered by the technology they are provided with and lack of institutional support they receive. This is not to say that strict top-down control is preferable, but that their ability to interact with their students and accomplish activity-based problem-solving and knowledge-making is hampered by the apparatuses themselves that they must navigate to actually reach their students. Most instructors report problems with 'knowing' or 'interacting' with their students outside of emails.

4.2 Case Profiles

Based on responses in the focus groups, two cases were selected to study teacher labor and learn about these problems in more depth from experienced instructors. The two cases are identified by unlinked pseudonyms: Brett Templeton and Grant Christian⁴⁶.

4.2.1 Case 1: Brett Templeton

Brett is a veteran instructor teaching an upper level professional writing course called "Technical Writing (for Distance Education)." Brett teaches at a large land-grant university in the midwest which, in her words, means the school is mandated to cater to specific educational needs of the region, in this case science, technology, engineering, and math (STEM) fields historically. As the class title implies, the class is a technical writing survey class required by several majors. While it is required by several STEM major and some Liberal Arts majors (like Professional Writing) and the class has its own curriculum independent of those programs, Brett views the course as a service course in nature. The class is always in high demand by students, and Brett was one of the first people to teach the class online in 2001, when it was first offered as a "distance" class.

⁴⁶ Both cases had final say over their pseudonyms and pronouns as part of the inquiry process to ensure their comfort and well-being.

Brett's institutional designation is as a "Continuing Lecturer" or 'CL' for short, meaning she is long-term contingent labor at the university that always works half-time or more and draws benefits. CLs work to provide programmatic continuity, teaching the same class or classes over long periods of time to maintain their programmatic identity and adapt them over time to new developments in curriculum and advancement in the subject material.

Brett first became interested in teaching PTC classes through her interest in technology and its role in communication. She's stayed in her position and specialized in teaching Technical Writing online (most other CLs prefer to teach the business writing course) because of her consistent interest in new technologies, issues of access to education, and contributing to the programmatic identity of the class. To her, technical writing has many distinctions from other professional writing classes, and she likes being one of the people maintaining the identity of the class and its curriculum.

Overall, she is a veteran teacher committed to the class, her students, and the ongoing mission of her program.

4.2.1.1 Brett's Students⁴⁷

Brett's students tend to be majority engineering (50-66% in her estimation) or technology students (33-50% in her estimation), a majority of which are male (classes are 25% female at most, also in her estimation). While Brett's English department offers a Professional Writing major, its students are dwarfed by outside majors required to take the Technical Writing class. Business students occasionally enroll in the class to get writing experience differentiated from the equivalent Business Writing course offered. Brett's classes also enroll a high rate of international students and out of state students, potentially taking her online class from their hometowns, wherever that may be. While more nontraditional students used to take Brett's online classes, she observes that trending downward. Overall, Brett's classes reflect a population that is mostly STEM and male, with international students accounting for much of the visible diversity.

⁴⁷ This, as well as the profile of "students" in Grant Christian's initial profile, is based on conversation with Brett and Grant about the historical experience of students they'd had in their classes. Narrower information on the students in the specific class-semester observed is in the Interview and Observation Data section. These profiles are included to help illustrate why the cases were chosen.

4.2.1.2 Brett's Course Structure

Brett uses BlackBoard, as mandated by her institution, to administer blogs and assignments for students as well as facilitate email blasts and conversations as well as collect assignments. Until recently, she had the option of using another platform, but is now required to use BlackBoard, which has been a positive shift in that students come to her class familiar with BlackBoard due to its institutional regularity and thus do not have to learn a new design language. Brett also uses and expects her students to use Adobe Photoshop, Adobe InDesign, Adobe Acrobat, and Microsoft Word throughout the course of her class. One of their assignments is to compile a set of “quick guides” for these programs, and others, to facilitate using them.

Brett's grading centers around ongoing discussion and three projects. Class discussion takes place through blogs of each student hosted on the BlackBoard site. Students are required to make 2 posts to their own blogs and make 5 comments on other students' blogs 5 times a week. This high volume is designed to motivate conversation early and sustain it into the class, and Brett refrains from grading discussion as it happens in order to not inadvertently value their interactions through that quantifiable measure, instead using the requirement as a way to break ice into more fluid and natural conversation on class material for its own sake. Brett's three projects are 1) a Quick Guide (referenced above), 2) a Technical Research Paper, and 3) a Technical Marketing Material. The progression of ideas and skills is from: 1) documentation, audience awareness and basic document usability through the quick guide for other students; 2) more emphasis on research, presentation, process, and visibility as well as complications of workplace expectations and public accessibility in the Technical Research Paper; 3) to how technical information (in the form of a booklet, brochure, etc.) can help inform the public and aid purchasing decisions in an ethical and informative way through the Technical Marketing assignment. Overall, through these three projects with ample discussion around them, Brett aims to teach the importance of Technical Communication to daily life.

4.2.2 Case 2: Grant Christian

Grant is an experienced professor teaching a First-Year Composition equivalent called “Intro to Writing” at a regional community college in the midwest that spans its state but allows local branches their own governance. Grant's campus is connected to the state's major urban

area. Grant pursued research on digital writing in his PhD research, specifically on discussion boards, and started teaching online because of this research interest combined with his professional interest in Information Technology, expanding online education offerings, and digital design. In other words, he teaches OWI because it fits his interests and knowledge areas.

As a regional community college FYC class, his class transfers to many FYC credits at other state colleges, so Grant's class servers a wide variety of potential students, from local students getting their degrees from the Community College (CC) campus, to students 'seeking credit' to transfer elsewhere, either to an institution they will eventually attend full time or one they are currently enrolled in and using that CC class enrollment as a supplement to their home-institution transcript (especially during the summer).

Grant also works on the team leading curriculum development for his institution, and Grant works with Instructional Designers to decide how to structure content in FYC course sites.

4.2.2.1 Grant's Students

Grant considers his student notably diverse in terms of age, race, international, and/or migrant status. Grant notes that, since his online course doesn't permit normal opportunities to visually 'see' students, he can't directly verify his demographic portrait in every instance, but he knows from past experience to expect this diversity and design his courses around it as a baseline. Students are technically supposed to be relatively local to the downtown urban campus Grant works for, but beyond enrollment in the class being tied to the specific campus students are enrolled in overall, there is no location requirement for students taking the class, meaning they could be anywhere, technically. First-Year Composition is the only statewide mandated course for his institution, so every enrolled student will take some form of it. Since Grant's institution is a community college, some amount of students may always be taking the course in order to take the credit elsewhere.

4.2.2.2 Grant's Course Structure

Grant uses Canvas for his online class, a recent adoption for his campus. Grant's class integrates Cengage Mindtap, an e-textbook for his class, into the class for activities along with projects and discussion. Grant also includes "internet access" in his mental list of required technologies for his class (indicating that he does not take it for granted that every student will

necessarily have this or have consistent or high-speed access). He also notes that a laptop (or some machine running a desktop operating system) is the ideal way for students to interact with the class, though he notes a smartphone might do the job despite, in his opinion, it doesn't work as well as the desktop web interface. He does note that the class will require basic knowledge of smartphones and how they work as part of the class material.

Grant's class is an Introduction to Writing-type FYC class, and therefore he says he is responsible for teaching foundational rhetoric and writing practices, among them research, process-based writing, and citing other works. Grant's class emphasizes scaffolding and practicing writing as its main pedagogical approach. Grant's class has four projects: 1) an introductory project asking students to "read, summarize, (and) respond" to another piece; 2) a comparative analysis; 3) an annotated bibliography; and 4) an argument essay. The scaffolding of the course takes students from 1) practice structuring argument around a response to introduce, write the body of, and conclude an argument; 2) compare two pieces to practice analytic skills needed for research (in the comparative analysis); 3) compile sources by analyzing their ethos and quality and produce a pseudo-literature review (through the annotated bibliography); and 4) combine all the previous skills and build them up (through the argument essay). Grant's class relies heavily on process pedagogy, featuring discussion, activities, and peer reviews throughout.

The curriculum and assignments of Grant's class are partially the result of a content matrix produced by his department, providing a matrix of outcomes and skills students must practice in the class. Instructors pick assignments to fulfill requirements of this matrix, and work with Instructional Designers to translate those assignments to the online class structure. The division of labor at Grant's institution is such that the instructor is seen as the source of content and the instructional designer the developer of that content (to execute the instructor's vision).

4.2.3 Summary of Case Choices

These two cases were chosen because they represented: 1) two experienced instructors 2) working with typically contrasting populations of students (Community College students attending a midwestern urban center-attached campus contrasted with Large Midwestern Land Grant college students connecting to the campus from around the country, potentially the world), 3) who participated in the focus groups, 4) and expressed interest in being observed as cases

during the focus groups. Since the focus of this study is the relationships of the teachers with their classes for the purposes of knowledge-making, these cases provided the best available options because these experienced online writing instructors would be less likely to make mistakes typical of instructors new to teaching or new to teaching online. The prospective differences between their course content and student populations would make their labor patterns and choices the focus of the study, in line with the goals to make recommendations on how skilled knowledge laborers (i.e. teachers) can utilize their time and labor to have the most positive impact on students.

Both these teachers, as part of their regular summer duties, are teaching additional classes to the ones observed for this inquiry. As teachers who, for their respective institutions, serve as “work horses” of sorts, teaching purpose-driven classes foundational to major programs but offered through English programs, their experiences are valuable insights into the role composition, and especially OWI, serve at major institutions as well as regional community colleges. Both these teachers serve invaluable roles to their departments and their greater campuses because of the curriculum they maintain, the experience they have gathered, and the connection they have to students of all experiences and backgrounds traveling on diverse paths into the future.

4.3 Interview and Observation Data Narrative

Data from the interviews and observations is presented here in four segments, each characterized by an interview and set of observations informed by that interview and used as part of preparation for the next interview. It is worth noting that, of the two cases, Brett was generally a more extemporaneous speaker and Grant was more direct and concise. Therefore, while Brett provided more generous and substantial answers to interview questions, Grant was typically able to answer more questions beyond the minimums established to get baseline comparative answers from each participant.

4.3.1 Case Data I: Initial Interview and Observations of Course Structure

The first round of interviews focused on collecting the data presented above. The rest of the first set of interviews focused on relationships between the instructors, their platforms and

content, and their students, along with soliciting input from the instructor on how the researcher might best observe important class activity (to supplement planned observation techniques).

4.3.1.1 Case Data I: Brett

Brett describes her primary approach to introducing content to students as using BlackBoard functions to break large tasks into smaller ones delivered on a daily basis using scheduled content releases (i.e. Brett automates the posting of a message to the course announcements every day that models some process or introduces a new task to students related to the current unit). Brett chooses this approach based on the idea that information is a constant presence, and how it is presented increases engagement with it, in this case presentation of regular updates increases student engagement with the class information. Brett identified this as a pedagogical goal that also demonstrated a principle of the class to students. Brett asserts that a teacher is a technical communicator in making documents and other class materials for students, and Brett tries to model each stage of the processes needed to complete unit projects with her scheduled posts.

On the subject of how Brett manages teacher/student interaction in her class, Brett establishes that her goal is to recreate a lecture+discussion model through the BlackBoard platform affordances. The primary way she does this is through her class blogs. Her “blog” is a content folder on the main BlackBoard content page (an in-depth examination of Brett’s BlackBoard information structure will follow later in this section) subdivided to help students navigate and find information they need. Students, on the other hand, have more traditional blogs generated by the BlackBoard blogging platform tool, which are openly viewable by all members of the BlackBoard class. Brett has most of her formal interaction with the class through her own blog, and regularly browses student blogs to monitor conversation. Brett prefers to leave blogs as the students’ discussion domain, rarely posting so as not to drastically influence the conversation environment.

Brett recognizes the need to show herself to her students visually. In the past, she’s tried doing this through produced video lectures, but found them transparently canned and overall ineffective. She is experimenting with video office hours, using WebEx as provided by her institution.

Brett recommended that I focus on blogs to observe class activity, along with her scheduled announcements.

When logging in for the first time to observe the class structure, I find that Brett has setup BlackBoard to present Announcement to visitors so they always see the most recent post she has made to the course. The first few posts summarize BlackBoard navigation and contacting Brett over email and WebEx, the first blog prompt (self-introductions), and the first unit project (the quick-guides) by assigning each student a program to cover.

Brett's course content is split into six folders (syllabus, weekly schedule, teacher blog, projects, blogs and comments, FAQs). All the written content for the course is presented as a BlackBoard text item or PDF, presumably for highest accessibility compatibility. The syllabus is comprehensive and looks to have accumulated content and evolved from Brett's experience teaching the course. Because the syllabus is broken down into folders and single-screen text items, it is not intimidating to read the way a single continuous document is.

Brett's "Weekly Schedule" folder has every week of the course and the assignments available, all as, again, PDFs or BlackBoard text items for everything. The schedule folder is long and thorough, serving as a combined calendar, checklist, and itinerary. The whole progression of the class is viewable in this folder format at the start of class, giving students a comprehensive view of the work to come, if they choose to investigate it. Brett has also cross-listed and linked to other course content and blogs where available to help a student navigate fluidly. Things are further broken down day by day for what a student has to do on a given day, provided they are following the schedule. The amount of cross-posting is impressive. The site map for this course, were it available, would be densely connected. As noted, everything is written as text in BlackBoard and separated using folders. This means more clicking, but it is fully accessible and not overwhelming or wholly intimidating.

As noted above, Brett's blog is essentially made up of content folders, the root of which is on the course content main page. The "blog" nomenclature of the course establishes a common language for all members posts.

Brett's projects are substantial. The amount of work does not compromise rigor in ways new teachers express anxiety about. Notably, Brett's course features two group projects.

"Student Blogs" has sections explaining each aspect of the blogging assignment and a link to the student blogs. Student blogs are a timeline of posts with links to comments. There are

assignments for each week's post, so they are about similar things or begin similarly, in many cases. The blogs and comments are a bit performative but the student comments are substantive (though brief). Brett says she uses this to foster conversations and community and doesn't grade until the end, and the early blogs seems to demonstrate that kind of effectiveness. There are parameters for good blog posts in the blog section (i.e. how to write a good post, not just get points).

The FAQ section is an amazing collection of definitions and course concepts explained by Brett for students. The FAQs are a testament to the infrastructure she's built over the years, a snowball of content knowledge presented for students to dig through, if they choose to.

Overall, Brett's BlackBoard site represents a great deal of thought, experience, and control. Hearing from students how they process all this information (how much, at what times, etc.) would be useful in a future iteration of an inquiry like this. Brett's class and pedagogical approach represents a classic technical communication approach of trying to prevent future mishaps by providing as much information as possible (as material for students to make knowledge and wisdom with). There is very little hidden from students. The only thing that releases on a timed schedule are the future blog posts, which the instructor view of the course reveals are pre-staged and ready for timed release when the course begins. Brett's course seems to be set up to roll out on its own so her energy can be spent elsewhere when students come in and start interacting with it. Brett's interviews show her to be really invested in her students and their success overall, and her course structure seems to reveal her trying to save as much energy for them when the course starts as possible.

4.3.1.2 Case Data I: Grant

Grant's Canvas-based course makes pathways for students through 'modules' such that following the modules walks them through the course similar to how following a set of instructions divides a complicated process into manageable steps. Grant is very up-front about his conviction that this approach is working great as long as students don't deviate from it (i.e. the students get the best experience when they stay on the path and don't aimlessly pursue information on the site). Canvas automatically aggregates a calendar and to-do list for students based on all their enrolled courses, and Grant expresses regretful frustration that this macro-view, that he can't control and appears as a useful tool for students managing multiple courses,

disrupts the experience he's architected to plot the course out in manageable increments and sequences.

A typical project cycle Grant employs for his units is three weeks: one week for drafting and early project work, one week for review and revision, and one week to produce a final draft. The course discussion board is the designated course space for collaborative work and discussion. As part of discussion, students alternate between starting threads and replying to threads week-to-week. Peer review also takes place via message boards in the same publicly-viewable fashion. In Grant's rationale, discussion boards account for collaborative work, meaning there is about an even split, overall, between individual and group work in the course.

On the subject of communicating with students, Grant says that email accounts for the most frequent way he communicates with the class, mostly on an individual basis. Email is a core technology of his online class, institution-provided addresses provide official channels for teacher and student to contact each other, and it represents a baseline technology that any internet-connected device can accomplish at (relatively) any time. Grant has a policy of responding to emails in less than 48 hours. Grant also counts written feedback as a major way he communicates with students, as well, either using Microsoft Word's comment function on drafts or the grading comments section in Canvas. Grant notes this as a valuable communication point because it is a point at which his personality is apparent to students and they will likely pay careful attention to everything he says, and as such he views it as not just an opportunity to evaluate but to mentor. Grant also makes his mobile phone number available to students to text or iMessage him, if they are so inclined. He provides this number in the event that a student finds this mode more natural or convenient way to contact him. Students can also initiate this mode of contact. He says that very few take him up on this offer, but he notes an even number of blue and green message bubbles on his iPhone when students do (indicating an even split between other iPhone and Android users).

Grant posts regular announcements to his course site, as well, using them to provide general feedback and give insights to the class that connect past event to future ones. Grant qualifies this by saying that it is easy to ignore these announcements in Canvas, and students control what notifications they receive from Canvas, so he cross-posts them to email for information redundancy. He also makes himself available for video office hours using Canvas's video conferencing program, and in-person on campus every other week.

Grant identifies “community” as the most pressing limitation of his class. He puts a lot of effort into encouraging community in his online classes but always feels like it could improve. Grant notes that correspondence (i.e. over email) is an important form of community building, as is the inter-student rapport built through the discussion. Community, Grant argues, has to be built through individual interactions because broadcast communication mediums don’t really indicate engagement beyond registering the information. Being accessible and friendly is more effective, in Grant’s experience. The class he is teaching had to be rebuilt recently to remove required collaborative elements because the student population his institution served can’t reasonably commit to synchronous meetings, undercutting the flexibility they seek. As a result, he’s implemented more asynchronous interaction.

Grant tries to build up Awareness and Presence in his classes, again, through correspondence. When someone writes to you or receives your email, it is a reminder that they are somewhere, at a device, writing to you specifically and thinking about what they want to say to you and why, and that has human implications often taken for granted outside extreme circumstances. By the same token, providing students with space to talk (i.e. message boards) build up community awareness and presence. Grant also notes that his announcements carry his portrait in the Canvas platform, but he qualifies this as a shallow form of presence compared to others.

When asked how he prioritizes his time and energy as an instructor, Grant identifies two major tasks he has while a class is running: evaluating/feedback writing and one-to-one correspondence. Evaluating and grading student work emerges as more the chore of the two, as correspondence is more rewarding to both his students and to him, given the reasons above; correspondence emphasizes the human work of communicating and making knowledge, if that knowledge is only that another person has acknowledged and responded to you simply because you offered them the chance.

Similarly, when asked about the hardest part of teaching online, Grant references the grading load, not only because it takes away from more informal correspondence, but also because online sections of the class he teaches have a significantly higher non-success rate for students. Ultimately, he says the hardest part of the class is watching students drop or fail the class. This FYC class is the only class required by every major at his institutions (and a popular

transfer credit), so it is overloaded with requirements, creating an unreasonable amount of work for most students. Invariably, the workload, not the content, causes the most issues for students.

Grant suggested I steer my observations toward discussion boards to see how students discuss reading and other materials and see how they give each other feedback. He also suggested I watch announcements and study the content modules.

Canvas has a much different interface than BlackBoard, sort of like a social network by comparison, with tabs on the lefthand side for lots of course stuff (announcements, people, conferences, etc.). According to the calendar my student view provides me with, Grant's modules begin on Monday and Thursday, layering each week with tasks and due dates. The Home section of Canvas has Announcement stubs (i.e. students must click on an announcement to see it in full). The first post is a long post instructing students on how to follow modules, communicate in the class, discussing the workload, and indicating the technology skills necessary for the class.

The second announcement has reminder about work needs to be done that week. Grant's announcement posts are approximately 400-500 words long and all posts have a picture of some kind. Grant's posts are stylized, evidencing some personality, aided by Canvas's layout and presentation.

Like Brett, Grant posts everything natively in Canvas; this means that text reflows based on screen size and resolution, and, while it does not have the same level of document design a discrimination technical communicator or web designer would aspire to, it is likely much more compatible across devices and better for accessibility (by being HTML texts as opposed to PDF OCR). Grant's announcements correspond roughly to when modules begin or end, and are clearly written to reference the course at hand—they may contain pre-packaged elements, but they are clearly tailored to the specific class they are delivered in some respect.

The "Conferences" tab is unused. Grant uses message board or other functions for exchanges.

Canvas modules, in Grant's course, tend to function like a task list, but with instructions, readings, assignments, etc. in a combined list with links pulling together other course sections in these path-like locations. In other words, modules provide ready-made pathways to navigate the content of the course for students, introducing them to the available information in a deliberate way rather than forcing/expecting them to find things as part of their course labor. If students

follow it, they likely get everything they need to complete course material when they need it. Modules are visually like book pages you can navigate forward and backward in with a linear structure. Overall, the modules look easier to follow, pick up, and put down as a user wishes/has time. Discussions, quizzes, and questions are integrated in modules, too.

Each module has its own “discussion” board. Discussions are arranged in a timeline as well. Grant puts a lot of emphasis on discussion boards in his class, treating them as the students’ domain of required conversation and idea exploration.

The assignments tab has all current, future, and past assignments for the whole course so, like Brett’s course, students can view the whole workload and due dates for the course from the start. From this tab, as well as the calendar tab, it is easier to see how Grant worries these views disrupt students’ overall faith in their ability to complete the course: these two views are information-rich, but lacking the context of progression, instead providing a utilitarian context that reduces course work to assignments and due dates. The modules are somewhat visually insulating, as well, making them idyllic views of the workload to the uninitiated student; the design challenge here is that students should have both of these views (macro and pathway), but not at the inadvertent expense of each other. The student is independently responsible for putting these two views together, leaving room for some to misjudge the workload or their ability to complete it and withdraw, potentially.

Overall, Canvas makes everything in the course more visible and accessible than BlackBoard, design-wise. Major sites of action in Grant’s course are the discussion boards and module pages, which pull from “assignments” in a structured progression. Early student discussion in Grant’s class is lively, likely because Grant provides detailed and purpose-driven prompts.

4.3.1.3 Case Data I Summary

Both instructors see themselves as designing experiences for their students through their class platforms based on progression. The classes are designed to function a ‘best’ way, and both instructors worry about students falling out of that progression. Both instructors have set up a rigorous class that does not establish an OWC as inherently ‘less-than’ the traditional onsite (classroom) experience, compromising the workload in the name of an added technological layer. It is clear, based on the initial workload, that students will compose a significant amount of

informal and polished text in both classes, based on the assignments and the need to discuss and communicate with other students and the instructor textually.

4.3.2 Case Data II: Course Design and Labor

The second set of interviews were used to confirm or challenge my observations about the class by sharing them with the instructor, and then to talk about the work that went in to setting up the course in this way and why. We also talked about their views on new media in online classes.

4.3.2.1 Case Data II: Brett

Brett agreed with my assessment that her structure was instruction-oriented. The structure of providing instructions is, in her estimation, designed to mitigate time and place barriers and inform students of all their work ahead of time so they can fit it into their spatiotemporal availabilities. Her experience tells her that students get comfort and security from a structure for the course information like this, which also builds up a course infrastructure for the instructor. Brett has made a conscious choice to automate some things but leave others for herself to change and maintain during the semester so as to balance her workload (especially since she must pursue other kinds of employment in addition to teaching online in order to make her living).

On the subject of time Brett spent building and maintaining this course, Brett offered very concrete numbers. Based on the amount of time spent in her office, she estimated that she spent 175 hours last summer (6-8 hours every weekday) putting together her course on BlackBoard, transposing from the previous platform and using the opportunity to revamp her accessibility in her course. During the academic calendar year following that summer and preceding this one, she spent another 150 approximate hours (4-6 hours every week for 30 weeks) revising the course based on teaching it. This is in addition to the other teaching, commenting, and other service she does for the department.

When asked how she thinks students approaching the structure (a question generated out of my wonderings as I navigated the content, she says she gets no questions from students about the structure of information in the course. Students do ask about due dates, for the most part, so it's safe to assume students speak up when they have questions, but do not seem to have questions about where to find things, a tentative mark of success from a usability standpoint.

When students do contact her, she reports it is in line with her expectations from past experiences: mostly questions about the textbook, course materials, students' travel plans, and how they will mitigate the impact of travel on the class. Brett notes that all her communication with students takes place over email. Students feel comfortable emailing her and she makes it a priority to respond to them.

When asked about discussion participation for the class I was observing, Brett also finds this to be a regular class so far. Minor technical difficulties aside, she finds the student content satisfactory. She expects that, after the class settles in, posts will drop down to word counts closer to the minimum requirements, but the blogs and comment will fulfill their purpose of being peer-to-peer discussion. As noted previously, Brett refrains from participating, instead trying to let the discussion format function as an organic exchange (driven by minimum requirements and an eventual grade to stimulate participation. Brett doesn't assess the discussions until the end of the course, and even then she is generous, but does monitor the discussions to look for signs of content uptake amongst the students, a form of indirect assessment that helps her make in situ decisions about the direction of the course and how she wants to intervene.

4.3.2.1.1 Time and Retention I

I made a point in every interview from this point on to ask each participating teacher how they were dividing up their time spent working on the class I was observing. Brett said she was spending about 2-3 hours per day on this class. During this period (about the first two weeks of class), she was monitoring early participation (to identify issues students were having and help retain them), reading blogs and comments, communicating with students over email, and studying the analytics BlackBoard provided her with. Monitoring participation leads to email, in this period, because when she notices someone inconsistently participating, she contacts them to find ways to help them back on track. She also has to work out technical issues with students over email, in addition to working with instructor-accessible tools and contacting technical support. A great deal of the labor of the class in these early stages boils down to communication, "Coordinating" (Ocker et al 2009's fourth variable) the course. She intends to start grading early work the day after our second interview, an addition she says will shift her workload dramatically.

Early retention is good, according to Brett. She has 18 students, one or two of which are at-risk participation-wise. She is reaching out to them and finds nothing about this out of the ordinary for a summer class.

4.3.2.1.2 Video and New Media

As part of this interview, I sent a short pedagogical video found publicly on the internet to catalyze a conversation about the role of video and new media in online classes. The video was about ten minutes along and featured an introduction to memos and a demonstration of formatting one.

More important than the video content was the participants' reactions to it. Brett found the video unsatisfactory on a couple of grounds: Brett contends that pedagogical videos should be short (5-6 minutes), compliment other material, and support teacher presence. For example, a text assignment sheet needs to accompany any video introducing a project because videos are harder to navigate for specific pieces of information than text. Brett favors static text to present material in her classes because it self-paced for the reader, recursive, and much more accessible, either for sensory or language purposes. Furthermore, Brett notes the value of performativity in videos: she feels the video I chose unfairly highlights the instructor's inexperience with being on camera, despite their natural and engaging persona. Being on camera is, for its cultural and technological ubiquity, still a skill the value of which is diminished by the good examples more readily available than before. A good video, Brett elaborates, needs to communicate authentically and efficiently, requiring a learned screen presence. In the end, pedagogical videos, at least in her experience as a writing teacher, ring as an act of producing "content" for the sake of having content to show rather than having a clear pedagogical imperative. This is not to say that instructional videos are not worth making, but that expecting every teacher to do them requires institutional support beyond providing instructors with high-tech recording stations with automate-able recording and captioning functions: it requires mentoring on how to engage students with video, since they, as a rule, cannot interact with it as they could a conversation, or even a traditional lecture.

4.3.2.2 *Case Data II: Grant*

Grant confirms my assessment of his course as task- or path-based. He reiterates that he sees the course modules like a book: as long as the pages are read in order, it makes sense.

On the subject of how students interact with the course, he observes that if students do indeed follow the course as a book, they encounter very few problems. The challenge posed early is to help them get onboard with the module structure and help them understand how and why to follow it.

The task-oriented approach to online courses highlights a major difference in online education: onsite, showing up to a classroom is minimum participation, while minimum participation in an online class is completing actual course tasks. This is a double-edged sword, since students who fulfill even that minimum will likely get more out of the class than those who attend a class but don't participate, but the deliberate nature of online participation leaves open the possibility for students to inadvertently fail out of online classes or condition them to participate in ways that don't contribute to their natural learning style, instead conditioning them to a new one.

Again, Grant's course calendar disrupts progression because it decontextualizes the work by removing the sense of spatiotemporal progression. This highlights another difference in online and onsite classes around what we consider the mode of self-discipline students learn, particularly in first-year classes: onsite initial self-discipline is getting oneself to class, whereas online initial self-discipline is starting oneself working. There are various meritocratic hooks pulling both these modes: online classes incentivize representing oneself through posting content—making oneself known by expressing ideas (of some kind) whereas onsite classes allow students to reap (some) benefits by simply being there. This mimics online discourse, in that posting (or making visible participation marks, i.e. “liking” content) constitutes participation, whereas simply being present online constitutes an unknown. Put another way, posting-as-participation rewards those who represent themselves (meritocracy), while presence-as-participation accounts for everyone regardless of whether they actively speak up (democracy). The two are entwined together on online platforms in a way that online classes have to more directly account for: online classes exist to explicitly benefit the participants whereas the de-facto reason for online platforms existence is as information marketplaces (Hall 2016).

Retention and engagement in online classes depend on how a student learns to start participating in their class as an online space. Grant incentivizes participation through receiving credit so that students have a reason to participate and to catalyze the real purpose of discussion: knowledge-making. Discussion is crucial because it replaces the classroom experience and builds rapport among the students and teacher.

Grant also had concrete numbers on how long it took to develop and maintain his online class. It took two semesters to develop this new incarnation of the online class (up from the usual one semester for new class development). Grant worked as part of a development team, putting in 3-5 hours a week for 24 weeks, setting aside the last six weeks of the semester for institutional approval, for a total of 96 hours. Per semester, Grant estimates he can set up an instance of this course for a new class in about 3-4 hours and then spends about the same each day doing teaching-related work.

On discussion, Grant says the results so far are in line with his expectations. He says the posts so far are responding to the provided prompts successfully, maybe making more connections in content than usual, but ultimately engaging with the “surface” of the topics presented, with all replies generally affirming to the poster (as noted earlier, students alternate posting and replying every week). Again, he notes this is normal: students tend to focus on fulfilling the requirements and avoiding conflict, either as parallel goals or because conflict impedes fulfilling the requirements of the class. Grant notes he has higher-order concerns of students learning critique (as distinct from conflict), noting that his students appear to be ultimately afraid of disagreeing with each other in discussions, regardless of their actual beliefs. Grant also notes that he stays out of discussion as a rule to avoid inadvertently motivating certain types of behavior (inadvertently favoring one student or viewpoint over another, etc.). Grant’s expectation of discussions is that they are sites of interaction among students and engagement with the material, that they help students learn how to go “far enough” in critiques without moving into arguments that are patently inflammatory or without factual basis, and that they will necessarily not be entirely authentic because they have a performative and pedagogical aspect to them. Incentivizing these posts is necessary, even though it causes some of these factors: students need to learn to organize and advocate for their thoughts in a writing class.

Grant is enthusiastic about the amount of communication he has with his students. Students always need help finding footing, and this provides good opportunities to build trusting

relationships with students by reaching out to them and helping them. He is proactive about reaching out to students who appear to be at risk for not remaining in the class. Online FYC, he notes, is a very difficult first online class because there is so much to take in terms of workload, logistics, and potential technology problems. He tries to reach out to reach out to students, particularly at the beginning when people in the class miss things because it is all new. His strategy writing to students is to be deliberate, stress the value of accomplishing class tasks (for how they contribute to success and ease at completing other tasks), be generally good natured in tone by having a positive attitude about negative things (building a compassionate ethos), and avoiding negative transition words.

4.3.2.2.1 Time and Retention I

There is a high volume of communication at this (early) point in the semester, and Grant estimates he is spending roughly 30-40% of his time spent on the class carrying on written conversations with his students. The other 60-70% is spent on grading or assessing student work in some way, and he says the divide between communication and assessing defines the division of his time perpetually. Communication and assessment make up his major tasks as an online instructor (in addition to the mentoring he does of other online instructors, including making adjustments and fixing broken tools in their Canvas sites). Ultimately, he notes that he must spend more time grading because of the volume of work, but that communication with students has more important impact. It's something that can't be faked or simulated.

On the subject of retention, his course cap is 20, and he started with 19. Of those 19, all participated in some way, 1 dropped the course early, and 1 student has not participated any further yet. This is, overall, a good retention report.

4.3.2.2.2 Video and New Media

Grant is more positive than Brett about the video itself, overall, but shares some concerns about instructional/lecturing videos (independently) with Brett. Grant thinks the approach in general is good (content presentation + loosely structured demo). Grant says he tried something like it in the past, but ultimately found it very time intensive with inconclusive engagement results. Showing the instructor's face and body language is probably the best good to come from videos featuring the instructor, but for continuity that means each instructor has to record videos

that may be redundant across classes—something that is more reasonable with written material (expecting instructors to write their own assignments/lectures/etc.) because it is more resource and time efficient in general. Since he uses an integrated textbook, he does wish the textbook author would include video introductions to textbooks to contextualize decisions they made (since instructors appear as textbook apologists or conformists to students through their adoption of the textbook content as a mass-market piece of media) and put a human face to the textbook, but at the same time he does not want textbooks to come with pre-recorded video lectures because they would not likely serve all classes they are intended for, similar to how most instructors couch their use of a textbook in a unique trajectory and make selective use of textbooks across classes. Overall, the issue with videos at individual institutions, Grant says, is that they necessitate more time and infrastructure for an end result that could be accomplished with more lo-fi tools (like text). He thinks his school has the teacher talent and (of course) plenty of content knowledge around which to make instructional videos, but the necessary infrastructure and time to make the videos (especially when communicating with individual students accomplishes the interpersonal goals of pedagogical videos while solving other problems is so cost effective) is the biggest limiting factor. Video, it seems, has the effect of creating a new media gatekeeping mechanism, especially for smaller schools or departments already underfunded.

Grant makes a larger point that the instructor presence and content of the video need to be connected meaningfully in some way to justify videos over other forms of delivery. When it comes down to it, in economical/market terms, the content is what's essential and the instructor presence is "very useful." The multimodality, sense of presence, and performative identity of the instructor are the value the videos add, not necessarily making videos a more effective way to "teach" alone, though they contribute to the well-being of the class if students watch them. Students may respond to videos better than written lectures, but that doesn't overcome the limitation that material is being presented, in fact, as a one-way lecture experience.

4.3.2.2.3 Survey Input

Grant prepared more active input on the survey I was designing for students following the cases. His interests were in how students navigate the course, how they determine "where" answers to their logistical questions can be found, what causes them confusion in navigating the

course, and if they have been able to successfully complete assignments without doing everything in a given module—essentially if his experience planning is paying off and actually benefits students in the ways he anticipates. He generally wants to know if more difficulty in the course comes from navigation/usability of the work itself, as students judge it. He is also interested in knowing if he is as approachable to students as he believes himself to be.

4.3.2.3 Case Data II Summary

Across both classes, communication is one of the major activities important to success. Both instructors invest significant time in building and maintaining their courses, and they devote a significant amount of time during the course dates to being available to communicate with students. While their information structures differ, information design is well planned by both, if a little bit fragile because of how the LMSs they use are geared toward multiple participants. Both view instructional videos and other new media as good if you have them, but come with a lot of trade-offs that aren't offset by the positives. Furthermore, video doesn't have a proven track record, in their experience, of generating engagement beyond textual equivalents⁴⁸. There seem to be clear tradeoffs in performing attention to students through new media and the way correspondence can directly achieve it. Both anticipate a necessary shift in how their time is spent towards more grading and assessment as work starts to come in, despite communication with students through email being a more impactful, higher priority.

4.3.3 Case Data III: Identity and Accessibility

The third set of interviews took place around the midpoint of both classes. Now that both teachers had a significant amount of time with their respective classes under their belts, I thought this an appropriate time to ask about how these teachers were perceiving and characterizing their students. As discussed elsewhere, student perspectives on OWI is something of a holy grail, and, though filtered through the instructor's lens, I felt it was important to both attempt to get a sense of the students' identities *in addition to* having the chance to observe how the instructors characterize the students themselves. This interview also focused on accessibility, a first principle (literally the OWI Standing Group's first principle) of online education. As such, I wanted to give these instructors a chance to talk about how they meet that requirement, the

⁴⁸ This is in line with Martinez et al's (2019) findings.

institutional support they have in fulfilling accessibility mandates, and what, if any, extra work it creates and whether or not that accessibility work is invisible or properly valued by their supervisors.

4.3.3.1 Case Data III: Brett Templeton

First, I asked about ‘who’ Brett perceives her students to be. Based on their overall tendency to communicate mostly in the evening and other clues from their writing, Brett perceives them as interns or otherwise employed full time, many of them out of state or out of the country. Brett also adds that there is less of a specific identity for classes overall in the summer since students are distributed more. Her students are definitely both time/schedule oriented in how they approach the class *and* interested in the material, though that interest has to come secondarily to their employment commitments (they have to make money ahead of their pursuit of enriching themselves). Convenience is the key, Brett says, to encouraging good communication and accountability practices with her class. She also notes the class is “cooperative” with her and each other. Overall, they seem to be pragmatic, their interest in the class tempered by the utilitarian and professional obligations they must fulfill. It is also noteworthy that the class and their other work and likely their top priorities, interleaved as concerns in their daily lives at this time.

When asked how the design of her class and the identity of students affect each other, Brett stresses consistency and continuity on presenting information of the course, especially when students are traveling, busy, or otherwise not bound to a single location (like a classroom or campus). Static content, like that based on text, accommodates more kinds of movement because it is not as rigid in form (i.e. students can use Google translate or other apps on it if they need to for context clues or has the text read to them by other apps) and text accommodates internet connections and data caps of even restrictive varieties the best. In the end, any inflexibility in course content is mitigated by the flexibility of the instructor, the crucial dynamic element in the class. The instructor’s flexibility, knowledge of the content area, and skill as a knowledge-maker overcome the obstinate nature of static information, no matter how well designed it is. As the designer of the information, as well, she has valuable insight and authority when answering student questions about it. She can speak to every blog, announcement, or other

item because she has made conscious choices in information placement she can explain to students if they have questions about it.

When asked about how students are interacting in the classes and what they learn from these interactions, Brett first remarks that the blogs and blog comments are the primary sites for this, and the results are what she generally considers good so far. Students at her institution have cultural affinity for the chat app GroupMe, and she is once again aware students use this to communicate privately outside the class (as is typical of any class), and perceives no problems or otherwise worth reporting—no complaints from students can only be interpreted as a positive to her because the communication is otherwise private. She has organized students into groups for projects along the following axes as they are available to her students: 1) varied strength levels among member 2) common interests, 3) and common speaker of English status. This kind of arrangement is meant to put students of varying skill levels in positions where they can learn from each other while reducing potential ‘outsider’ status is single members in the group. Student interaction is invaluable, Brett remarks, because of the variety of experiences, dynamics between people, and engagement it promotes. While it is typical for asymmetrical production among group members (in time spent, schedule, or amount produced), the overriding benefit is that students teach each other. Group interactions are less filtered and more dynamic than whole class discussions because they are a subset that can rapidly exchange (circulate) ideas, leading to more reconsideration and reformulation of opinions through social interaction (knowledge-making). The more constant participation among group members, the more opinions within the group evolve.

On the subject of the role accessibility plays in Brett’s course she, in reference to our last interview, notes that she’s geared her materials toward taking advantage of BlackBoard’s built in accessibility features by using BlackBoard text blocks when able, and has her longer Microsoft Word documents and PDF documents run through an accessibility checker before she posts them. She is now at the point of considering how, now that her own accessibility practices are routine, she can begin requiring students to submit work adhering to the same accessibility standards as a reflection of professional concerns and raising standards in digital communication to meet these needs as a baseline. Her concerns at the moment are how she would verify student work accessibility as it increases her workload without an appropriate trade-off (using the checker would require downloading every student document to check it). Furthermore, she has

workload concerns going forward, as she expects to take on a course overload in the Fall (based on fewer graduate instructors being available despite higher demand for FYC teachers at her institutions) and is hesitant to add to her own workload even more before acclimating to that. As it stands, she teaches accessibility as part of usability to her students. As far as other institutional accessibility-based developments, she is aware of new video recording stations on campus that offer captioning services, but notes that they still require self-editing, and the added time of 1) recording a video for isolated purposes and 2) editing more text (captions) without reducing her workload somewhere else, and that added work causes her to have to make a decision about time and work that casts accessibility in a light she is not comfortable with. She prefers to see it as something worth doing, not something that costs her or her students in some way (because it should not be).

A follow-up on amount and kinds of communication she is having with students indicates that she's not having as much incidentally, but that is because she is returning feedback on drafts of a current project which is generating conversation threads with individual students about their feedback and ideas for the project (a technical white paper). She is dealing with some schedule questions and other questions from students, but feedback comprises most of her work and communication at the moment (more in the Time and Retention update for this segment).

Class performance is on par with what she expects. The first project grades were in low B range, and she offers students revision options in this event.

There are no conflicts to report in the class. Because, congruous with Ocker et al's (2009) sixth variable, online conflict is hard to track, she is left to assume that no complaints from students means there is no conflict for her to address (because she cannot). She anticipates problems once group work starts, but has encountered none so far, and notes that the feedback she gives on assignments tends to satisfy student grade concerns.

4.3.3.1.1 Time and Retention II

As noted above, Brett is spending her time almost entirely on conversing about drafts and giving feedback over email, a combination of communication and assessment. She anticipated, based on past experience, that this stage of the class, where she is working with groups on white papers, will be her peak of business for this Summer teaching. She plans to spend 6 hours a day

on providing feedback to her students from both her classes, a self-imposed limit to avoid burning out on the process.

4.3.3.1.2 One More Thought from Brett

At the conclusion of our interview I, as I always do, gave Brett the opportunity to raise other issues not covered. On this occasion, Brett mentioned something I feel compelled to give specific voice to: a story many teachers will find recognizable. She said she found herself intellectually tired on the occasion of this interview because she had been reading a lot of white papers and was concerned about a specific group. This group noticed a trend in placement of data centers that, for green concerns, they noted but did not investigate. Brett had encourage them to spend more time investigating and reporting on why these data centers clusters like this, and in response the group had removed mention in favor of making broader arguments they could more easily defend. What interests me is the clear investment in student growth and success Brett developed in reading and responding to this work, evidenced by her plans to compose another response tuned to delicately push the group back toward specificity and motivate them to investigate without appearing punitive toward them. It evidences the kind of important intellectual work Brett, and teachers like her, engage in that is necessarily invisible. How will this work be reported in outcome reports? Students may appreciate it in the long run, but in what ways, when, and how will they express it?

Brett also makes a final point about how she could have avoided this backsliding, as she describes it, in this group's work ethic, through the design on her assignments or other course information. She laments that design should not revert to a form of handholding and muses on the possibility of information design to motivate this kind of deeper inquiry on its own.

Brett's professional disposition, her disciplinary knowledge, and her human concern for her students are on full display here. This is a kind of every day concern for her and other teachers that brings into focus the reality of the limits of technology, as communication infrastructure or user experience, itself to promote better knowledge-making, sans labor.

4.3.3.2 Case Data III: Grant Christian

Grant, in answering my first question about who he believes his students are this semester, begins by echoing a common online instructor concern: without the ability to visually

see his students regularly, he is more tentative in what he feels he ‘knows’ about them as people or learners. Moving from that caveat, he is fairly confident that this group is typical in terms of diversity with two notable exceptions: this class has more traditional age students and more students from other institutions enrolled for transfer credits. He gets this impression partly based on the work they are turning in, which is more generally complete than what he receives by this point. Usually, he translates, his class has more non-traditional students and more students from the core Community College’s population.

Asked about the relationships between the design of his class and the identity of his students, Grant says his major focus, in making that relationship positive, is on asynchronicity. Asynchronicity reflects his students’ need to be flexible with how they use their time, for family, health, or other reasons. In order to best serve a diverse population in a major urban center, his students need flexibility in order for education to complement the other demands of their time, their age, and their existing responsibilities/needs. Focusing on this ‘greatest need’ leads to design choices that all student can benefit from. Based on the same logic, Grant assigned less group work because it can be more burdensome to accomplish asynchronously with the tools he has/knows of. This, in his eyes, is a compromise.

On how his students are interacting and what they are learning from these interactions, Grant describes his students first as very courteous to each other, acknowledging there is a transactional element to student interaction. Student interaction, as he’s designed the course, happens on discussion boards. The benefits of discussion boards, as he sees it, are that students build trust in each other through small-scale peer responses. While the overall impact is ultimately unknowable and unmeasurable, Grant cites discussion boards as sites that build community and confidence collectively by each student adding to the conversation (incentivized by points for participating rather than ‘quality’ points), directly citing Bruffee’s theory on conversation and learning. Grant’s students to learn to participate in discussion.

Shifting to discussing accessibility, Grant feels it is weak, mostly because he feels that verifying accessibility is a fuzzy process. He is mostly concerned because, as an instructor, he finds it difficult to verify if what is deemed accessible is, indeed, accessible for students in the ways they need. His campus’s IT department is generally overloaded with requests of all kinds, making accessibility checks a low priority. Grant offers transcripts of any audio or video he posts along with image descriptions, and he relies heavily on the Canvas LMS to provide other

accessibility provisions. He also notes that his institution's disability service office will further supplement accessibility for students. Ultimately, he feels that he has to trust the design of the LMS for general accessibility, students should get all the additional support they need from specialists in an institutional office, and instructors should be made aware of the ways accessibility needs affect their courses. Because access is the top, overriding measure of online course quality, trust in an LMS is necessary as part of the division of labor, and therefore he strays from the LMS in very limited circumstances. This conversation underscores the vast power LMSs have over OWCs, because LMSs are absolute necessities, but they are not designed with OWI's best interests in mind, necessitating some kind of supplementary work by instructors or institutions.

As for communication with his students at this point in the class, he notes that a deadline is approaching and most students contact him with questions about that deadline or the assignment. As a general rule, he observes that as familiarity with the course goes up, contact with students goes down. Some students do contact him regularly about small logistical issues and other things, and these kinds of negotiations have a humanizing element for the teacher/student relationships. Overall, it seems that as students build trust in him as an instructor, they reach out more informally. Grant's attention is mostly on grading.

Grant feels this class is performing above average, compared to a Fall or Spring course as well as other Summers. Summers are not notably below traditional AY semester classes' performance, though. Grant thinks highly of all his students, it seems.

On the subject of conflict, Grant first notes that transactional classes usually generate more conflict between students and the instructor (because of different ways they understand the transactions). That, however, is not the case this semester. He mentions using TurnItIn as an accountability in different versions of this class, noting the conflict it causes over false-positives generated from paraphrasing issues.

Grant's class features an activity identifying and rhetorically analyzing "fake news." In past iterations of this module, students have opted out in order to avoid conflict—Grant again notes how his students seem averted to being sources of conflict on issues like this. Grant notes that he continues this assignment because it is timely and encourages much-needed thought on the subject of how we determine information is "fake." Grant seeks a way to teach criticism that does not create pure conflict.

4.3.3.2.1 Time and Retention II

Grant estimates that he is splitting his time evenly between grading and communicating with students at this point in the semester (about midway). He observes from experience that he shifts from the beginning of the semester doing an 80/20 split between communication and grading to an inverse 20/80 by the end of the semester. The inversion is fairly steady.

On retention, Grant's class settled in at 18 students early on. Of those remaining, one student is still not participating (an early development; reaching out to the student has not yielded responses—likely that have put the course out of their mind in favor of something else), and 2 students are not turning in enough work at this point to pass the class (should the trend continue). Grant finds this very positive, as it is not uncommon to have as many as 50% of the class on average fail of stop participating in the course (resulting in failure).

4.3.3.3 Case Data III Summary

Both Brett and Grant are deeply committed to their classes and student, even if they feel the relationship is incomplete somehow. Accessibility is also a top priority for both, and both express concerns about how the tension created by the commitment to diversity and the ways they strain to see their institution meeting their efforts and their students' demands.

4.3.4 Case Data IV: The Six Variables

Final interviews with case instructors focused, after final updates on time and retention, on how the six variables of Ocker et al (2009) played out in their classes, now that the classes were nearing completion. Responses to these questions would be compared to student responses on the survey that their students would receive following the class. I also gave the opportunities to appraise the class overall. As part of the interview, I explained that I would be asking about each variable, reiterated the definition for each I would be presenting to their students used on the survey (which had been reviewed by IRB at this point), and asked both instructors an open question about the presence of each variable and the source of each's formation.

As a reminder, the six variables influencing partially distributed team (PDT) success of Ocker et al's (2009 p4-5) are:

1. Shared identification: Shared team identity across distributed locations; despite being separated by time and space, shared values and goals with other members of the team/community
2. Trust: all team members feel accountable to each other. Team members trust everyone will do their best (regardless of results) and trust they can be vulnerable to each other (i.e. be respected in failure).
3. Awareness: Awareness of what other members of the team are doing as part of the team; awareness and transparency do equate to surveillance, i.e. not a process of extracting information or metadata that indicates productivity. All members feel that their work is collectively valued and important within the team.
4. Coordination: Logistical and organizing work to keep teams synchronized. Likely invisible work (Star 1999).
5. Competency: Belief that the team is effective, based on feedback.
6. Conflict: Reduction/prevention of conflict.

4.3.4.1 Case Data IV: Brett Templeton

4.3.4.1.1 Time and Retention III

Brett had moved to about 95% grading at this point, in preparation for submitting final grades and returning final assignments, and she was receiving questions and fielding concerns from students with about 5% of her time. Her class still had 19 students enrolled (of 20 potential), with 18 students active. Of those, she was not concerned any would fail. This was overall a good class from a retention standpoint.

4.3.4.1.2 Shared Identity: Brett

Brett first noted that Shared Identity is harder to form in Summer than in the traditional academic year. She estimated, regardless, that the identity of the class was largely built first on students representing their hometowns and past experiences to each other (in introductory discussion posts), and then from the course goals, namely the students learning to be consumer-oriented technical writers, writing for the purpose of consumer access to technical information, which would catalyze use cases for products, and ultimately generate product recommendations

(a prototypical Technical Communication view that information presented correctly generates a knowledge consensus).

Overall, there is a sense of trajectory in the shared identity Brett conceived of her students building: past experiences channeled through the class into a future mission.

She identified 1) introductory discussion posts, 2) the projects themselves, and 3) blogs+comments as sites of shared identity.

4.3.4.1.3 Trust: Brett

Brett felt that trust in the instructor was paramount, if only because it is the element most in her control and she can model positive relationships with students. Teamwork was also important to trust (as in if students are likely to withdraw from group work or make decisions as a group in solidarity). She felt trust was good overall, citing conversation evidence of students expressing the need to be respectful to English-as-Second-Language (ESL) students in the class (as opposed to seeing their language status as a handicap). Transparency of returning work to students (communicating timelines, providing candid updates on delays, humanizing the process of assessment) was also a big contributor to trust in her estimation.

She identified trust originating from 1) communication with students (more than anything), 2) Feedback on student work, 3) communication students have with each other, and 4) her course announcements. Communication between her and students over email was recurrently marked as important to many of the factors.

4.3.4.1.4 Awareness: Brett

Brett ties awareness to explicit group work rather than the class as a whole. On this front, she's made concerted effort. She knows that students talk about research topics for their white papers and must maintain good group awareness through project logs they keep publicly on BlackBoard. Furthermore, she's heard no issues which means there is not intervention she has had to make. She also notes that students ask questions of her with group members CC'd, indicating explicit moves to keep everyone aware of questions and answers.

She identified 1) communication among students, 2) project logs and other group work, and 3) communication between her and students as sites of awareness in the class.

4.3.4.1.5 Coordination: Brett

Brett's online classes have a lot of coordination mechanisms. Coordination is often a matter of teacher labor first and foremost, but students also do coordination work with each other. Coordination, in Brett's estimation, is evident through students meeting deadlines, developing a routine to get work done, updating their project blogs documenting their work, and submitting work as a group for feedback. Brett thinks coordination this semester has been better than others (pending the results of intragroup evaluations students do of each other that accompany final projects).

Brett identified 1) weekly schedules she provides, 2) feedback (including her short messages confirming she received materials from groups), 3) BlackBoard group pages, 4) the overall architecture of the BlackBoard site (her information design) and 5) communication between students as sources of coordination in the class.

4.3.4.1.6 Competency: Brett

Brett has received no complaints about grades, BlackBoard, or the unit sequences from students, indicating that students believe in the effectiveness of their work and the class. As far as the grades she's signed, she finds the competency on par with previous classes (generally, the first drafts are subpar and steadily improve from there). Blog responses also indicate to her uptake of the course concepts beyond the scope of the prompts, evidenced by earnest debates between the participants. All these are very clear, positive indicators to her.

She identifies 1) communication with students, 2) feedback to students, and 3) discussion responses as sites evidencing this positive result.

4.3.4.1.7 Conflict: Brett

Brett has seen no evidence of conflict this semester. She will not be surprised to see some mentioned in the groups' internal evaluations of each other, as group work is the most common place to find conflict as an instructor. As compared with other classes, the section I am observing has less evident conflict than some of the ones from previous years. For comparison, she briefly summarizes a story of a group that came to conflict over access and disability issues because they group did not meet flexibly. This bad instance (and others it is emblematic of) aside,

Summer classes generally are more cognizant of the need for flexibility, likely because the distribution of students is heightened.

She identifies 1) communication (in general) as contributive to reduced conflict, particularly around and about time zones, 2) making a point to update people on course developments, either in private or as mass-distributed messages as appreciate, and 3) having an accommodating spirit as means to reduce/prevent conflict.

4.3.4.1.8 Overall: Brett

Overall, Brett finds this section to be good, effective and positive. She cites her effort to be transparent and contactable to students as reasons for this, on her end, and notes that she hasn't gotten the typical volume of problems she usually does. She does note that students contacted her less this semester, but attributes to fewer of the being "nervous" about the class or assignments. Students are, however, making more inquiries to her for information about assignments and the course.

Overall, she believes her communication practices with students are the biggest contributor to the success of the class as a whole.

4.3.4.2 Case Data VI: Grant

4.3.4.2.1 Time and Retention III

Grant similarly rates his time as devoted 90% to grading and 10% to correspondence (about revision, late work, and grades themselves), continuing the trend of communication and assessment taking up the most time in a reciprocal inversion through the progression of the course.

Of the retention numbers Grant and I discussed last time, one more student has withdrawn, one has stopped participating, and one participates intermittently, brings his active participants to 15 for the close of the semester.

4.3.4.2.2 Shared Identification: Grant

Grant couches his discussion of his class's shared identity in the assertion that there is less voluntary interactivity in his online class than would be in an onsite class. Beyond that, he assumes the shared identity in his class is that of students as Community College students of this

particular institution as well as stemming from the degrees they intend on pursuing. The theme of his class in “inequality,” and he sees students organizing around that more than anything, saying his class is more persistent in following this topic and doing more peer work this semester.

He identifies 1) feedback, 2) course readings, 3) discussion boards, 4) peer responses, and 5) cover letters to projects as places his class’s shared identity comes through.

4.3.4.2.3 Trust: Grant

Grant rates his class’s sense of trust as “good” and “strong.” Building trust mechanisms is something he has practiced himself and with his students, so he feels confident about it.

He identifies 1) discussions (specifically their courteous nature), 2) communication with students (the respect he demonstrates for their arguments and transparency of his intents in contacting them), and feedback on student work on sites of trust building in his class.

4.3.4.2.4 Awareness: Grant

Awareness is also in a good place in his class, Grant estimates. The course is designed for students to work on independently and demonstrate their work to each other through peer reviews on discussion board, so process work is a public process in his class.

Grant identifies 1) discussions, 2) peer review, and 3) course announcements as sources of awareness in his class, in addition to the nature of his course, which he feels makes awareness an implicit value to substitute for taken-for-granted qualities of onsite classes.

4.3.4.2.5 Coordination: Grant

Grant is in a position, as a FYC course designer as well as teacher, to speak on coordination based on his work with other instructors as well as with his own class. Coordination coming from the structure of the class is functioning well. Students circumventing the modules to complete work is a coordination concern, because it can’t be tracked or accounted for in the pedagogical system, and designed documents render differently on different devices sometimes, which impedes the ability of those documents to effectively coordinate the dispersal of course information. Other instructors, he reports, are happy with the Canvas site, which is how he primarily interprets coordination (as information architecture on the course site). The way Canvas handles due dates of rolling assignments (like discussions) causes some problems.

Grant cites 1) Canvas modules, 2) clearly represented deadlines, 3) and the to-do list+calendar functions of Canvas as big sources of coordination. He also indicates 4) communication between teacher and student is a big contributor and 5) checking on student work and submissions early in the course helps make outreach to students more effective.

4.3.4.2.6 Competency: Grant

This is an above average class for Grant in terms of competency, which he finds evident in their willingness to experiment in their assigned work. As a course designer, he can speak to how the goals of the course are broken down into “competencies,” which are all accounted for in “tasks” assigned to students. The tasks are assigned, the, such that appropriate time to achieve them allocated by the students results in that competency being acquired. This flow from institutional-conceptual to student-practical is very reassuring to him as a teacher, in that the content of the class is designed through a team effort so that teachers can focus on humanizing that process with students.

Grant identifies 1) the assignments students turn in, 2) improvement in drafts over time, 3) statements in student cover letters, 4) and rubric-based grading as indicative sources of competency in his class.

4.3.4.2.7 Conflict: Grant

Grant’s class is, as far as he knows, conflict free. He thinks his commitment to a 36-hour response window, enhanced by both his and his students’ access to mobile devices, is the overall most, if not only, contributive factor to this success. He has not been alerted to any conflict by student, at least. In general, he notes that meeting student needs, even by simply answering their messages, reduces conflict, in addition to preventing other problems. Open communication lines create accurate perception between participants of issues and events, generate sympathy and further inquiries, and reduce default defensiveness between members of the class, including himself and which he models.

Naturally, he identifies 1) communication with students as the overwhelming site of conflict management in his class, also noting 2) that students seem to resist conflict in favor of pursuing course goals.

4.3.4.2.8 Overall: Grant

Overall, Grant feels confident, based on instructor feedback and student success, that the design of the Canvas course pages is effective. Retention and student success have been good this semester (over 50%), especially considering the difficulty of taking FYC as both a first online class and overall college class. He assigned source finding in stages and found that increased student retention compared to previous years. Canvas, he notes, has definitely proven better than BlackBoard overall, especially in how it helps student manage workload.

Grant has a few thoughts on how he would improve his class in future iterations: thinking about shared identity makes him consider adding videos again, but not in the form of synchronous meetings (they demand too much of his students whom he wants to benefit most). He wonders how he can get students to be more “direct and honest,” since the performative nature of some of the work adds to the overall labor of the class. He also wants to get less reliant on 3rd party applications, such as plagiarism checkers, hopefully through an institutionally developed alternative to the apps his school uses. Like the department-developed competencies, internally designed applications would likely lead similar positive results.

4.3.5 Interview and Observation Wrap-Up

This segment was the most empirically involved and revealing of how individual practices and decisions make differences in student performance. Both these teachers demonstrated great concern for their students and how they learned from their classes, especially concerning the invisible work they do, i.e. work not directly presented by the LMS or in a student-by-student basis, which they all cite as important to all of the six variables of successful teams. If trying to determine how to prepare students for knowledge-making in modern, digitally distributed networks, the experiences of these teachers are invaluable.

For the student perspective on these classes and the experience of being an online student, we must turn our attention to student survey results.

4.4 Student Surveys

The survey opened with a set of questions mirroring those asked of the case instructors in the final interview. Students were asked to rate (on a scale of 1-7) how various aspects of their class contributed to each of the six variables and then assign the variable in question a rating of

overall quality in their class (1-7). The second section attempted to collect demographic information to better understand the surveyed population, and the third section asked about LMS, technology, and other concerns raised by the instructors.

Students were asked to rate how each of the following categories contributed to the variables, one variable at a time:

- Assignment Descriptions on the Course Website
- Module Instructions or Weekly Schedules on the Course Website
- Email Conversations or Messages Directly with the Teacher
- Email Conversations or Messages Directly with Other Students
- Blog or Discussion Assignments
- Announcements from the Instructor on the Website or Mass-Emails
- Feedback from the Teacher attached to Completed Work
- Peer Review
- Individual Assignments
- Course Website Calendar or Task List
- Video Tutorials
- Grades (separate from feedback)

These categories were generalized from observations of the class and the case interviews, phrased in ways they could be used for both classes.

Surveys from the case study classes were supplemented with surveys of random OWCs from Brett's institution, an institution picked because of its preexisting relationship to the research. These classes were taught by teachers with relatively less OWI experience, some with a requirement to use consistent video lectures. These students are notable campus-bound while enrolled in the online class, meaning they are generally less distributed (by virtue of being campus-bound).

4.4.1 Section I: Students on the Six Variables

19 students responded, 7 from Brett's class and 12 from Grant's class. However, 18 students responded to questions about the Six Variables. 10 students from randomly selected classes responded, 6 from FYC classes and 4 from PTC classes, similar to the split in the case-related surveys.

4.4.1.1 Shared Identity

At least one student rated each category as highly contributive in both surveys.

Q4 - 1) Shared Identity - feeling that you, the class, your team, and/or your instructor

shared a team identity despite being in different locations

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
4	Email Conversations or Messages Directly with Other Students	4.00	7.00	6.33	1.15	1.33	18
5	Blog or Discussion Assignments	3.00	7.00	6.11	1.24	1.54	18
3	Email Conversations or Messages Directly with the Teacher	3.00	7.00	6.06	1.35	1.83	18
2	Module Instructions or Weekly Schedules on the Course Website	4.00	7.00	6.06	1.18	1.39	18
6	Announcements from the Instructor on the Website or Mass-Emails	3.00	7.00	5.94	1.47	2.16	18
12	Grades (separate from feedback)	2.00	7.00	5.72	1.66	2.76	18
10	Course Website Calendar or Task List	1.00	7.00	5.67	1.73	3.00	18
7	Feedback from the Teacher attached to Completed Work	1.00	7.00	5.50	1.92	3.69	18
1	Assignment Descriptions on the Course Website	2.00	7.00	5.50	1.46	2.14	18
8	Peer Review	2.00	7.00	5.44	1.86	3.47	18
9	Individual Assignments	1.00	7.00	5.39	1.60	2.57	18
11	Video Tutorials	1.00	7.00	4.67	2.33	5.44	18

Figure 4.3. Survey Results – Brett and Grant’s Classes: Shared Identity (Question 4)

Q4 - 1) Shared Identity - feeling that you, the class, your team, and/or your instructor

shared a team identity despite being in different locations

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
6	Announcements from the Instructor on the Website or Mass-E-mails	4.00	7.00	6.25	1.09	1.19	8
10	Course Website Calendar or Task List	4.00	7.00	6.00	1.12	1.25	8
3	Email Conversations or Messages Directly with the Teacher	4.00	7.00	6.00	1.12	1.25	8
7	Feedback from the Teacher attached to Completed Work	4.00	7.00	5.88	1.27	1.61	8
5	Blog or Discussion Assignments	4.00	7.00	5.88	1.27	1.61	8
2	Module Instructions or Weekly Schedules on the Course Website	4.00	7.00	5.75	1.30	1.69	8
9	Individual Assignments	4.00	7.00	5.63	1.41	1.98	8
1	Assignment Descriptions on the Course Website	4.00	7.00	5.63	1.22	1.48	8
12	Grades (separate from feedback)	2.00	7.00	5.50	1.66	2.75	8
4	Email Conversations or Messages Directly with Other Students	4.00	7.00	5.38	1.22	1.48	8
8	Peer Review	4.00	7.00	5.25	1.20	1.44	8
11	Video Tutorials	1.00	7.00	5.13	1.96	3.86	8

Figure 4.4. Survey Results – Randomly Selected Classes: Shared Identity (Question 4)

While there are differences in the overall top and bottom choices, Conversations Directly with the Teacher rank consistently high and Video Tutorials rank consistently low (last, to be specific). Video Tutorials did receive overall higher scores from the external classes, however, possibly because more were used. Brett and Grant's classes found communicative elements (messaging each other, blogs/discussion board, emailing with their instructor) overall most helpful while the external classes relied heavily on announcements and the course calendar for identity construction, along with communicating with their instructor. Modules and weekly task lists were also rated highly by Brett and Grant's classes. Peer Review also fared poorly in both classes in identity building. Oddly notable is how poorly the external classes, from less experienced OWI teachers, rated communicating with other students in building identity. These results are separated by about two months (August 2018 vs October 2018).

Student comments on shared identity from Brett and Grant's classes were entirely positive. One comment in particular speaks for many of the rest:

"It was apparent everyone had the same goal to do well in this class while also providing support towards each other in reaching this universal goal"

One student also commented on how grades made it seem like they were all united in a common measuring stick.

The randomly selected classes were also positive, noting how discussion helped build identity. One student noted that having optional synchronous meetings (format unspecified) would be a nice addition. It's unclear whether this refers to a hybrid class format request of synchronous video conference, but the request is noteworthy.

4.4.1.2 Trust

Trust also received at least one glowing rating for each category.

Q6 - 2) Trust - trust in accountability of other class members, trust to be vulnerable to

them

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Assignment Descriptions on the Course Website	1.00	7.00	5.33	1.83	3.33	18
2	Module Instructions or Weekly Schedules on the Course Website	1.00	7.00	5.78	1.62	2.62	18
3	Email Conversations or Messages Directly with the Teacher	3.00	7.00	6.44	1.12	1.25	18
4	Email Conversations or Messages Directly with Other Students	3.00	7.00	6.17	1.17	1.36	18
5	Blog or Discussion Assignments	2.00	7.00	5.72	1.69	2.87	18
6	Announcements from the Instructor on the Website or Mass-Emails	2.00	7.00	6.11	1.52	2.32	18
7	Feedback from the Teacher attached to Completed Work	2.00	7.00	5.83	1.67	2.81	18
8	Peer Review	3.00	7.00	5.33	1.63	2.67	18
9	Individual Assignments	2.00	7.00	5.72	1.41	1.98	18
10	Course Website Calendar or Task List	2.00	7.00	6.00	1.49	2.22	18
11	Video Tutorials	1.00	7.00	4.94	2.37	5.61	18
12	Grades (separate from feedback)	1.00	7.00	5.67	1.83	3.33	18

Figure 4.5. Survey Results – Brett and Grant’s Classes: Trust (Question 6-2)

Q6 - 2) Trust - trust in accountability of other class members, trust to be vulnerable to

them

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
10	Course Website Calendar or Task List	4.00	7.00	5.88	1.27	1.61	8
2	Module Instructions or Weekly Schedules on the Course Website	4.00	7.00	5.75	1.39	1.94	8
7	Feedback from the Teacher attached to Completed Work	4.00	7.00	5.50	1.00	1.00	8
6	Announcements from the Instructor on the Website or Mass-E-mails	4.00	7.00	5.50	1.32	1.75	8
3	Email Conversations or Messages Directly with the Teacher	4.00	7.00	5.50	1.32	1.75	8
12	Grades (separate from feedback)	2.00	7.00	5.38	1.73	2.98	8
11	Video Tutorials	1.00	7.00	5.38	1.93	3.73	8
9	Individual Assignments	4.00	7.00	5.38	1.11	1.23	8
1	Assignment Descriptions on the Course Website	4.00	7.00	5.38	1.41	1.98	8
8	Peer Review	4.00	7.00	4.75	1.09	1.19	8
4	Email Conversations or Messages Directly with Other Students	3.00	7.00	4.75	1.30	1.69	8
5	Blog or Discussion Assignments	3.00	7.00	4.63	1.11	1.23	8

Figure 4.6. Survey Results – Randomly Selected Classes: Trust (Question 6-2)

Module or Weekly instructions built trust highly as rated by both sets of classes. Brett and Grant's classes gave very high overall ratings to communicating with the instructor, followed by communicating with each other, in building trust within the class. The random classes also found communicating with instructors very trust-building, and both classes found announcements reassuring. Peer Review again fell in the bottom ranks, more indication of this element needing rethinking. Notably, the random classes also ranked communicating with each other and discussion boards as not contributing as well to trust, though the mean scores for the random classes were all densely packed and overall lower, from 4.63 to 5.88 (of 7 as highest). Brett and Grant's classes displayed more concerted ranking, ranging from 4.94 to 6.44.

Students generally commented on the importance of trust and the nature of trust when lacking face-to-face contact. One respondent from Brett or Grant's class mentioned making extra

effort to be professional to compensate for lack of face-to-face trust. Brett and Grant's respondents generally told of how they came to trust other students through the class. One of the random respondents talked of the primacy of the relationships they had with the instructor because of the direct connection, saying:

"It is hard to establish trust with fellow student given that you don't know them face to face and have limited contact with them. It is easy to trust an instructor because they're your direct contact."

The student does not necessarily note that they had face-to-face contact with the instructor, simply referring to them as an anchor and constant contact point.

4.4.1.3 Awareness

The random classes again have tightly-packed responses to how Awareness comes through in their classes (5-5.63), while Brett and Grant's classes have a more defined spread (4.72-6.28).

Q9 - 3) Awareness - satisfying awareness of what other class members are doing as part of the class (team members, instructor)

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
4	Email Conversations or Messages Directly with Other Students	2.00	7.00	6.28	1.28	1.65	18
5	Blog or Discussion Assignments	3.00	7.00	5.89	1.29	1.65	18
2	Module Instructions or Weekly Schedules on the Course Website	2.00	7.00	5.89	1.66	2.77	18
10	Course Website Calendar or Task List	2.00	7.00	5.83	1.50	2.25	18
6	Announcements from the Instructor on the Website or Mass-E-mails	2.00	7.00	5.83	1.61	2.58	18
3	Email Conversations or Messages Directly with the Teacher	2.00	7.00	5.83	1.42	2.03	18
9	Individual Assignments	2.00	7.00	5.78	1.55	2.40	18
12	Grades (separate from feedback)	1.00	7.00	5.56	1.86	3.47	18
8	Peer Review	4.00	7.00	5.50	1.50	2.25	18
7	Feedback from the Teacher attached to Completed Work	2.00	7.00	5.39	1.67	2.79	18
1	Assignment Descriptions on the Course Website	2.00	7.00	5.39	1.70	2.90	18
11	Video Tutorials	1.00	7.00	4.72	2.18	4.76	18

Figure 4.7. Survey Results – Brett and Grant’s Classes: Awareness (Question 9-3)

Q9 - 3) Awareness - satisfying awareness of what other class members are doing as part of the class (team members, instructor)

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
6	Announcements from the Instructor on the Website or Mass-E-mails	4.00	7.00	5.63	1.32	1.73	8
11	Video Tutorials	1.00	7.00	5.50	2.00	4.00	8
5	Blog or Discussion Assignments	4.00	7.00	5.50	1.32	1.75	8
10	Course Website Calendar or Task List	3.00	7.00	5.38	1.49	2.23	8
8	Peer Review	4.00	7.00	5.38	0.99	0.98	8
7	Feedback from the Teacher attached to Completed Work	1.00	7.00	5.38	2.06	4.23	8
4	Email Conversations or Messages Directly with Other Students	2.00	7.00	5.38	1.58	2.48	8
12	Grades (separate from feedback)	1.00	7.00	5.25	1.92	3.69	8
3	Email Conversations or Messages Directly with the Teacher	1.00	7.00	5.25	1.98	3.94	8
9	Individual Assignments	3.00	7.00	5.13	1.27	1.61	8
1	Assignment Descriptions on the Course Website	2.00	7.00	5.13	1.76	3.11	8
2	Module Instructions or Weekly Schedules on the Course Website	1.00	7.00	5.00	2.00	4.00	8

Figure 4.8. Survey Results – Randomly Selected Classes: Awareness (Question 9-3)

Direct communication with the instructor has an overwhelming positive effect on awareness in Brett and Grant's classes, followed by blogs and discussions, and weekly modules. The random classes rate course announcements highest, followed by video tutorials, and blogs and discussions. Notably, the ratings these random classes provide would fall in the bottom half of Brett and Grant's student ratings. Feedback, Assignment Descriptions, and Videos contributed least to awareness in Brett and Grant's classes, while individual work, Assignment Descriptions, and Weekly Modules were least effective in the random classes.

In comments, Brett and Grant's students connected awareness to clarity of instructions and how well they felt the instructor's positive presence in the course. The random class students commented on class procedures and on how they were more inclined to guess what to do on unclear assignments than contact the instructor:

”Interpretation of tasks can be difficult sometimes without a quick question or two and its a whole lot easier to just go ahead and do something instead of sending an email to ask for clarification.”

This is a curious logic, that the student would prefer to guess at doing an assignment right then contact the instructor. There seems to be a disconnect of labor, on either or both sides, evident here.

4.4.1.4 Coordination

Coordination is an interesting variable to get student opinions on, since it is mostly recognizable in the teacher’s, often invisible, labor. How students recognize it can provide insight into how they view their teacher’s labor. Brett and Grant’s classes again featured a more defined spread.

Q11 - 4) Coordination - logistical and organizing work that kept the class and groups

synchronized

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
6	Announcements from the Instructor on the Website or Mass-E-mails	3.00	7.00	6.11	1.15	1.32	18
10	Course Website Calendar or Task List	2.00	7.00	6.06	1.35	1.83	18
3	Email Conversations or Messages Directly with the Teacher	2.00	7.00	6.06	1.35	1.83	18
4	Email Conversations or Messages Directly with Other Students	3.00	7.00	6.00	1.25	1.56	18
2	Module Instructions or Weekly Schedules on the Course Website	2.00	7.00	5.83	1.42	2.03	18
1	Assignment Descriptions on the Course Website	4.00	7.00	5.78	1.23	1.51	18
9	Individual Assignments	2.00	7.00	5.67	1.49	2.22	18
5	Blog or Discussion Assignments	2.00	7.00	5.67	1.56	2.44	18
8	Peer Review	2.00	7.00	5.61	1.67	2.79	18
7	Feedback from the Teacher attached to Completed Work	3.00	7.00	5.61	1.42	2.02	18
12	Grades (separate from feedback)	2.00	7.00	5.28	1.73	2.98	18
11	Video Tutorials	1.00	7.00	4.67	2.24	5.00	18

Figure 4.9. Survey Results – Brett and Grant’s Classes: Coordination (Question 11-4)

Q11 - 4) Coordination - logistical and organizing work that kept the class and groups

synchronized

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
7	Feedback from the Teacher attached to Completed Work	4.00	7.00	5.88	1.17	1.36	8
3	Email Conversations or Messages Directly with the Teacher	4.00	7.00	5.88	1.27	1.61	8
12	Grades (separate from feedback)	3.00	7.00	5.75	1.48	2.19	8
6	Announcements from the Instructor on the Website or Mass-Emails	4.00	7.00	5.75	1.30	1.69	8
2	Module Instructions or Weekly Schedules on the Course Website	4.00	7.00	5.75	1.39	1.94	8
11	Video Tutorials	4.00	7.00	5.63	1.22	1.48	8
1	Assignment Descriptions on the Course Website	4.00	7.00	5.63	1.41	1.98	8
10	Course Website Calendar or Task List	4.00	7.00	5.50	1.32	1.75	8
9	Individual Assignments	4.00	7.00	5.50	1.12	1.25	8
5	Blog or Discussion Assignments	4.00	7.00	5.50	1.32	1.75	8
8	Peer Review	4.00	7.00	5.38	1.22	1.48	8
4	Email Conversations or Messages Directly with Other Students	3.00	7.00	5.00	1.50	2.25	8

Figure 4.10. Survey Results – Randomly Selected Classes: Coordination (Question 11-4)

Brett and Grant's students recognized Coordination most in announcements, the LMS calendar or compiled task lists, communicating with the instructor, and communicating with each other. The random respondents recognized coordination in feedback from their teacher, communicating with the instructor, grades themselves, announcements, and weekly modules. Peer review again fared badly across both. Brett and Grant's students reversed the random students in thinking that feedback and grades were not high sources of coordination. The random classes, again, felt that Discussion assignments and communicating with their peers directly were not as helpful to coordination, as were LMS-generated calendars and individual assignments.

All student comments focused on praising organization of their respective classes, showing appreciation for the coordination work of the instructors overall.

4.4.1.5 Competency

Competency ratings featured the most overlap in responses thus far.

Q13 - 5) Competency - belief that work of the class (as individuals, groups, and whole) is effective

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
3	Email Conversations or Messages Directly with the Teacher	2.00	7.00	6.22	1.31	1.73	18
4	Email Conversations or Messages Directly with Other Students	2.00	7.00	5.94	1.39	1.94	18
2	Module Instructions or Weekly Schedules on the Course Website	2.00	7.00	5.94	1.43	2.05	18
10	Course Website Calendar or Task List	2.00	7.00	5.89	1.56	2.43	18
1	Assignment Descriptions on the Course Website	2.00	7.00	5.89	1.52	2.32	18
9	Individual Assignments	3.00	7.00	5.83	1.42	2.03	18
6	Announcements from the Instructor on the Website or Mass-E-mails	2.00	7.00	5.83	1.71	2.92	18
7	Feedback from the Teacher attached to Completed Work	2.00	7.00	5.61	1.77	3.13	18
12	Grades (separate from feedback)	2.00	7.00	5.50	1.74	3.03	18
5	Blog or Discussion Assignments	2.00	7.00	5.44	1.71	2.91	18
8	Peer Review	2.00	7.00	5.39	1.77	3.13	18
11	Video Tutorials	1.00	7.00	4.89	2.26	5.10	18

Figure 4.11. Survey Results – Brett and Grant’s Classes: Competency (Question 13-5)

Q13 - 5) Competency - belief that work of the class (as individuals, groups, and whole) is effective

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
10	Course Website Calendar or Task List	4.00	7.00	6.00	1.12	1.25	8
3	Email Conversations or Messages Directly with the Teacher	4.00	7.00	6.00	1.12	1.25	8
2	Module Instructions or Weekly Schedules on the Course Website	4.00	7.00	5.88	1.05	1.11	8
7	Feedback from the Teacher attached to Completed Work	3.00	7.00	5.75	1.48	2.19	8
12	Grades (separate from feedback)	2.00	7.00	5.63	1.73	2.98	8
6	Announcements from the Instructor on the Website or Mass-E-mails	4.00	7.00	5.63	1.22	1.48	8
8	Peer Review	4.00	7.00	5.38	0.86	0.73	8
9	Individual Assignments	3.00	7.00	5.25	1.20	1.44	8
1	Assignment Descriptions on the Course Website	4.00	7.00	5.25	1.39	1.94	8
4	Email Conversations or Messages Directly with Other Students	4.00	7.00	5.13	1.27	1.61	8
11	Video Tutorials	2.00	7.00	5.00	1.58	2.50	8
5	Blog or Discussion Assignments	4.00	7.00	5.00	1.00	1.00	8

Figure 4.12. Survey Results – Randomly Selected Classes: Competency (Question 13-5)

Both groups rated direct communication with their instructor and weekly modules as highly contributive to their sense of competency in their classes. Brett and Grant's students also rated communication with each other highly while the random students rated the LMS high. Videos and Discussion were common low points, while Brett and Grant's students didn't see peer review as contributive and the random students, again, felt communicating with each other was not helpful to their sense of competence.

One comment from Brett and Grant's group noted that their sense of competence grew as the class progresses. One of the random students commented that a face-to-face class would have worked better for them:

"The class is easy to understand, but it would be less difficult to understand assignments if I could be in class with the teacher."

4.4.1.6 Conflict

Conflict also had a tighter collection of responses in the random classes (5.13-6) as opposed to Brett and Grant's classes (5.06-6.39).

Q15 - 6) Conflict - contributed to the prevention or reduction of conflict in the class

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
4	Email Conversations or Messages Directly with Other Students	4.00	7.00	6.39	0.95	0.90	18
3	Email Conversations or Messages Directly with the Teacher	4.00	7.00	6.22	0.97	0.95	18
2	Module Instructions or Weekly Schedules on the Course Website	2.00	7.00	6.17	1.34	1.81	18
6	Announcements from the Instructor on the Website or Mass-E-mails	2.00	7.00	6.06	1.35	1.83	18
10	Course Website Calendar or Task List	2.00	7.00	6.00	1.45	2.11	18
1	Assignment Descriptions on the Course Website	2.00	7.00	6.00	1.49	2.22	18
9	Individual Assignments	2.00	7.00	5.83	1.50	2.25	18
8	Peer Review	3.00	7.00	5.61	1.53	2.35	18
5	Blog or Discussion Assignments	2.00	7.00	5.61	1.80	3.24	18
7	Feedback from the Teacher attached to Completed Work	2.00	7.00	5.56	1.74	3.02	18
12	Grades (separate from feedback)	1.00	7.00	5.50	1.83	3.36	18
11	Video Tutorials	1.00	7.00	5.06	2.20	4.83	18

Figure 4.13. Survey Results – Brett and Grant's Classes: Conflict (Question 15-6)

Q15 - 6) Conflict - contributed to the prevention or reduction of conflict in the class

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
6	Announcements from the Instructor on the Website or Mass-Emails	4.00	7.00	6.00	1.32	1.75	8
3	Email Conversations or Messages Directly with the Teacher	4.00	7.00	6.00	1.32	1.75	8
2	Module Instructions or Weekly Schedules on the Course Website	4.00	7.00	6.00	1.22	1.50	8
10	Course Website Calendar or Task List	4.00	7.00	5.88	1.27	1.61	8
9	Individual Assignments	4.00	7.00	5.75	1.20	1.44	8
7	Feedback from the Teacher attached to Completed Work	4.00	7.00	5.75	1.20	1.44	8
1	Assignment Descriptions on the Course Website	4.00	7.00	5.75	1.39	1.94	8
5	Blog or Discussion Assignments	4.00	7.00	5.38	1.11	1.23	8
12	Grades (separate from feedback)	1.00	7.00	5.25	1.98	3.94	8
11	Video Tutorials	1.00	7.00	5.13	1.96	3.86	8
8	Peer Review	4.00	7.00	5.13	0.93	0.86	8
4	Email Conversations or Messages Directly with Other Students	2.00	7.00	5.13	1.69	2.86	8

Figure 4.14. Survey Results – Randomly Selected Classes: Conflict (Question 15-6)

Brett and Grant's students found communicating with each other, with Brett and Grant, and having weekly modules as the biggest reducers/preventative factors in conflict reduction, whereas the random students also preferred email with their instructor and weekly modules reduced conflict best, adding announcement in favor of communicating with each other. Both groups rated course videos low, while Brett and Grant's students found feedback less helpful along with grades themselves, and the random classes rated peer review low and continued the trend of rating communication with each other low.

Comments on this subject varied. Brett and Grant's students commented that there was no conflict in their class, that there was certainly more conflict than in an in-person class, that they wished for grades to be returned sooner, and that their instructor helped a great deal in preventing conflict. The random student comments were that there was no conflict, and that online defensiveness leads to more conflict because people don't explain themselves adequately.

If nothing else, these comments solidify Ocker et al's claim that conflict is harder to track online, since it does not exist in the open, and nonverbal signs of conflict are harder to track online.

4.4.1.7 Six Variables Overall

Brett and Grant's students had a higher mean ratings range than the random students, through the order of variable changed. These ratings are not best interpreted as rankings, but as overall scores the preceding questions contribute to.

Q17 - Overall, how would you rate each of the six categories in this class? (1=poor, 7=great)

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
6	Conflict - prevention or reduction of conflict	2.00	7.00	6.06	1.27	1.61	18
4	Coordination - synchronization of the class	2.00	7.00	5.83	1.30	1.69	18
2	Trust - class members trust each other	2.00	7.00	5.83	1.50	2.25	18
1	Shared Identification - the class has a shared identity	3.00	7.00	5.61	1.46	2.13	18
5	Competency - effectiveness of work	2.00	7.00	5.56	1.54	2.36	18
3	Awareness - class members know what is going on	1.00	7.00	5.22	1.75	3.06	18

Figure 4.15. Survey Results – Brett and Grant's Classes: Overall Rating (Question 17)

Q17 - Overall, how would you rate each of the six categories in this class? (1=poor, 7=great)

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
6	Conflict - prevention or reduction of conflict	4.00	7.00	5.75	0.97	0.94	8
4	Coordination - synchronization of the class	4.00	7.00	5.75	1.09	1.19	8
3	Awareness - class members know what is going on	4.00	7.00	5.75	1.09	1.19	8
5	Competency - effectiveness of work	4.00	7.00	5.25	1.20	1.44	8
2	Trust - class members trust each other	3.00	7.00	5.00	1.32	1.75	8
1	Shared Identification - the class has a shared identity	3.00	7.00	4.88	1.36	1.86	8

Figure 4.16. Survey Results – Randomly Selected Classes: Overall Rating (Question 17)

Brett and Grant's students rated their classes higher on Conflict (6.06 to 5.75), Coordination (5.83 to 5.75), Trust (5.83 to 5.0), Shared Identification (5.61 to 4.88), and Competency (5.56 to 5.25). The random students rated their classes higher on Awareness (5.75 to 5.22), though it's worth noting that Brett and Grant's students responded at a higher overall rate and the mean ratings for Brett and Grant's ratings result from wider overall ratings from individuals (more wide-ranging opinions).

Given the chance to comment on the class overall, comments were mostly positive. Students from Brett and Grant's pool said:

"Writing assignments have always been my least favorite thing about school so I was initially dreading taking this class as it is centered around papers. However, I was surprised to find myself enjoying this class and I believe this positive attitude change of mine regarding papers can be attributed to how heavily this course relied on peer feedback and interaction."

and

"It was a completely new and different experience, especially since it was my first time taking a class online. I guess I have more confidence now to take up an online class"

One of the random students had this to say:

"This is my fifth online (Institution) class. It has been the most clearly defined class that I have taken and I've felt more of a connection in this class than any others I've taken. Previous classes were in Communications x 2, History and Gender Studies. They could learn a lot from this layout. The Summer Communications class that I had gave me absolutely no sense of being in a class or connection with the instructor and I think this led to my "B" grade in a class that I could have easily achieved an "A"."

Still, another had this to say:

"I feel like many of the assignments are "busy work" and unnecessary."

These comments typical the complex and contradictory nature of individual student relationships to their online classes and learning. Some respond well to the online format, while others complain about the amount of "busy work." Students do not speak with one voice, but these comments represent the value online education opportunities bring to students along with the pedagogical frustration they feel, in line with Martinez et al's findings on pedagogical directness.

In response to the individual ratings of each elements to its impact on each variable, the random classes trend toward using more of the technocratic elements of their classes while Brett and Grant's classes trend toward more interpersonal dependence. Value for the instructor is high in both, but Brett and Grant's students also value each other more than the random classes' students. Whether attributable to the experience of Brett and Grant or not, their students found communication in general to be a useful tool in success, while the random class students preferred to rely on the instructors or class materials over each other.

4.5 Concluding Thoughts on Results

This collective data displays a narrative throughput from instructor concerns, deep engagement with experienced instructor's coping methods for teaching online, and how students interpret and experience that work while doing their own work. To make meaning from this data, it must be more usable and narrated further. The next and final chapter of this dissertation constitutes that rhetorical move to transforming this data into information through labor.

CHAPTER 5. DISCUSSION AND CONCLUSIONS FROM THE INQUIRY

The previous chapter presented data of an empirical inquiry into how online writing classes (OWCs) are navigating the challenges of teaching knowledge-making as a rhetorical activity in an ecology driven by information-centric technology networks, circulation, and market logic. This chapter will consciously transform that data into a series of informative patterns in the hopes that they align with the experiences of those who encounter them. Specifically, this chapter will progress by re-addressing the research questions that began this inquiry, sharing conclusions drawn by the researcher from each individual segment (focus groups, cases, surveys), and finish by drawing conclusions from the whole body of data as much as possible.

5.1 Original Research Questions

This inquiry started with the following questions:

1. How can online education network together individuals and their embedded places without emphasizing virtual space as the primary site of learning?
2. How can online education teach expertise rather than competency through its unique networked affordances?
3. How can distributed, mobile education teach research as a daily practice that scales to different needs/inquiries and surfaces new information for the researcher, instead of as a one-size-fits-all approach or is a means to validate (virtual) hypotheses?

These questions should be followed-up with first before moving to new insights gleaned from the undertaking of the inquiry itself.

5.1.1 RQ1: How can online education network together individuals and their embedded places without emphasizing virtual space as the primary site of learning?

This question took aim at addressing how OWI resists technocratic utilitarian instruction while still taking advantage of the advanced tools information technology provides students and teachers with, or in other words, how the teachers and students connect to each other, bridging the distance between them in telepresence fashion, without recreating the distance through

virtual vastness. The material reality of distributed teams is that they are in many different places, so this question sought to inquire into how those places could constitute multiple simultaneous sites of learning rather than needing a flattened or dis-placed virtual environment to meet in. This question followed the logic that knowledge-making is experience sharing and therefore could still make use of technology to communicate place and experience as part of data patterns (information/ideas). Essentially, this question gets at how technology can share the totality of an experience, not just the isolated bits specifically encoded for transfer as in the Shannon-Weaver model. This issue is popularly associated with Virtual Reality in the current moment, but this question seeks to return to the idea that the most effective communication need not necessarily be dependent on expensive hardware and high-bandwidth modes of distribution. Writing classes make a good opportunity to study this because they must try to achieve just that on a wide scale using cost-effective technology for democratic purposes.

In very simple terms, this question seeks to answer how OWI teachers accomplish virtual place-making as opposed to virtual space-making, place defined here as a bounded, personal thing shared by people, whereas space is an unbounded, ephemeral, and purposefully impersonal area.

This question is visible in the way instructors find fault with the technology and support they are given. Focus group participants used to having faces to look at in any given moment feel this loss in the way their students' tacit presence or unconscious expressions communicate something to them, and virtual spaces (LMSs), as they are designed, do not do much to enhance place-making. The instructors in the cases were chosen for their experience teaching online to see how/if they accomplish place-making through their classes for the most diverse student populations available. Limitations aside⁴⁹, these instructors sufficiently demonstrated their skills in this department, especially given the limitations and unknowns of teaching any class. Their interviews reveal, and surveys confirm, that their reliance on LMS technology is only insofar as it gives them context and room to communicate with students, accomplishing the place-making. Both these instructors report that they spend their time during the semester communicating with individual students and grading work, the skilled work that must be done when real students are involved. Communicating directly with individual students was the most contributive factor in

⁴⁹ No way to know who their students would be before the class started, no way to know how the students would perform, and no safe a dignified way to measure other factors in student lives during the class.

Trust, and Competency, and a major contributive factor in Shared Identity, Coordination, and Conflict Reduction. Students communicating directly with each other (i.e. not on message boards or blogs) was the top factor in Shared Identity, Awareness, and Conflict reduction, and a major factor in Trust, Coordination, Competency, and Conflict reduction. The overlap (and contrast with inexperienced OWI teachers' students who rate communicating with each other as generally unhelpful) suggests that the time and labor Brett and Grant devote to communicating with their students has a generative positive effect on other elements and modes of the class, either by modeling effective communication (i.e. correspondence), or by setting a precedence that correspondence is important and valuable. This is in line with Fishman's reports that dialogic interactivity is an invaluable advantage of distance education, offering flexibility, personalization, and accessibility at scale through digital correspondence mediums. Mass-discussion and distribution mechanisms (message boards and community announcements) have positive effect in other ways related to course "content," but dialogic interactivity serves OWI goals infrastructurally by making communication through writing (organizing thoughts into a legible pattern for an audience across time and space) a constant, foundational practice of the class.

The teachers' discussion of new media reveals that the ways it is helpful are indirect and often supplemented by textual communication. New media also raises additional accessibility needs in ways that current accessibility automation cannot handle with 100% accuracy (automatically generated captions, for example) and at a time when all instructors, both in the cases and especially in the focus groups, worry about institutional support for. At the very least, comments of these instructors and survey responses from students (who rate new media as a middling factor, at best, in the six variables) require online educators to focus, when considering design of new media materials, on what they can accomplish that cannot be accomplished through text, and how to preserve reciprocal, dialogic interactive relationships with students through new media (i.e. can students respond in kind with the same kind of support and effectiveness). Reciprocity is the key thing to focus on in this result: in implementing new media in online classes, these results indicate it should preserve dialogic interactivity. In terms of how teacher labor is best distributed, an overall goal of this inquiry, dialogic interactivity still seems to be the best investment of time: being available to interact with students in ways they can comfortably respond to the instructor in kind, to build knowledge-making relationships.

By making a “place,” people can see themselves and a narrative materiality there (i.e. grasp their spatiotemporal existence) and find meaning in it, and dialogic interaction is the labor teachers engage in to make that happen in online classes for students.

5.1.2 RQ2: How can online education teach expertise rather than competency through its unique networked affordances?

This question grapples with how online teachers move beyond distributing information to teaching knowledge-making to students. The market-logic framework of circulation rhetoric makes it seem as if knowledge is an organic product of information, and therefore education, including (and perhaps especially) online education, should be an index of ideas or a stockpile from which students can ‘invest’ to produce knowledge using the technologies at their disposal combined with their entrepreneurial spirit. The idea of “expertise” over “competence” tries to move beyond what neoliberalism argues is impossible: expertise is imperfect and impossible because it resides in the individual, which is inherently lacking, so it cannot therefore be taught. Given the confluence of circulation rhetoric, information technology, and market logic, this question therefore seeks to answer how teachers teach students to move from collecting data, to assembling information, to making knowledge through social processes—something accomplishable by individuals but reliant on there being a “social” to make knowledge with. If information is, indeed, a commodity as information scientists have observed, it stands to reason that the distinctive skill to teach students is how to make knowledge with each other and to recognize processes and consequences of knowledge made.

There are two ways, based on the data collected, to look at how instructors achieved this: looking at the overall contributive factors of the six variables as indicators of the effective social context of the classes (perhaps with special attention to “Competency” as faith in the content of the class from teacher and student perspective), or to track the way different social mechanisms surface in the class.

In the first respect, the results cited from the previous section make similar impact here: dialogic interactivity makes up a key factor in all six variables in a way that cannot be completely automated or handled technocratically, because part of what students like about it is knowing there is a real person to interact with—they do not just want their questions answered but answered in a way that highlights the spatiotemporal links between them and the person they are communicating with (networking their experiences together in some way). It’s worth noting

that blogs or discussion boards played a role in many variables as well, (Shared Identity and Awareness) but they don't fully substitute for dialogic interaction, instead serving as an additional valid pedagogical tool.

Going beyond dialogic interaction, it's worth noting that the work of the instructor, notably in Coordination but in all the other variables as well, is to create that social context—that place for the class—so considering the relationship between the work and class units and the social structure of the class is likely productive for OWI.

It's also worth noting that grades, the other big time and labor commitment Brett and Grant reported, were generally low in their contributive value to the six variables (even competency). We can also see that the less-experienced instructors' students did value grades more, from which we can take that a sign of experience (an 'expertise' of teaching so to speak) is the ability to act as an anchor for knowledge-making and mentor in social participation in an online class—not as a source of knowledge or information. Teachers, of course, need to have that knowledge and information still, as evidenced by Martinez et al's findings that students want a teacher's attention because they feel they benefit from their teacher's expertise. The skilled labor of teaching, in this respect, is mentoring and modeling advanced knowledge-use in ways students can adapt to their own lives (Merrill 2002). The more latitude and time teachers are given to treat their students as individuals, the more successful their online teaching is likely to be.

5.1.3 RQ3: How can distributed, mobile education teach research as a daily practice that scales to different needs/inquiries and surfaces new information for the researcher, instead of as a one-size-fits-all approach or is a means to validate (virtual) hypotheses?

This question tackles a larger issue of how the process of moving from collecting data, to assembling information, to making knowledge can still be considered in human terms and either not become a black-box (automated) process or privatized (corporatized)—essentially how research, as a practice, can remain in the public domain in ways that different sized public groups can accomplish. This question moves from how to effectively teach knowledge-making to how to keep knowledge itself from becoming a commodity through privatization and scale (worldviews received as products sold by private corporations, as Zuboff describes). This question engages with the intersectional mission of rhetoric in knowledge-making: finding

solutions to the biggest problems, necessitating representation for those suffering the biggest problems.

This question provided much needed motivation to push the inquiry to the data it collected, but this question ultimately proved too large and lofty for the inquiry as it was accomplishable. It is tempting, especially based on the high performance of dialogic interactivity in the case studies and student surveys, to conclude that dialogic interactivity forestalls the automation and privatization necessary to take knowledge-making out of the public's domain. At the very least, one could assume that dialogic interactivity's high performance value indicates that students do not want to 'receive' knowledge or information, but want to be participants in crafting it as part of a public process. Therefore, further work and study is needed in this area. Fortunately, this inquiry has provided other insights and motivation to the researcher to keep pursuing this inquiry, which the researcher intends to uphold.

5.2 Generative Case Observations

In pursuing the above research questions, the inquiry, particularly the case studies, yielded some observations worth sharing that connect to the purpose of the research questions and the literature reviewed to prepare for the inquiry. They are collected in this section.

5.2.1 Course Structure

Both instructors used a course structure (LMS load out+units) they had built prior to the semester in order to save their time for dialogic interaction and assessment. Given the current state of institutional support, time available to OWI instructors, and compensation scheme OWI instructors are governed by, this division of labor makes sense for the instructor deciding how to spend their time and energy (labor) given what their students benefit from and what they will receive as compensation. However, this arrangement is also a very positive spin on the exploitative labor arrangement that Blair and Monske (2003) describe: courses are interchangeable with the instructor who's dialogic interaction does the primary work of teaching the student and engaging them in miraculous ways, but which gets very little institutional credit.

Brett's approach to having a pre-built course with room for her to interact with students, for example, can be exploited by making the structure visible to stakeholder at the expense of the work she does to maintain and create the interactivity, which necessarily exists in email or chat

apps and should remain private for security and privacy (Trust, in the parlance of the six variables). The interactivity and attention the instructor provides to individual students is the difference-making labor, not the course content, but taking that position also leaves open the teacher labor to being exploited as early 20th-century composition teachers were: teaching writing is a matter of innate human ability, therefore skill is not necessary to teach it well, the ability to interact with and guide people to good practices is. The interactivity and experience is the skill teachers bring, something not easily quantifiable but sorely missed when lacking. Survey results of the less experienced teachers, who are still relying heavily on their LMS and devoting significant labor to video lectures, contributed proof of this. Teachers and students know this best, more so than administrators that don't have a way to experience it directly, yet are charged with judging its success and failure.

There is also danger that the packaged course+interacitve labor model will accelerate entrepreneurial modes of instruction, where every teacher is a new incarnation of the itinerant tutor, attracting students to privately offered courses on an open internet marketplace, competing based open reputation and price, creating an asymmetrical knowledge-market through atomizing teachers and turning education into a “platform” on which individuals develop “solutions.” This context heightens the visibility of the LMS over dialogic interaction, incentivizing more indirect measures of success, something this inquiry indicates is not as productive. Furthermore, Martinez et al (2019) and Clinefelter and Aslanian (2016) find that students do prefer institutionally-bound education systems when they are available. Furthermore, the practicality of institutionally bound higher-education (i.e. through colleges and universities) makes it easier to form communities in which dialogic interaction can be diversified, provided educational access is upheld as a public priority. Institutionally-bound higher education can also be regulated by public forces more easily to uphold the needs of students and teachers, provided proper public support of information about these institutions is maintained. Overall, education must remain a public good to uphold principles 10-14 of OWI instruction, prevent knowledge asymmetries that undermine the function of markets (Busch 2014), and to prevent privatization of knowledge that enables worldviews themselves to become products (Zuboff 2019).

5.2.2 Networked Meritocracy vs Democracy

Data gathered from talking to Grant about the way he worries aggregated calendars and to-do lists in his LMS (i.e. those generated but he LMS itself and not part of his course design) disrupts students narrative experience of the class, one of the ways he tries to built spatiotemporal materiality in his course design, offers some interesting insight into the way online courses inadvertently incentivize meritocratic behavior and downplay the inherent value of democratic representation. In this tension, “meritocracy” is interpreted as a person attaining social value through representing it in themselves in some way (a foundation of neoliberal theory of individual agency) and “democracy” is interpreted as a state where people are inherently granted value because they exist in the system, freeing them from having to demonstrate it in order to gain representation. The passage from the Results section is reproduced for full context. In expressing anxiety about the calendar, Grant makes a larger point about representation and participation in online vs onsite classes:

Again, the calendar disrupts progression because it decontextualizes the work by removing the sense of spatiotemporal progression. This highlights another difference in online and onsite classes around what we consider the mode of self-discipline students learn, particularly in first-year classes: onsite initial self discipline is getting oneself to class, whereas online initial self discipline is starting oneself working. There are various meritocratic hooks pulling both these modes: online classes incentivize representing oneself through posting content—making oneself known by expressing ideas (of some kind) whereas onsite classes allow students to reap (some) benefits by simply being there. This mimics online discourse, in that posting (or making visible participation marks, i.e. “liking” content) constitutes participation, whereas simply being present online constitutes an unknown. Put another way, posting-as-participation rewards those who represent themselves (meritocracy), while presence-as-participation accounts for everyone regardless of whether they actively speak up (democracy). The two are entwined together on online platforms in a way that online classes have to more directly account for: online classes exist to explicitly benefit the participants whereas the de-facto reason for online platforms existence is as information marketplaces (Hall 2016). A crucial element for online classes is how a student learns to start participating in their class as an online space. Grant incentivizes participation through receiving credit so that

students have a reason to participate and to catalyze the real purpose of discussion: knowledge-making. Discussion is crucial because it replaces the classroom experience and builds rapport among the students and teacher.

This passage gets at how online education, through its reliance on platforms, participation, and incentives, can be more effective at some elements of education (encouraging participation) but through market tropes (carrot/stick incentives). It also illustrates how online education has ecological relevance to online knowledge-making as a whole: circulation platforms formalize political-rhetorical activism through quantifying participation in ways that makes opposition invisible *except through* opposite political-rhetorical force⁵⁰. Circulation platforms formalize social DIKW through giving quantifiable indicators of information's circulation, providing a way to validate its ascension to knowledge, obscuring the labor behind it. OWI can, then, become a way for students to learn these qualities of digital ecologies and the tropes of meritocratic political-rhetorical activism, or it can be a context for mentoring existence (or resistance) to this context through dialogic interactivity, the labor indirect circulation metrics make invisible. If political-rhetorical circulation is what really matters to people, it would not make sense for dialogic interactivity to outperform political-rhetorical circulation (blogs and discussion boards) in nearly every category. What makes a difference to students, at least, is that their teacher reaches out to them consistently and individualizes them. Furthermore, students recognize blogging and discussion board work as perfunctory, fulfilling a credit-incentive requirement as reported by students in Martinez et al (2019).

5.2.3 Information Supplementing and Knowledge-Work

Information redundancy is a major success factor in information architecture. Brett made comments reinforcing this in her case interviews, but couched it with a crucial statement about teacher labor in online classes that connects back to Blair and Monske as well as the limits of information usability and pursuing online education as development of better delivery technologies or modes.

When asked how the design of her class and the identity of students affect each other, Brett stresses consistency and continuity on presenting information of the course, especially when students are traveling, busy, or otherwise not bound to a single location

⁵⁰ This is one of the ways agnotology plays out in the “public” (read: privatized through platformization) square.

(like a classroom or campus). Static content, like that based on text, accommodates more kinds of movement because it is not as rigid in form (i.e. students can use Google translate or other apps on it if they need to for context clues or has the text read to them by other apps) and text accommodates internet connections and data caps of even restrictive varieties the best. In the end, any inflexibility in course content is mitigated by the flexibility of the instructor, the crucial dynamic element in the class. The instructor's flexibility, knowledge of the content area, and skill as a knowledge-maker overcome the obstinate nature of static information, no matter how well designed it is. As the designer of the information, as well, she has valuable insight and authority when answering student questions about it. She can speak to every blog, announcement, or other item because she has made conscious choices in information placement she can explain to students if they have questions about it.

Brett, here, is foregrounding the subtext of effective teaching online: students will inevitably ask questions about instructional materials no matter how well designed they are, meaning a good instructor will always have answers to those questions. Furthermore, it is, in the end, most desirable for students to have questions about the class material, and engaging students in conversation is the best way to teach them beyond the level of information acquisition (upwards into knowledge-making) because they develop social associations with knowledge-making. To that end, Brett defends her decision to rely primarily on text by arguing that, since students will inevitably have questions about the material no matter how it is presented, she might as well produce static material in the most labor-efficient mode possible to save her labor for where it is going to matter to her students more. Text, as the mode she's chosen, has the most flexibility and versatility, as students can read it in their heads, read it aloud, have it read by a device or application, translate it roughly into other languages using desired apps, and download it on virtually any internet connection.

Production of complicated new-media educational artifacts, especially if they are designed to be reused, routes the teacher's labor into producing those materials at the expense of the activity that ultimately does the work of supplementing those very materials, as both Brett and Grant indicated in discussing new media and the instructional video presented to them. Furthermore, static complicated, resource-intensive static materials contribute to the online-course-as-archive mode of online teaching, obscuring the teacher labor through the video artifact

or, potentially worse, matching instructors with archives of content they have not designed and therefore must account for to their students who, according to responses in this survey and in Martinez et al, respond to authenticity and dialogic interactivity most of all.

5.2.4 The Ephemerality of Student Idea-Markets

Back on the subject of networked circulation and market logic political-rhetorical knowledge-making, both Brett and Grant made comments about the utility of blogs and message board in their classes (which they respectively use). Essentially, they both argue that message boards create opportunity for intra-class circulation of ideas that replicates the classroom discussion. Whether we interpret online discussion forums as mimicking town square-style forums or as necessary fixtures that recreate real-world genres of the web/digital ecologies, both Brett and Grant allude to another, ephemeral quality in these discussion forums. From Brett:

Student interaction is invaluable, Brett remarks, because of the variety of experiences, dynamics between people, and engagement it promotes. While it is typical for asymmetrical production among group members (in time spent, schedule, or amount produced), the overriding benefit is that students teach each other. Group interactions are less filtered and more dynamic than whole class discussions because they are a subset that can rapidly exchange (circulate) ideas, leading to more reconsideration and reformulation of opinions through social interaction (knowledge-making). The more constant participation among group members, the more opinions within the group evolve. And from Grant:

On how his students are interacting and what they are learning from these interactions, Grant describes his students first as very courteous to each other, acknowledging there is a transactional element to student interaction. Student interaction, as he's designed the course, happens on discussion boards. The benefits of discussion boards, as he sees it, are that students build trust in each other through small-scale peer responses. While the overall impact is ultimately unknowable and unmeasurable, Grant cites discussion boards as sites that build community and confidence collectively by each student adding to the conversation (incentivized by points for participating rather than 'quality' points), directly citing Bruffee's theory on conversation and learning. Grant's students to learn to participate in discussion.

In both set of comments, there exist circulation tropes, knowledge-making tropes, and market tropes, indicating the interleaved dependencies these theories have on each other in pedagogical application and in how they interact in online discourse.

The ephemerality both teachers attribute to pedagogical value of discussion boards is that students 'teach each other' inherently in ways that are unknowable and unmeasurable, enabled by rapid circulation. Indeed, this ephemeral and friction-reducing experience overrides any potential opportunities for conflict or exploitation it enables, and no educator worth their salt (including the researcher) would argue inter-student conversation is detrimental. What's worth calling attention to is how the justification mimics neoliberal interpretations of markets, namely that outcomes are the product of incalculable interactions of circulation that are unquestionably positive. This is part of how MOOCs design mass-distributable classes: lectures from teachers combined with discussion space provide means for students to teach themselves and each other the material in order to pass through standardized assessment gates. Furthermore, there is an entrepreneurial quality to discussion boards, referenced earlier, wherein productivity comes from conditioning a certain kind of participation (even if participation is not judged based on quality). Entrepreneurially engaged students who go beyond the letter of participation will learn the most from discussion boards, recreating a market of information from which investments and risks build knowledge. It is hard to argue, as in neoliberalism, how this explicitly benefits marginalized folks who suffer from generational capital disadvantages. What, in other words, are message boards and circulation platforms doing to intersectionally address asymmetries that preexist the platform, other than open the markets up to those marginalized people.

Brett and Grant, as has been demonstrated, have the added ability to interact with their students dialogically, adding invaluable access and authenticity to their interactions with students. Brett and Grant also model discourse and online participation through their contributions to the online courses (which their students do find very important to Coordination) that can contribute to effective discussions indirectly (i.e. invisibly).

Users teaching each other is also a trope of how Alternative Narratives (AN) propagate and circulate online, particularly in conservative circles. Nied, Stewart, Spiro, and Starbird (2017) mapped the circulation patterns of alt-media online, of which there are more conservative actors, and Starbird (2017) herself further notes how misinformation-driven AN is accumulated and established through circulation of selective data points that construct larger information

patterns for their users and others, recreating peer-education based on DIKW principles. These patterns routinely enforce conservative (i.e. status-quo affirming or anti-progress worldviews) in favor of leftist or progressive worldview. Starbird's work makes a compelling case that, as Galloway (2006) and others theorize, circulation is not inherently progressive and can be potentially mobilized by conservative narratives (i.e. representing hegemonic views). In the context of recent culture wars, such as GamerGate, this use of circulation demonstrates how distributed 'education' networks can mobilize around harassment, violence, and discrimination (Mortensen 2015 and Trice 2015). Based on this set of evidence, it seems that conservative ideology benefits from the ephemerality of distributed discussion networks (markets) proportionally more.

Put back in the context of this inquiry, this free-market interpretation of message boards requires further study. Again, discussion and social interaction is how people make knowledge, and that process must be preserved for the public. As teachers, having better ways to describe the function of discussion and strategies for engaging students in it in ways that address Merrill's five principles will strengthen its pedagogical justification. Clarifying the role of discussions for students is also an important conclusion of Martinez et al's (2019) survey of OWI students, who also remark that discussion boards appear to them largely as ways to measure participation, far from the lofty pedagogical purpose they are capable of serving.

5.2.5 The Entrepreneurial Trade-Offs of Accessibility

Switching gears to accessibility, Brett engaged in a line of conversation characterizing issues facing the division of labor for essential accessibility work and how to promote accessibility in the future:

On the subject of the role accessibility plays in Brett's course she, in reference to our last interview, notes that she's geared her materials toward taking advantage of Blackboard's built in accessibility features by using Blackboard text blocks when able, and has her longer Microsoft Word documents and PDF documents run through an accessibility checker before she posts them. She is now at the point of considering how, now that her own accessibility practices are routine, she can begin requiring students to submit work adhering to the same accessibility standards as a reflection of professional concerns and raising standards in digital communication to meet these needs as a baseline. Her concerns at the moment are how she would verify student work accessibility as it

increases her workload without an appropriate trade-off (using the checker would require downloading every student documents to check it). Furthermore, she has workload concerns going forward, as she expects to take on a course overload in the Fall (based on fewer graduate instructors being available despite higher demand for FYC teachers at her institutions) and is hesitant to add to her own workload even more before acclimating to that. As it stands, she teaches accessibility as part of usability to her students. As far as other institutional accessibility-based developments, she is aware of new video recording stations on campus that offer captioning services, but notes that they still require self-editing, and the added time of 1) recording a video for isolated purposes and 2) editing more text (captions) without reducing her workload somewhere else, and that added work causes her to have to make a decision about time and work that casts accessibility in a light she is not comfortable with. She prefers to see it as something worth doing, not something that costs her or her students in some way (because it should not be).

Brett takes responsibility for her own courses' accessibility admirably, and her dependency on text makes that labor threshold relatively low: she prepares all her documents for screen readers and OCR so students can route them into accessibility technologies and apps. Her move toward extending that conversation further with her students indicates how widespread accessibility is entrepreneurially engaged. Furthermore, her workload concerns highlight the precarity of engaging accessibility as a market-driven project: market approaches create asymmetries inherently, and there should be institutional support for accessibility provisions beyond mandates.

5.2.6 Flexibility and Intersectionality

A comment by Grant on flexibility and synchronicity highlights an interesting connection between flexibility and intersectional action. From Grant:

Asked about the relationships between the design of his class and the identity of his students, Grant says his major focus, in making that relationship positive, is on asynchronicity. Asynchronicity reflects his students' need to be flexible with how they use their time, for family, health, or other reasons. In order to best serve a diverse population in a major urban center, his students need flexibility in order for education to

complement the other demands of their time, their age, and their existing responsibilities/needs. Focusing on this 'greatest need' leads to design choices that all student can benefit from.

Grant's class typically serves a very diverse population. Grant has learned over time, therefore, that education is useless to his students if they cannot complete it, and since they have sought it from him, he must provide a way for it to fit them rather than strictly demand they conform to it. The intersectional move here, as far as flexibility is concerned, is focusing on that greatest need, as Crenshaw argue, in design of systems. Grant's logic is that reliance on synchronous elements will not provide the additional engagement benefits cited by proponents if those most in need of them are excluded by the nature of their design. Based on this result, synchronous elements need to balance the concerns of the students, perhaps serving advanced students or classes of traditional student populations best.

5.2.7 Conflict and Uberfication

Finally, a summation of Brett's approach conflict reduction highlights the valuable work teachers do as educators and community builders, and a troubling overlap with uberfication:

Brett has seen no evidence of conflict this semester. She will not be surprised to see some mentioned in the groups' internal evaluations of each other, as group work is the most common place to find conflict as an instructor. As compared with other classes, this one has less evident conflict than previous years. For comparison, she briefly summarizes a story of a group that came to conflict over access and disability issues because they group did not meet flexibly. This bad instance (and others it is emblematic of) aside, Summer classes generally are more cognizant of the need for flexibility, likely because the distribution of students is heightened.

She identifies 1) communication (in general) as contributive to reduced conflict, particularly around and about time zones, 2) making a point to update people on course developments, either in private or as mass-distributed messages as appreciate, and 3) having an accommodating spirit as means to reduce/prevent conflict.

This set of innocuous traits and practices Brett ascribes to herself comprise some of the chief traits of an effective online writing instructor that can be invisibilized. Blair and Monske's critique of the OWI instructor as overtaxed information conduit, unrecognized for the emotional

and coordinating labor they perform as part of their online teaching, is clearly visible in points one and two, and Hall's critique of performance review boiled down to positive attitude toward customers is the third point. These traits are part of what makes Brett and Grant so effective, and for OWI to thrive, these characteristics need to be recognized as skilled labor so that OWI instructors are compensated fairly for them and not penalized or incentivized to undercut them.

5.3 Broad Conclusions

The relationship between teacher and students is the biggest difference-making factor in this inquiry. Teachers, regardless of experience level or expertise at teaching online, lament the design of LMSs for some reason or another, ultimately because they are more effective information platforms than communication platforms. LMSs could be improved, but the most efficient way to improve OWI and OE, based on this inquiry, is to enhance the relationship between teacher and student and improve their ability to interact through dialog. LMSs, as circulation platforms, contribute to this, but one-to-one communication modes are ultimately more effective, based on teacher testimony and student surveys.

Part of why communication between teacher and student is so effective is because it teaches the knowledge-making step of DIKW through practical mentoring and collaborative problem solving between the teacher and student in accordance with Merrill's five principles: 1) students perceive a problem, in their work or in their access/comprehension of the class, 2) communication between teacher and student assesses and invokes past experiences of each other to determine the specifics of the student's inquiry (as opposed to general principles in mass communication), 3) the teacher models action or advice to the student, which 4) the student must apply on their own, resulting in 5) the student practicing something new based on a relationship that connects it to previous experiences and can be applied in the future.

In practical pedagogical terms, this means that educational resources should be focused on supporting student-teacher relationships in online classes: teachers and students do the labor of *online education* (i.e. teaching and learning), and therefore their labor should be supported as much as possible. The key labor they do, dialogic interactivity, is invisible, so it is not likely accounted for well in measurement metrics. As Clinefelter and Aslanian (2016) report, students need more financial support for education, even if it is online, and Busch and Hall find that emphasis on numerical metrics buries knowledge-making relationships with students under

verifiable research spread and student evaluations that often function as consumer satisfaction reports⁵¹. What is being de-skilled in teaching is dialogic interactivity, and what is being de-skilled in learning is extended thought on problems (because students are pulled in many economic and social directions at once). These other realities cannot be displaced (students will always have lives, research is always beneficial to academic inquiry and pedagogy). Therefore, a readily available and easy to implement solution is to shift funding to education for teacher pay and students for financial support: both teacher and student will be recognized for the invisible work they must do to succeed in the end, and the increased economic support will ease tension around the other factors that pull them in other directions. This is especially important on the ‘low⁵²’ end of the higher educational spectrum, community colleges, state schools, part time instructors, contingent faculty, and faculty teaching higher course loads instead of being given research time: these teachers and students should have more financial support because it will make much more proportional difference to the quality of work they can do together. Part of what makes Locke’s tutor-student model both elitist and effective is that the bond of the teacher and student is supported financially and institutionally (i.e. by the place they meet) so that both groups feel security in their work and have less to fear about their future. Teachers and students can stay focused on the business of learning and teaching when their place of work is non-exploitative.

Moving to the broad context of the inquiry, the critical component working against prosperous communication, knowledge-making, and education, seems to be the pervasive market logic that guides its operation over other imperatives. Circulation platforms, supercharge the economic experience of information, making information-sharing and knowledge-making seem to be the same as managing supply chain and logistics to have a package delivered on the same day someone orders it. This focus on expediency puts the emphasis on information-as-commodity, with knowledge-making as a second thought. Circulation theory is a very effective lens to critique the market model of knowledge-making by providing insight into the rhetorical processes that transform data into information and information into knowledge, seemingly

⁵¹ which admittedly could capture students’ flat reactions to the quality of relationship they have with their teacher, but often do not, partly because they assess class “content” or preserve racial and sexist biases, like in Sharing Economy user reviews.

⁵² “Low” here used with appropriate irony and disdain for the negative connotations.

automatically. DIKW logic has lots of clear utility in explaining how knowledge is made ecologically, and provides a metalanguage framework for disciplines to cooperate.

In practical terms, this inquiry finds that teachers and students both see their relationships as the most beneficial things, and that their relationships are best facilitated by direct communication, which usually happens asynchronously. Based on teacher and student data, this inquiry concludes that students are not satisfied by mere information and want to have knowledge-making skills; students recognize that being critical and skilled at knowledge work is a valuable skill and will pursue it in the venue most cost effective to them, whether that be through formal education or "free" information markets that push them toward radicalization.

The largest flaw of neoliberal market models of information distribution, knowledge-making, and education are that they produce short-term knowledge, incentivize indirect goals over the stated missions of these pursuits, and rely on asymmetries through the assumption that asymmetries galvanize market actors. Market asymmetries, in practice, allocate more power to a small group of capital-rich people who fight against relinquishing it. Furthermore, the major social, cultural, and ecological crises we face stem from asymmetries: of wealth, of power, and of knowledge. An increasing amount of data science experts and sociologists⁵³ are laying this at the feet of economic policies that have empowered economics over democratic will. As with all these asymmetries, the problem is not a lack of enough to go around, it the lack of a mechanism to equitably distribute it. Public institutions should reinforce the public's claim to things like knowledge, and online education represents a unique opportunity to extend knowledge-making and mentorship to people living their lives in situ, to network together their places and problems, and to move beyond classrooms.

⁵³ Cathy O'Niel, Shoshana Zuboff, Safiya Noble to name a few.

CONCLUSION

A recent *New York Times* article (published March 23, 2019) makes the case, as the article is titled, that “Human Contact Is Now a Luxury Good,” arguing that it is harder to find parts of life *not* mediated by screens and that the wealthy horde those increasingly rare opportunities to themselves through their ability to outbid ordinary folks for undivided, usually in-person, human attention (Bowles 2019). The reasoning behind this commodification of screen interaction is that it is cheaper than stationing a human in one place, and one human’s labor can be divided amongst multiple portals if the systems are not automated outright. Among the institutions counted as experiencing an explosion of screen-driven service are schools, healthcare facilities, and social work (Bowles 2019). As the article points out, rich people reject these screen-driven services whenever possible. Whereas owning a computer used to be a sign of affluence and success, being accompanied by a smart device at all times is increasingly something that rich people have the luxury of avoiding. Just as in the time of Locke (the turn of the 17th century), rich capital owners are turning to personal, interactive, and tactile modes of education (the article cites the Waldorf School of silicon valley as the most popular elementary school) that emphasize human contact and mentoring relationships between the teacher and student (Bowles 2019).

The ubiquity of technology also makes data collection and advertisement targeting something that disproportionately affects less wealthy people, making them the fuel for the surveillance economy driving commercial production of worldviews in competition for the fate of our collective future (Zuboff 2019). The luxuruification of human-to-human interaction has to be reversed⁵⁴ because it represents the rise of another asymmetry, one that those it affects are not ignoring. Based on this inquiry, and others, what students value in an effective OWI instructor is the dialogic interaction they have with them, likely for the same reasons that affluent people cite in seeking to avoid digital mediation: authenticity, attention, emotion, and individualization. Human interaction in online classes may not be less screen-mediated, but by keeping class sizes low, investing financial resources in teachers, students, and the connection between them, and

⁵⁴ Likely through removing incentives to make digital communication an opportunity for data harvesting, increasing investment in social infrastructure, and giving the public more direct, democratic control over institutions.

reducing the layers of abstraction they must go through to meet each other, it can still be democratic.

In Andrew Carnegie's 1889 "Wealth" essay, now referred to as his "Gospel of Wealth," he sets out a guiding principle for philanthropy: wealthy people must have social and cultural impact on the poor. In Andrew Carnegie's case, he built countless libraries, a school, and music hall among many other philanthropic projects. In "Wealth," Carnegie argues that philanthropic projects, such as these, should support cases that "help those who will help themselves," hence libraries provide opportunities for poor people to gain information that they can self-engineer into a way out of their put-upon lives. The problem Carnegie implies, with this line of thinking and action on his part, is that people suffer under inequality (he starts "Wealth" by accepting that inequality is a fact of life) because of lack of motivation. The people employed in Carnegie's own mills worked well over eight hours a day for very meager wages. Carnegie's proposition to these people, in particular, was that they, after a day of back-breaking labor morning to evening, go to a local library and invest their remaining waking hours in reading one of the books available there. There is no doubt that Andrew Carnegie's libraries, school, and other institutions that make information available to the public have improved countless lives in invaluable ways, but it is also worth wondering if that positive impact might have been accelerated by Carnegie also committing to paying his workers more and reducing their workloads so they had more time to benefit from this availability of information. Similarly, we must wonder if the impact of online education might be accelerated by investing in the humans who do it as much as the technologies that have driven information accumulation, data collection, and social connection.

As long as the levers of control are driven by capital demands, those controlling capital will roll back any reforms that benefit those they do not consider to be themselves. The renewed emphasis on digital and robotic automation in the 21st century, which also happens to be characterized by global conflict, social discord, and ecological crisis at this early stage, likely signals the end of the post-World War II progressive period (such as it was), offering proof that it was an exception in the history of capitalism (the short-term) and of power (history-spanning). Precarious neoliberalism is not an anomaly, it is the norm that preceded the mid-20th century, and seems poised to retake its position. Overcoming these obstacles will require cooperation, technology, and policy that is driven by knowledge-making that addresses these problems in long-term ways. Online education has a pivotal opportunity to be part of networking people

together to bring their experiences to bear on how global war, social inequality, and ecological destabilization have affected them, will effect them, and what we can do about it. Students and teachers that appreciate online education appreciate the ways they can invest time and labor in connecting with each other in non-transactional ways, though they suffer the transactions when they are necessary. This lack of cynicism is rare, and it must not become extinct.

APPENDIX A. FOCUS GROUP PROTOCOL

Focus Group Notes

Online Education, Circulation, and Information Economies of the Future

Patrick Love, Researcher

February 20, 2018, 4-5pm

Participants: Name, Name, etc

Introduction

RESEARCHER: Thank you all for agreeing to participate in this focus group on online writing classes and online writing-intensive classes. This focus group should take about an hour. Responses to the focus group will be used as part of a dissertation on the state of online writing instruction and the concerns of online writing instructors. Your views in this focus group are highly valuable and will not be disclosed to anyone outside the research team.

I hope these questions will stimulate discussion amongst all of you, since I am mainly here to moderate. There is no prescribed way for people to answer the questions, but everyone will have an opportunity to speak about each question. You can ask me to repeat a question anytime, as well

For your time, you will be compensated with a \$5 Starbucks gift card. At the conclusion of the focus group, you may be approached in person or over email to participate in a case study to further this research, but your participation in the focus group will not be linked to the case study. The purpose of the focus groups is to survey what online classes you teach, who takes them, and how you teach them, all of which is intended to help identify broad trends worth studying and help identify varied potential cases.

I am taking notes and recording this discussion, so please speak clearly and remember that the recorder will not pick up actions like nodding in agreement and the like, so try to voice everything but not at the expense of interrupting each other so that it's easier to decipher everything said afterward.

As a reminder, please respect the privacy of the other attendees and refrain from sharing details provided here outside the focus group.

Before we begin, I will answer any questions you have about the research or format (Pause for Questions)

Let's begin.

Online Education is a frontier of pedagogy. People start teaching and taking online classes for a variety of reasons, and a lot of research focuses on making engaging materials to retain students and as a form of teacher labor. Online Writing Classes are unique in that you are not just teaching content but ways of organizing and expressing ideas. This study is focusing on the relationships between students and teachers, what motivates them, and how they conduct classes through programs and platforms, so this discussion aims to get in your own words how you understand and handle the associated challenges. The experiences you share will be used to research best practices and make recommendations to improve online teaching conditions.

Focus Group Notes

Questions**1. What classes do you teach online?**

Participant 1:

Participant 2:

Etc

2. Why do you teach the classes you teach?

Participant 1:

Participant 2:

Etc

3. How would you characterize the population of students taking your classes and why they take them? (Demographics, major, goals, etc)

Participant 1:

Participant 2:

Etc

4. What structure or technologies and platforms do you use for your class and why?

Participant 1:

Participant 2:

Etc

5. What makes your classes effective and what would you like to change about them?

Participant 1:

Participant 2:

Etc

6. (Bonus) Question about parts of their classes that are specifically designed for online context

Participant 1:

Participant 2:

Etc

Focus Group Notes

7. (Bonus) Question about how they communicate with their students and determine their needs

Participant 1:

Participant 2:

Etc

8. (Bonus) Question about how they consciously shape the course to meet specific student needs

Participant 1:

Participant 2:

Etc

9. Finally, is there anything connected to teaching online through programs and platforms that has not been discussed that you feel strongly about and would like to bring up now?

Participant 1:

Participant 2:

Etc

Before we end, by show of hands, who is teaching online again over the summer?

Hands:

If you have your hand up, keep it up if you are interested in more information about participating in case studies

Hands:

Conclusion

RESEARCHER: Thank you very much for participating in this focus group. Your contributions have helped this research, and if you are approached to participate in the case study portion of this study, more information will be provided to aid in your consideration. I will now stop taking notes, turn off the recorder, and distribute your gift cards.

APPENDIX B. CASE INTERVIEW PROTOCOLS

Interview 1

Grant Christian and Alisson Franco
June 4, 2018 and June 8, 2018

RESEARCHER: Welcome and thank you again for participating in this research. As you've been informed, this interview should last no more than an hour and is being recorded.

The goal of this interview is to collect some preliminary information to help me better observe your class and understand what I am seeing. Do you have any questions before we continue?

(Wait for questions)

Let's get started:

- 1. Question about the course description and its role in the curriculum**
 - 2. Question about why the instructor teaches this class**
 - 3. Question about the identity of the instructor's institution and the student population they are expecting**
 - 4. Question about what technologies and platforms support and deliver the class**
 - 5. Question about the pedagogical structure the instructor sees them self employing**
 - 6. Question about the relationship between the instructor's pedagogy and the technologies and platforms**
 - 7. Question about how the instructor interacts with students**
 - 8. Question about where the researcher can best observe public activity and community functions of the class**
- Questions if time:
- 9. Question about how the instructor builds community and shared-identity in the online class**
 - 10. Question about how students feel the presence of the instructor in the class and how the instructor feels the students' presence**
 - 11. Question about how the instructor prioritizes their energy in the class (how they allocate the resources of time and energy available to them in limited quantities)**
-

12. Question about the hardest aspect of teaching online, based on previous experience

13. Question about what the instructor would like to have more time or other resources to spend on in the act of teaching the class

Always end with:

14. Question about if the instructor has any more thoughts or important points to share that have not been raised yet

RESEARCHER: Thank you for your time and your answers. I will now turn off the recording and we can make arrangement for our next interview.

Interview 2

Grant Christian and Alisson Franco
June 20, 2018 and June 22, 2018

RESEARCHER: Welcome and thank you again for participating in this research. As you've know, this interview should last no more than an hour and is being recorded.

This interview follows up on our last one, along with observations we've both made of the class so far. You can feel free to interrupt me and change the direction of conversation at any time (because we first and foremost need to know what's on your mind)

Do you have any questions before we continue?

(Wait for questions)

Let's get started:

1. **Question about assignment structure (confirming my understanding - Task-oriented/ instruction-oriented)**
2. **Question about prep for these materials (how long? how much upkeep)**
3. **Question about how they think students approach this structure**
4. **Question about discussion participation (is it going as you expect so far?)**
5. **Question about communication with student so far - how much? in line with past experiences? Anything notable?**
6. **Question about time spending now on course**
7. **Question about early retention**
8. **Question about video/other media + example**
9. **Question about something they would you like to know from my survey at the end**

Other Questions

10. **Question about class identity**
11. **Question about class competency**
12. **Question about accountability (any potential problems)**
13. **Question about conflict (again, any potential problems they are monitoring?)**

Always end with:

14. **Question about if the instructor has any more thoughts or important points to share that have not been raised yet**

Christian Requests

1. **Get copy of core reading list**

Alisson Requests

- 1.

RESEARCHER: Thank you for your time and your answers. I will now turn off the recording and we can make arrangement for our next interview.

Interview 3

Grant Christian and Brett Templeton
July 6, 2018 and July 12, 2018

RESEARCHER: Welcome and thank you again for participating in this research. As you've know, this interview should last no more than an hour and is being recorded.

This interview follows up on our last one, along with observations we've both made of the class so far. You can feel free to interrupt me and change the direction of conversation at any time (because we first and foremost need to know what's on your mind)

Do you have any questions before we continue?

(Wait for questions)

Let's get started:

1. **[Questions about student population] Who are your students this semester? What is the identity of the class**
2. **[Question about design and student identity] How do the design of the class and the identity of the class affect each other?**
3. **[Question about student interaction] how have your students interacted so far this semester? How would you describe what they are learning through these interactions?**
4. **[Question about accessibility] What is the role of accessibility in your course?**
5. **[Follow-up question about communication with students] What kind of communication are you having with your students at this point in the semester? In line with past experiences? What's notable?**
6. **[Question about competency] How is the class performing so far? In line with expectations or outside them?**
7. **[Question about potential conflicts] Are there conflicts in the class that you know of? How would/could they arise? Any academic issues?**
 1. Grant - fake news activity?
8. **Question about how spending time now in course**
9. **Question about updated retention**
10. **Question about more survey input**

Other Questions (Ocker, Rosson, Kracaw, Hiltz)

11. **Question about class identity**
12. **Question about class trust/accountability**
13. **Question about awareness**
14. **Question about coordination/logistics**
15. **Question about class competency**
16. **Question about conflict**

Always end with:

14. Question about if the instructor has any more thoughts or important points to share that have not been raised yet

Christian Requests

1.

Alisson Requests

1.

RESEARCHER: Thank you for your time and your answers. I will now turn off the recording and we can make arrangement for our next interview.

Interview 4

Grant Christian and Brett Templeton
July 26, 2018 and August 2, 2018

RESEARCHER: Welcome and thank you again for participating in this research. As you've know, this interview should last no more than an hour and is being recorded.

This interview follows up on our last one, along with observations we've both made of the class so far. You can feel free to interrupt me and change the direction of conversation at any time (because we first and foremost need to know what's on your mind)

Do you have any questions before we continue?

(Wait for questions)

Let's get started:

1. **Question about how spending time now in course**
2. **Question about updated retention**
3. **[Question about Shared Identity] Tell me about the shared identity of your class and where does it come from?**
4. **[Question about Trust] Tell me about the trust and accountability in the class and how it comes about?**
5. **[Question about Awareness] Tell me about the awareness you and other students have of what's going on in the class, and specifically what other people are doing in the class? Where does that come from?**
6. **[Question about Coordination] How does the class stay organized and synchronized? How well is the class organized and synchronized this semester?**
7. **[Question about Competency] Tell me about how effective class work has been? Why do you think this is?**
8. **[Question about Conflict] Tell me about any conflict in the class, either between students or that you're involved in. What do you think increases or reduces conflict in online classes?**
9. **Overall, tell how would you characterize this class in terms of effectiveness and positive outcomes?**

Always end with:

10. **Question about if the instructor has any more thoughts or important points to share that have not been raised yet**

RESEARCHER: Thank you for your time and your answers. I will now turn off the recording and we can make arrangement for our next interview.

APPENDIX C. SURVEY PROTOCOL

Edit Survey | Qualtrics Survey Software

7/23/18, 9:07 AM

1712020019 Final Survey
Projects
Contacts
Library
Survey Director
Help

Survey
Actions
Distributions
Data & Analysis
Reports

1712020019 Final Survey

SURVEY INSTRUCTION
Block Options

Display This Question:

If Customize your survey in 4 easy steps.
This screen is for instructional purposes only and will no... Is Displayed

Customize your survey in 4 easy steps.
This screen is for instructional purposes only and will not be shown to respondents.

1. Replace the yellow highlighted text in the survey below.

- [STUDY TOPIC] - Brief description about your research needs
- [SURVEY DURATION IN MINUTES] - Time it would take for respondents to finish the survey.
- [INCENTIVE] - Enter incentive details (e.g., \$5 Gift Card), if you are planning to send an incentive to respondents. If you are not intending to give any incentive then remove the statement.
- [NAME AND EMAIL ADDRESS] - Name & email address of the contact person who would be able to address respondents queries

2. Click 'Preview survey' to see what participants will see on desktop and mobile.

3. Click 'Look & Feel' to update the survey theme if desired.

4. Go to 'Distributions' to send your survey and start collecting responses.

Add Block

My Tasks

- CREATE PROJECT
- SETUP SURVEY
 - Edit Questions
 - Customize the survey questions to suit your needs. Mark as complete when done.
 - Visit help page
 - Edit Look & Feel
 - Preview Survey
- DISTRIBUTE SURVEY
- COLLECT RESPONSES
- VIEW RESULTS REPORT

Has this task list been helpful?

We would love to hear your feedback on how we can make this list more helpful.

Give Feedback

▼ Informed Consent

Block Options ▼

■ Q1

⚙

✱

Welcome to the research study!

We are interested in understanding Online Education. You will be presented with information relevant to your recent online writing class and asked to answer some questions about it. Please be assured that your responses will be kept completely confidential.

The study should take you around 15-30 minutes to complete, and you will receive a \$20 Amazon Gift Certificate for your participation. Your participation in this research is voluntary. You have the right to withdraw at any point during the study, for any reason, and without any prejudice. If you would like to contact the Principal Investigator in the study to discuss this research, please e-mail Samantha Blackmon at blackmos@purdue.edu.

By clicking the button below, you acknowledge that your participation in the study is voluntary, you are 18 years of age, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason.

Please note that this survey will be best displayed on a laptop or desktop computer. Some features may be less compatible for use on a mobile device.

☐ I consent, begin the study

☐ I do not consent, I do not wish to participate

↶

Condition: I do not consent, I do not ... Is Selected.
Skip To: End of Survey.

[Add Block](#)

▼ Block 3

Block Options ▼

■ Q2

⚙

✱

Select the institution that provided the online writing class you took in Summer of 2018

☐ [REDACTED]

☐ [REDACTED]

[Add Block](#)

Block 2

Block Options

Q3

The following six (6) questions list the same twelve (12) kinds of communication that may have occurred in your class and one (1) quality of an effective team. For each of the six (6) qualities, rate the positive contribution of the 12 kinds of communication from 1-7 (1=very small, 7=very great).

Q4

1) Shared Identity - feeling that you, the class, your team, and/or your instructor shared a team identity despite being in different locations


	1	2	3	4	5	6	7
Assignment Descriptions on the Course Website							
Module Instructions or Weekly Schedules on the Course Website							
Email Conversations or Messages Directly with the Teacher							
Email Conversations or Messages Directly with Other Students							
Blog or Discussion Assignments							
Announcements from the Instructor on the Website or Mass-Emails							
Feedback from the Teacher attached to Completed Work							
Peer Review							

Q6

2) Trust - trust in accountability of other class members, trust to be vulnerable to them


	1	2	3	4	5	6	7
Assignment Descriptions on the Course Website							
Module Instructions or Weekly Schedules on the Course Website							
Email Conversations or Messages Directly with the Teacher							
Email Conversations or Messages Directly with Other Students							
Blog or Discussion Assignments							
Announcements							

<https://purdue.ca1.qualtrics.com/ControlPanel/?ClientAction=EditSurvey=&SubSection=&PageActionOptions=&TransactionID=1&Repeatable=0> Page 7 of 18



Q12

What else would you like to say about Coordination in the class?





Q13

5) Competency - belief that work of the class (as individuals, groups, and whole) is effective

	1	2	3	4	5	6	7
Assignment Descriptions on the Course Website							
Module Instructions or Weekly Schedules on the Course Website							
Email Conversations or Messages Directly with the Teacher							
Email Conversations or Messages Directly with Other Students							
Blog or Discussion Assignments							
Announcements from the Instructor on the Website or Mass-Emails							
Feedback from the Teacher attached to Completed Work							
Peer Review							
Individual Assignments							

<https://purdue.ca1.qualtrics.com/ControlPanel/?ClientAction=EditSurvey=&SubSection=&PageActionOptions=&TransactionID=1&Repeatable=0> Page 9 of 18

Page 10 of 18

Q17

Overall, how would you rate each of the six categories in this class? (1=poor, 7=great)

	1	2	3	4	5	6	7
Shared Identification - the class has a shared identity							
Trust - class members trust each other							
Awareness - class members know what is going on							
Coordination - synchronization of the class							
Competency - effectiveness of work							
Conflict - prevention or reduction of conflict							







Q18


What else would you like to say about your class?

Add Block


Q26

These questions are about you. Answer what you are comfortable with

 Q28	<p>Why did you take this online class?</p> <p><input type="checkbox"/> Seeking Required Credit</p> <p><input type="checkbox"/> Seeking Elective Credit</p> <p><input type="checkbox"/> Seeking Transfer Credit</p> <p><input type="checkbox"/> Wanted Flexibility</p> <p><input type="checkbox"/> Needed Flexibility</p> <p><input type="checkbox"/> Other: <input type="text"/></p>
 Q40	<p>How prepared for this class did you feel before taking it?</p> <p><input type="radio"/> Not Prepared Enough</p> <p><input type="radio"/> Prepared Enough</p> <p><input type="radio"/> Over-Prepared</p>
 Q41	<p>What grade-range do you expect to receive in the class?</p> <p><input type="radio"/> A</p> <p><input type="radio"/> B</p> <p><input type="radio"/> C</p> <p><input type="radio"/> D</p> <p><input type="radio"/> E</p>
 Q29	<p>Was this your first online class?</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p>
 Q31	<p>What is your year of birth?</p> <p><input type="text"/></p> <p></p>

 Q33

Are you Spanish, Hispanic, or Latino?




☐ Spanish


☐ Hispanic

☐ Latino

☐ None of these

 Q35


Choose one or more races that you consider yourself to be:




☐ White ☐ Asian

☐ Black or African American ☐ Native Hawaiian or Pacific Islander

☐ American Indian or Alaska Native ☐ Other

 Q37


What is your sex?




☐ Male


☐ Female

☐ Identify as:


 Q39

What is your ZIP code?







[Add Block](#)

 Block 4

Block Options ▾

 Q19

These questions are about the design of your class and the "Learning Management Software" (LMS), either Blackboard or Canvas. Answer to the best of your ability based on your class.







Q21



Which of the following did you use, visit, read, or participate in at least once in the class? Select all that apply.

- ☐ Assignment Descriptions on the Course Website
- ☐ Module Instructions or Weekly Schedules on the Course Website
- ☐ Email Conversations or Messages Directly with the Teacher
- ☐ Email Conversations or Messages Directly with Other Students
- ☐ Blog or Discussion Assignments
- ☐ Announcements from the Instructor on the Website or Mass-Emails
- ☐ Feedback from the Teacher attached to Completed Work
- ☐ Peer Review
- ☐ Individual Assignments
- ☐ Course Website Calendar or Task List
- ☐ Video Tutorials
- ☐ Grades (separate from feedback)
- ☐ Module Activities
- ☐ Course Readings
- ☐ FAQ
- ☐ Syllabus
- ☐ Quizzes
- ☐ Other:








Carry Forward Items



Q22


Selected Choices from "Which of the following did you use, visit, read..."

When you need to know what to do next at a given moment in the class, where do you go? Rank the top 5 places you visit or things you do in order of likelihood they would help you.

- ☐ » Assignment Descriptions on the Course Website
- ☐ » Module Instructions or Weekly Schedules on the Course Website
- ☐ » Email Conversations or Messages Directly with the Teacher
- ☐ » Email Conversations or Messages Directly with Other Students
- ☐ » Blog or Discussion Assignments
- ☐ » Announcements from the Instructor on the Website or Mass-Emails
- ☐ » Feedback from the Teacher attached to Completed Work
- ☐ » Peer Review
- ☐ » Individual Assignments
- ☐ » Course Website Calendar or Task List
- ☐ » Video Tutorials
- ☐ » Grades (separate from feedback)
- ☐ » Module Activities
- ☐ » Course Readings
- ☐ » FAQ
- ☐ » Syllabus
- ☐ » Quizzes
- ☐ » Other:

 Q23	How did you navigate the course for information?
	<input type="text"/>
 Q24	How did you <i>learn</i> to navigate the course for information?
	<input type="text"/>
 Q25	How often did you complete major assignments without doing all the activities or reading first?
	<p><input type="radio"/> I did all the reading and activities, whether or not I received points</p> <p><input type="radio"/> I attempted everything that earned points</p> <p><input type="radio"/> Skipped one or two things</p> <p><input type="radio"/> Did more or less depending on time</p> <p><input type="radio"/> Regularly skipped reading</p> <p><input type="radio"/> Regularly skipped activities</p> <p><input type="radio"/> Focused only on the major projects</p>

☒ Q45 How would you rate your LMS in the following areas (7=best):



	0	1	2	3	4	5	6	7
Accessibility								
Self-Explanatory Labels								
Ease of Finding Information								
Ease of Downloading Files								
Ease of Getting Feedback								
Ease of Communicating with other Students								
Ease of Communicating with Instructor								
Overall								



Q43

Did you contact any tutoring services for help with work in the class? If so, please name:



- ☐ Yes:
- ☐ No



Q46

What was the largest source of difficulty in the course?



- ☐ Using the LMS
- ☐ Doing the work
- ☐ Communicating with the Instructor

[Add Block](#)

▼ Block 7 Block Options ▼

■ Q42 What else would you like to say about your class, related or not to the questions in this survey?

⚙

[Add Block](#)

▼ Block 6 Block Options ▼

■ Q42 What email address would you like your \$20 Amazon gift certificate sent to?

⚙

■ Q43 Would it be all right to contact you about possible further research on this project in the future?

⚙ ☐ Yes ☐ No

■ Q44 What email address would you like to be contacted at regarding future research? (leave blank if same as amazon certificate address)

⚙

[Add Block](#)

⚠ End of Survey [Survey Termination Options...](#)



APPENDIX D. DISSERTATION INTERNAL SURVEY REPORT

Dissertation Report

1712020019 Final Survey

June 17, 2019 3:20 PM EDT

Q4 - 1) Shared Identity - feeling that you, the class, your team, and/or your instructor

shared a team identity despite being in different locations

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
4	Email Conversations or Messages Directly with Other Students	4.00	7.00	6.33	1.15	1.33	18
5	Blog or Discussion Assignments	3.00	7.00	6.11	1.24	1.54	18
3	Email Conversations or Messages Directly with the Teacher	3.00	7.00	6.06	1.35	1.83	18
2	Module Instructions or Weekly Schedules on the Course Website	4.00	7.00	6.06	1.18	1.39	18
6	Announcements from the Instructor on the Website or Mass-Emails	3.00	7.00	5.94	1.47	2.16	18
12	Grades (separate from feedback)	2.00	7.00	5.72	1.66	2.76	18
10	Course Website Calendar or Task List	1.00	7.00	5.67	1.73	3.00	18
7	Feedback from the Teacher attached to Completed Work	1.00	7.00	5.50	1.92	3.69	18
1	Assignment Descriptions on the Course Website	2.00	7.00	5.50	1.46	2.14	18
8	Peer Review	2.00	7.00	5.44	1.86	3.47	18
9	Individual Assignments	1.00	7.00	5.39	1.60	2.57	18
11	Video Tutorials	1.00	7.00	4.67	2.33	5.44	18

Q6 - 2) Trust - trust in accountability of other class members, trust to be vulnerable to

them

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
3	Email Conversations or Messages Directly with the Teacher	3.00	7.00	6.44	1.12	1.25	18
4	Email Conversations or Messages Directly with Other Students	3.00	7.00	6.17	1.17	1.36	18
6	Announcements from the Instructor on the Website or Mass-Emails	2.00	7.00	6.11	1.52	2.32	18
10	Course Website Calendar or Task List	2.00	7.00	6.00	1.49	2.22	18
7	Feedback from the Teacher attached to Completed Work	2.00	7.00	5.83	1.67	2.81	18
2	Module Instructions or Weekly Schedules on the Course Website	1.00	7.00	5.78	1.62	2.62	18
9	Individual Assignments	2.00	7.00	5.72	1.41	1.98	18
5	Blog or Discussion Assignments	2.00	7.00	5.72	1.69	2.87	18
12	Grades (separate from feedback)	1.00	7.00	5.67	1.83	3.33	18
8	Peer Review	3.00	7.00	5.33	1.63	2.67	18
1	Assignment Descriptions on the Course Website	1.00	7.00	5.33	1.83	3.33	18
11	Video Tutorials	1.00	7.00	4.94	2.37	5.61	18

Q9 - 3) Awareness - satisfying awareness of what other class members are doing as part
of the class (team members, instructor)

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
4	Email Conversations or Messages Directly with Other Students	2.00	7.00	6.28	1.28	1.65	18
5	Blog or Discussion Assignments	3.00	7.00	5.89	1.29	1.65	18
2	Module Instructions or Weekly Schedules on the Course Website	2.00	7.00	5.89	1.66	2.77	18
10	Course Website Calendar or Task List	2.00	7.00	5.83	1.50	2.25	18
6	Announcements from the Instructor on the Website or Mass-E-mails	2.00	7.00	5.83	1.61	2.58	18
3	Email Conversations or Messages Directly with the Teacher	2.00	7.00	5.83	1.42	2.03	18
9	Individual Assignments	2.00	7.00	5.78	1.55	2.40	18
12	Grades (separate from feedback)	1.00	7.00	5.56	1.86	3.47	18
8	Peer Review	4.00	7.00	5.50	1.50	2.25	18
7	Feedback from the Teacher attached to Completed Work	2.00	7.00	5.39	1.67	2.79	18
1	Assignment Descriptions on the Course Website	2.00	7.00	5.39	1.70	2.90	18
11	Video Tutorials	1.00	7.00	4.72	2.18	4.76	18

Q11 - 4) Coordination - logistical and organizing work that kept the class and groups

synchronized

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
6	Announcements from the Instructor on the Website or Mass-Emails	3.00	7.00	6.11	1.15	1.32	18
10	Course Website Calendar or Task List	2.00	7.00	6.06	1.35	1.83	18
3	Email Conversations or Messages Directly with the Teacher	2.00	7.00	6.06	1.35	1.83	18
4	Email Conversations or Messages Directly with Other Students	3.00	7.00	6.00	1.25	1.56	18
2	Module Instructions or Weekly Schedules on the Course Website	2.00	7.00	5.83	1.42	2.03	18
1	Assignment Descriptions on the Course Website	4.00	7.00	5.78	1.23	1.51	18
9	Individual Assignments	2.00	7.00	5.67	1.49	2.22	18
5	Blog or Discussion Assignments	2.00	7.00	5.67	1.56	2.44	18
8	Peer Review	2.00	7.00	5.61	1.67	2.79	18
7	Feedback from the Teacher attached to Completed Work	3.00	7.00	5.61	1.42	2.02	18
12	Grades (separate from feedback)	2.00	7.00	5.28	1.73	2.98	18
11	Video Tutorials	1.00	7.00	4.67	2.24	5.00	18

Q13 - 5) Competency - belief that work of the class (as individuals, groups, and whole) is

effective

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
3	Email Conversations or Messages Directly with the Teacher	2.00	7.00	6.22	1.31	1.73	18
4	Email Conversations or Messages Directly with Other Students	2.00	7.00	5.94	1.39	1.94	18
2	Module Instructions or Weekly Schedules on the Course Website	2.00	7.00	5.94	1.43	2.05	18
10	Course Website Calendar or Task List	2.00	7.00	5.89	1.56	2.43	18
1	Assignment Descriptions on the Course Website	2.00	7.00	5.89	1.52	2.32	18
9	Individual Assignments	3.00	7.00	5.83	1.42	2.03	18
6	Announcements from the Instructor on the Website or Mass-Emails	2.00	7.00	5.83	1.71	2.92	18
7	Feedback from the Teacher attached to Completed Work	2.00	7.00	5.61	1.77	3.13	18
12	Grades (separate from feedback)	2.00	7.00	5.50	1.74	3.03	18
5	Blog or Discussion Assignments	2.00	7.00	5.44	1.71	2.91	18
8	Peer Review	2.00	7.00	5.39	1.77	3.13	18
11	Video Tutorials	1.00	7.00	4.89	2.26	5.10	18

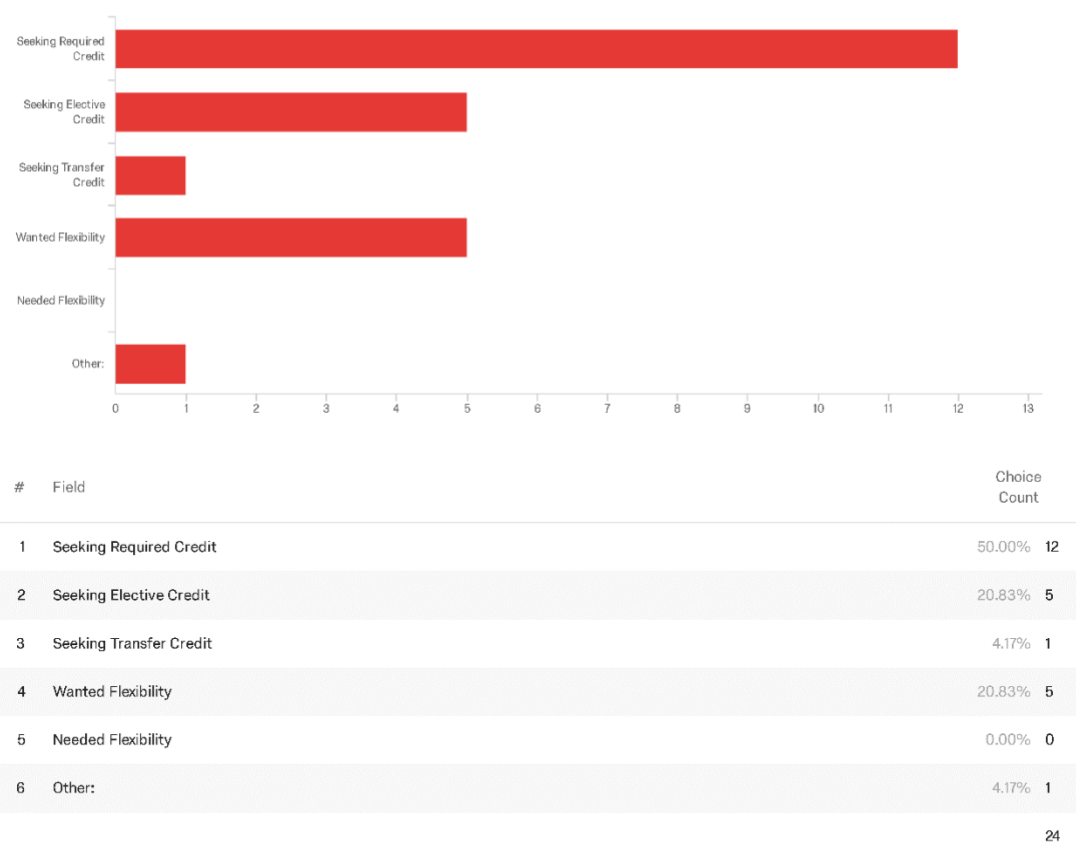
Q15 - 6) Conflict - contributed to the prevention or reduction of conflict in the class

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
4	Email Conversations or Messages Directly with Other Students	4.00	7.00	6.39	0.95	0.90	18
3	Email Conversations or Messages Directly with the Teacher	4.00	7.00	6.22	0.97	0.95	18
2	Module Instructions or Weekly Schedules on the Course Website	2.00	7.00	6.17	1.34	1.81	18
6	Announcements from the Instructor on the Website or Mass-Emails	2.00	7.00	6.06	1.35	1.83	18
10	Course Website Calendar or Task List	2.00	7.00	6.00	1.45	2.11	18
1	Assignment Descriptions on the Course Website	2.00	7.00	6.00	1.49	2.22	18
9	Individual Assignments	2.00	7.00	5.83	1.50	2.25	18
8	Peer Review	3.00	7.00	5.61	1.53	2.35	18
5	Blog or Discussion Assignments	2.00	7.00	5.61	1.80	3.24	18
7	Feedback from the Teacher attached to Completed Work	2.00	7.00	5.56	1.74	3.02	18
12	Grades (separate from feedback)	1.00	7.00	5.50	1.83	3.36	18
11	Video Tutorials	1.00	7.00	5.06	2.20	4.83	18

Q17 - Overall, how would you rate each of the six categories in this class? (1=poor, 7=great)

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Shared Identification - the class has a shared identity	3.00	7.00	5.61	1.46	2.13	18
2	Trust - class members trust each other	2.00	7.00	5.83	1.50	2.25	18
3	Awareness - class members know what is going on	1.00	7.00	5.22	1.75	3.06	18
4	Coordination - synchronization of the class	2.00	7.00	5.83	1.30	1.69	18
5	Competency - effectiveness of work	2.00	7.00	5.56	1.54	2.36	18
6	Conflict - prevention or reduction of conflict	2.00	7.00	6.06	1.27	1.61	18

Q28 - Why did you take this online class?



Showing rows 1 - 7 of 7

Q28_6_TEXT - Other:

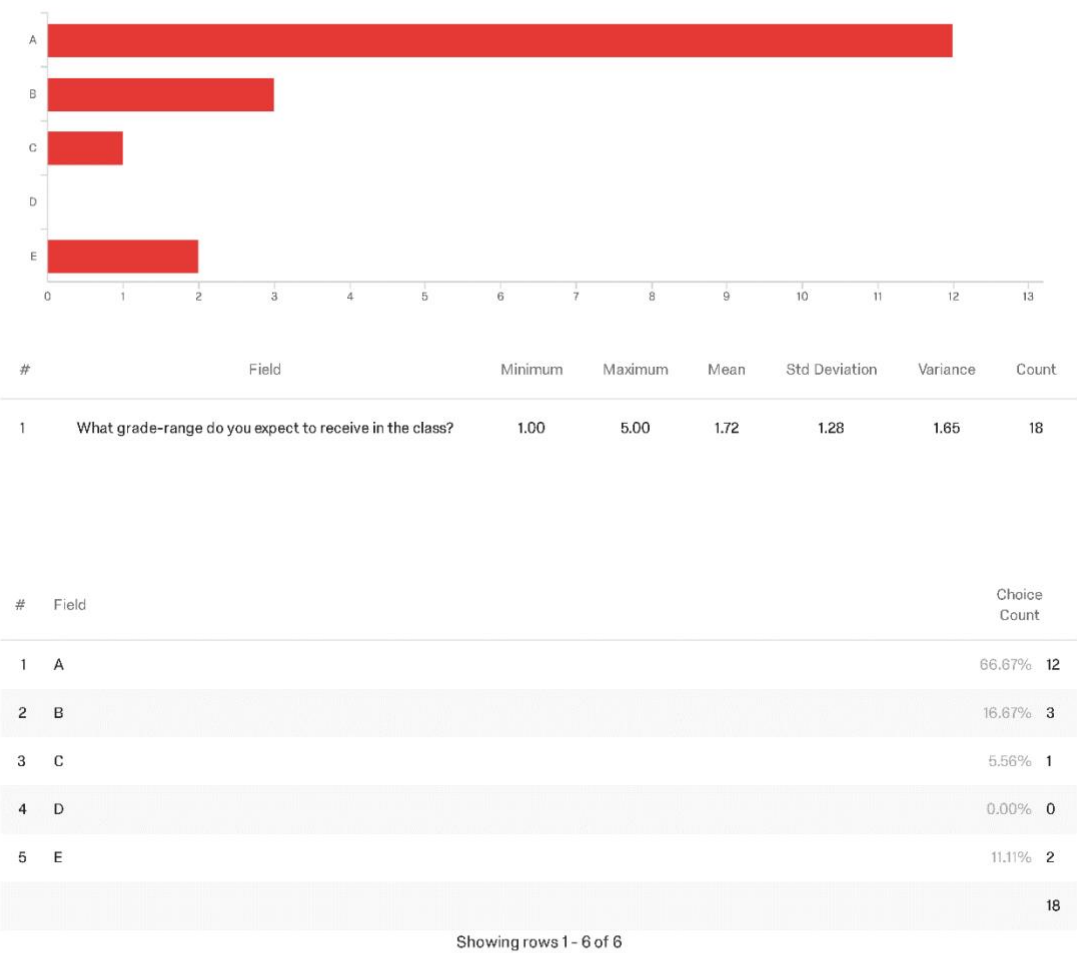
Other:

I took the class because I wanted to improve my writing skills

Q40 - How prepared for this class did you feel before taking it?



Q41 - What grade-range do you expect to receive in the class?



Q29 - Was this your first online class?



Q31 - What is your year of birth?

What is your year of birth?

1999

1997

1999

1983

2000

1994

1995

1996

1995

1995

1996

1999

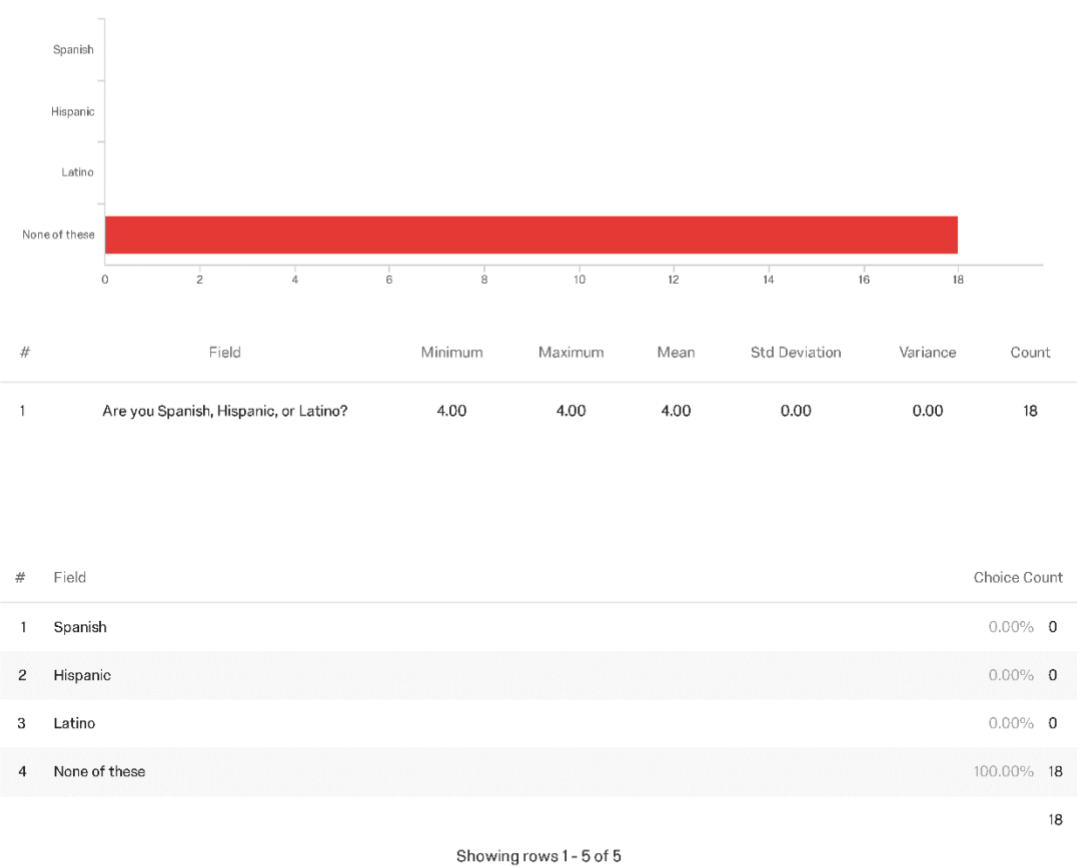
1997

1999

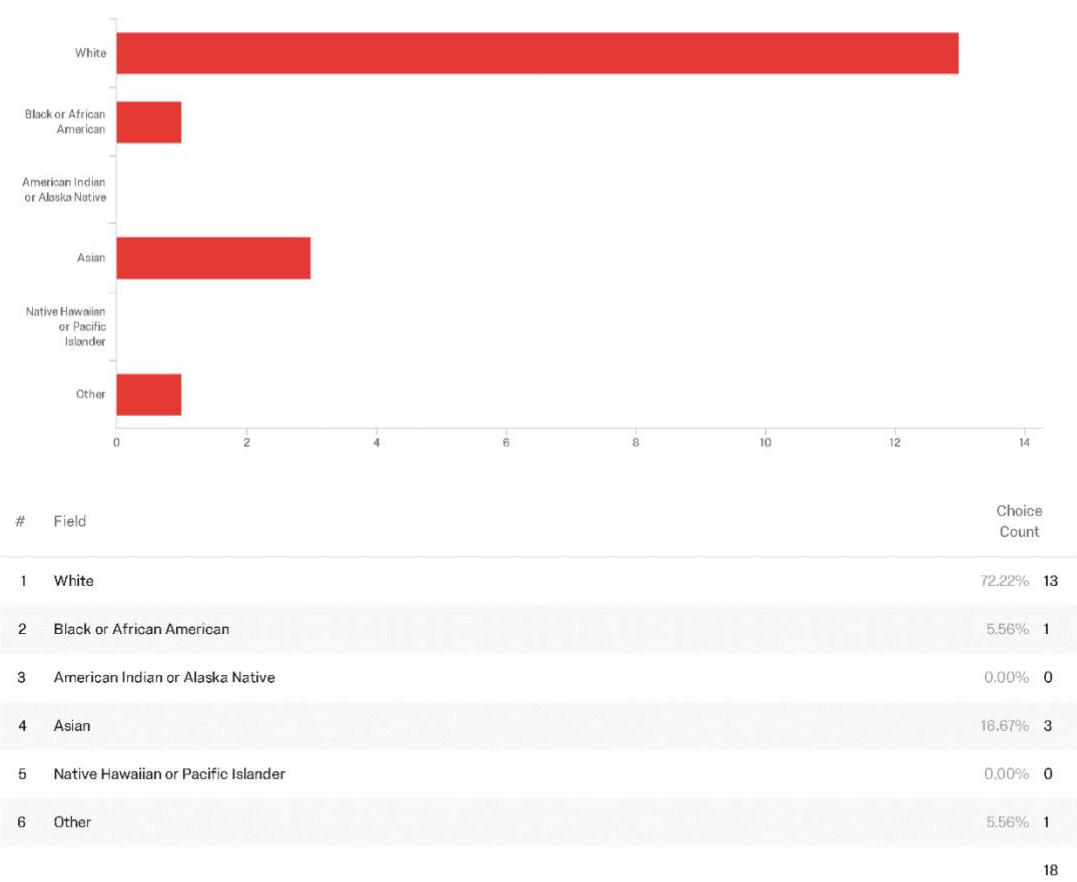
1999

1996

Q33 - Are you Spanish, Hispanic, or Latino?



Q35 - Choose one or more races that you consider yourself to be:

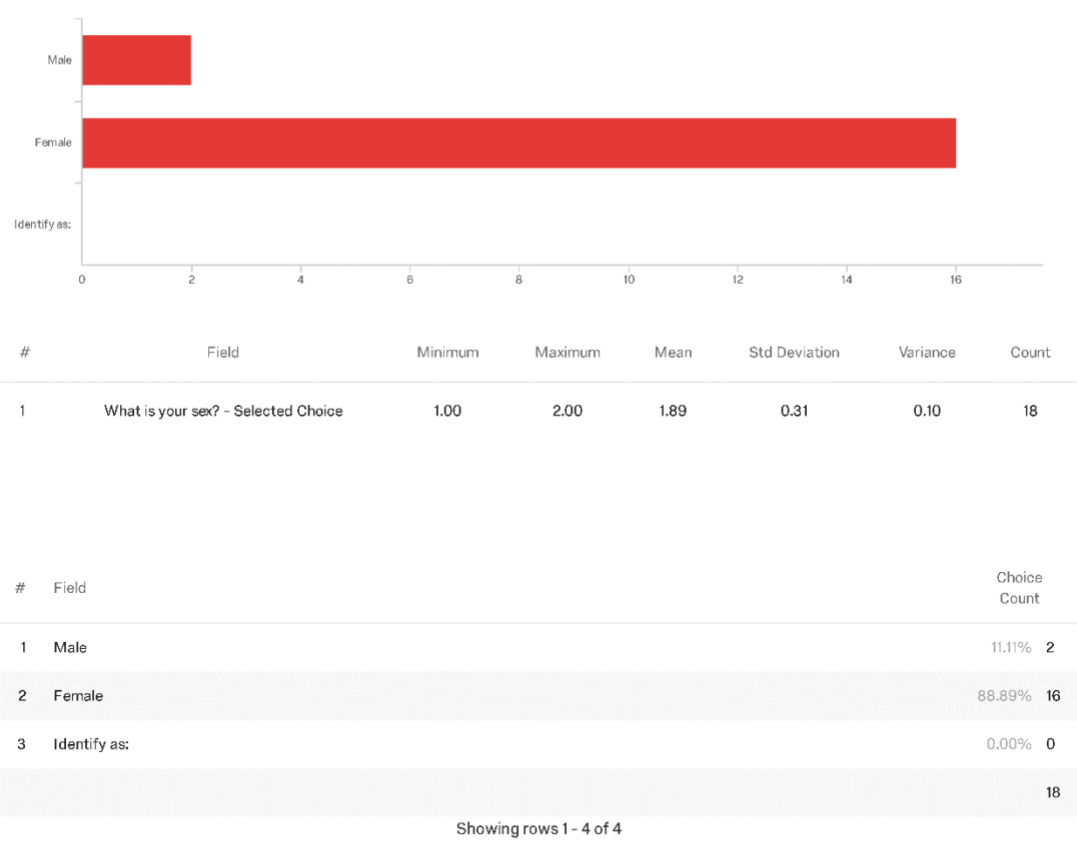


Showing rows 1 - 7 of 7

Q35_6_TEXT - Other

Other

Q37 - What is your sex?



Q37_3_TEXT - Identify as:

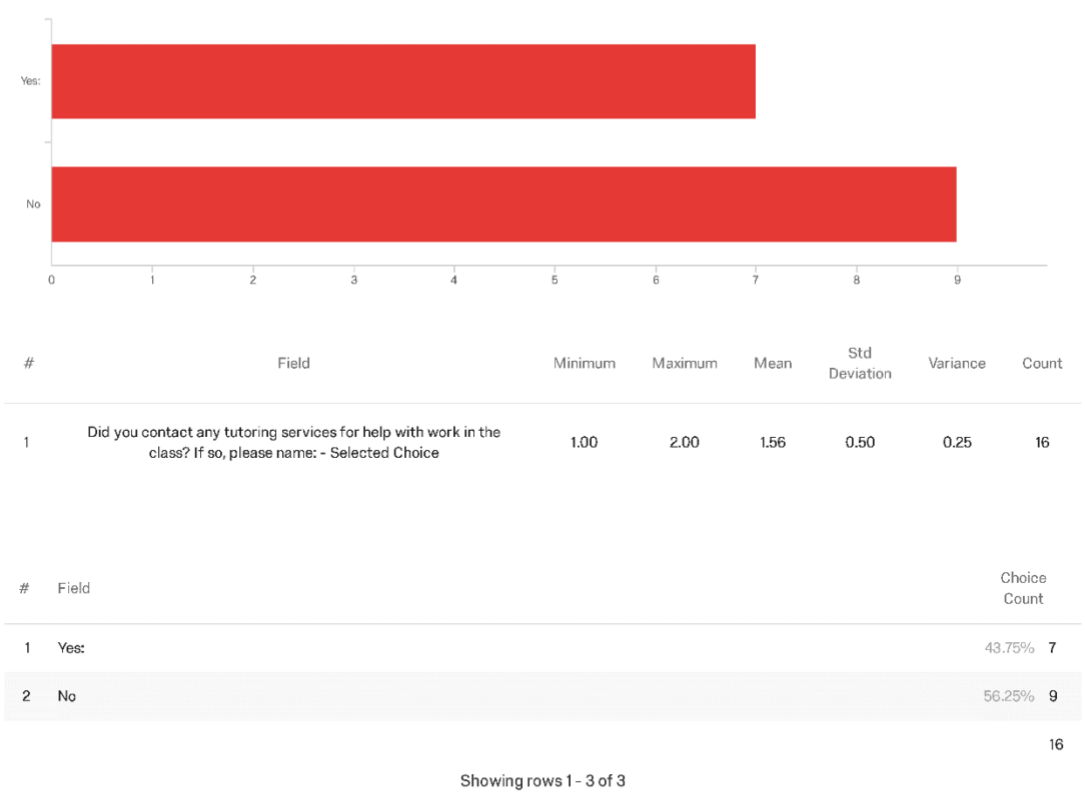
Identify as:

Q45 - How would you rate your LMS in the following areas (7=best):

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Accessibility	5.00	7.00	6.38	0.86	0.73	16
2	Self-Explanatory	4.00	7.00	6.13	1.17	1.36	16
3	Ease of Finding Information	2.00	7.00	5.94	1.48	2.18	16
4	Ease of Downloading Files	4.00	7.00	6.00	1.22	1.50	16
5	Ease of Getting Feedback	1.00	7.00	5.81	1.59	2.53	16
6	Ease of Communicating with other Students	2.00	7.00	5.81	1.59	2.53	16
7	Ease of Communicating with Instructor	4.00	7.00	6.31	1.04	1.09	16
8	Overall	3.00	7.00	6.06	1.20	1.43	16

Q43 - Did you contact any tutoring services for help with work in the class? If so, please

name:



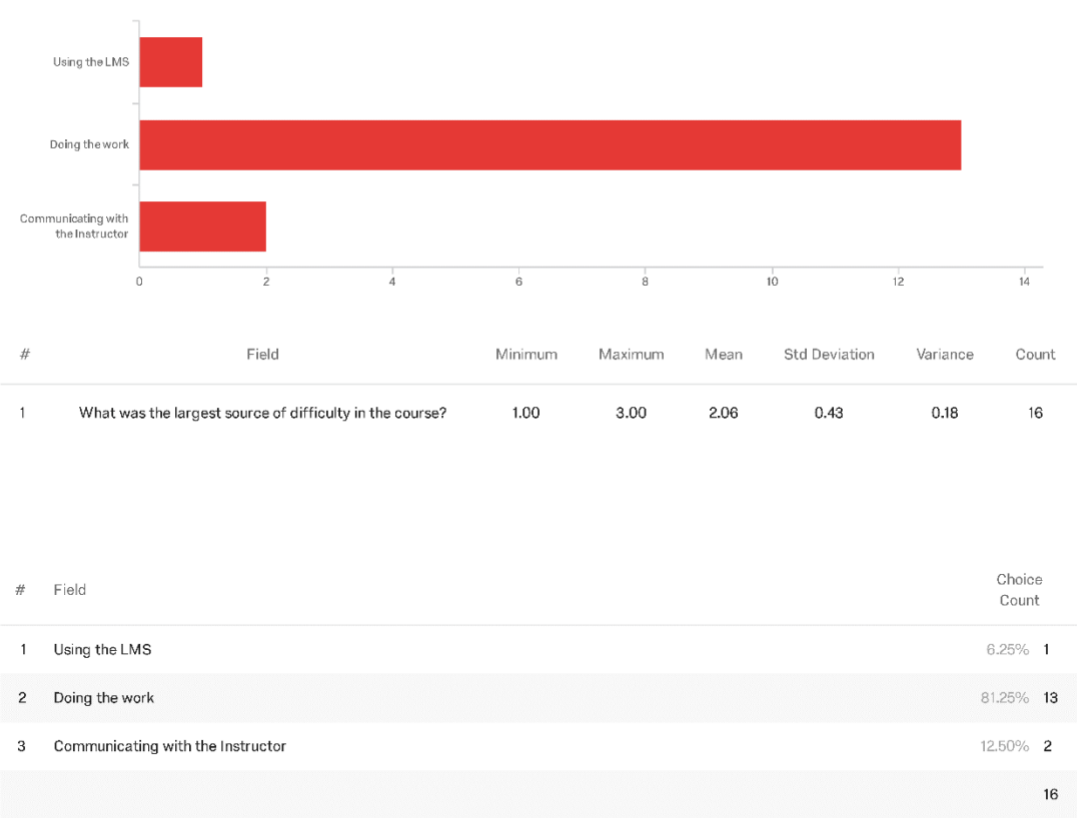
Q43_1_TEXT - Yes:

Yes:
Tutor.com
Tutor.com
Tutorivy
Tutor.com
Tutoring .com

Yes:

I don't remember the name but it was through tutor Ivy

Q46 - What was the largest source of difficulty in the course?



Showing rows 1 - 4 of 4

End of Report

APPENDIX E. DISSERTATION EXTERNAL REPORT

Dissertation Report

1712020019 Final Survey 2nd Round

June 17, 2019 3:33 PM EDT

Q4 - 1) Shared Identity - feeling that you, the class, your team, and/or your instructor

shared a team identity despite being in different locations

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
6	Announcements from the Instructor on the Website or Mass-Emails	4.00	7.00	6.25	1.09	1.19	8
10	Course Website Calendar or Task List	4.00	7.00	6.00	1.12	1.25	8
3	Email Conversations or Messages Directly with the Teacher	4.00	7.00	6.00	1.12	1.25	8
7	Feedback from the Teacher attached to Completed Work	4.00	7.00	5.88	1.27	1.61	8
5	Blog or Discussion Assignments	4.00	7.00	5.88	1.27	1.61	8
2	Module Instructions or Weekly Schedules on the Course Website	4.00	7.00	5.75	1.30	1.69	8
9	Individual Assignments	4.00	7.00	5.63	1.41	1.98	8
1	Assignment Descriptions on the Course Website	4.00	7.00	5.63	1.22	1.48	8
12	Grades (separate from feedback)	2.00	7.00	5.50	1.66	2.75	8
4	Email Conversations or Messages Directly with Other Students	4.00	7.00	5.38	1.22	1.48	8
8	Peer Review	4.00	7.00	5.25	1.20	1.44	8
11	Video Tutorials	1.00	7.00	5.13	1.96	3.86	8

Q6 - 2) Trust - trust in accountability of other class members, trust to be vulnerable to

them

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
10	Course Website Calendar or Task List	4.00	7.00	5.88	1.27	1.61	8
2	Module Instructions or Weekly Schedules on the Course Website	4.00	7.00	5.75	1.39	1.94	8
7	Feedback from the Teacher attached to Completed Work	4.00	7.00	5.50	1.00	1.00	8
6	Announcements from the Instructor on the Website or Mass-Emails	4.00	7.00	5.50	1.32	1.75	8
3	Email Conversations or Messages Directly with the Teacher	4.00	7.00	5.50	1.32	1.75	8
12	Grades (separate from feedback)	2.00	7.00	5.38	1.73	2.98	8
11	Video Tutorials	1.00	7.00	5.38	1.93	3.73	8
9	Individual Assignments	4.00	7.00	5.38	1.11	1.23	8
1	Assignment Descriptions on the Course Website	4.00	7.00	5.38	1.41	1.98	8
8	Peer Review	4.00	7.00	4.75	1.09	1.19	8
4	Email Conversations or Messages Directly with Other Students	3.00	7.00	4.75	1.30	1.69	8
5	Blog or Discussion Assignments	3.00	7.00	4.63	1.11	1.23	8

Q9 - 3) Awareness - satisfying awareness of what other class members are doing as part

of the class (team members, instructor)

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
6	Announcements from the Instructor on the Website or Mass-Emails	4.00	7.00	5.63	1.32	1.73	8
11	Video Tutorials	1.00	7.00	5.50	2.00	4.00	8
5	Blog or Discussion Assignments	4.00	7.00	5.50	1.32	1.75	8
10	Course Website Calendar or Task List	3.00	7.00	5.38	1.49	2.23	8
8	Peer Review	4.00	7.00	5.38	0.99	0.98	8
7	Feedback from the Teacher attached to Completed Work	1.00	7.00	5.38	2.06	4.23	8
4	Email Conversations or Messages Directly with Other Students	2.00	7.00	5.38	1.58	2.48	8
12	Grades (separate from feedback)	1.00	7.00	5.25	1.92	3.69	8
3	Email Conversations or Messages Directly with the Teacher	1.00	7.00	5.25	1.98	3.94	8
9	Individual Assignments	3.00	7.00	5.13	1.27	1.61	8
1	Assignment Descriptions on the Course Website	2.00	7.00	5.13	1.76	3.11	8
2	Module Instructions or Weekly Schedules on the Course Website	1.00	7.00	5.00	2.00	4.00	8

Q11 - 4) Coordination - logistical and organizing work that kept the class and groups

synchronized

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
7	Feedback from the Teacher attached to Completed Work	4.00	7.00	5.88	1.17	1.36	8
3	Email Conversations or Messages Directly with the Teacher	4.00	7.00	5.88	1.27	1.61	8
12	Grades (separate from feedback)	3.00	7.00	5.75	1.48	2.19	8
6	Announcements from the Instructor on the Website or Mass-Emails	4.00	7.00	5.75	1.30	1.69	8
2	Module Instructions or Weekly Schedules on the Course Website	4.00	7.00	5.75	1.39	1.94	8
11	Video Tutorials	4.00	7.00	5.63	1.22	1.48	8
1	Assignment Descriptions on the Course Website	4.00	7.00	5.63	1.41	1.98	8
10	Course Website Calendar or Task List	4.00	7.00	5.50	1.32	1.75	8
9	Individual Assignments	4.00	7.00	5.50	1.12	1.25	8
5	Blog or Discussion Assignments	4.00	7.00	5.50	1.32	1.75	8
8	Peer Review	4.00	7.00	5.38	1.22	1.48	8
4	Email Conversations or Messages Directly with Other Students	3.00	7.00	5.00	1.50	2.25	8

Q13 - 5) Competency - belief that work of the class (as individuals, groups, and whole) is

effective

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
10	Course Website Calendar or Task List	4.00	7.00	6.00	1.12	1.25	8
3	Email Conversations or Messages Directly with the Teacher	4.00	7.00	6.00	1.12	1.25	8
2	Module Instructions or Weekly Schedules on the Course Website	4.00	7.00	5.88	1.05	1.11	8
7	Feedback from the Teacher attached to Completed Work	3.00	7.00	5.75	1.48	2.19	8
12	Grades (separate from feedback)	2.00	7.00	5.63	1.73	2.98	8
6	Announcements from the Instructor on the Website or Mass-E-mails	4.00	7.00	5.63	1.22	1.48	8
8	Peer Review	4.00	7.00	5.38	0.86	0.73	8
9	Individual Assignments	3.00	7.00	5.25	1.20	1.44	8
1	Assignment Descriptions on the Course Website	4.00	7.00	5.25	1.39	1.94	8
4	Email Conversations or Messages Directly with Other Students	4.00	7.00	5.13	1.27	1.61	8
11	Video Tutorials	2.00	7.00	5.00	1.58	2.50	8
5	Blog or Discussion Assignments	4.00	7.00	5.00	1.00	1.00	8

Q15 - 6) Conflict - contributed to the prevention or reduction of conflict in the class

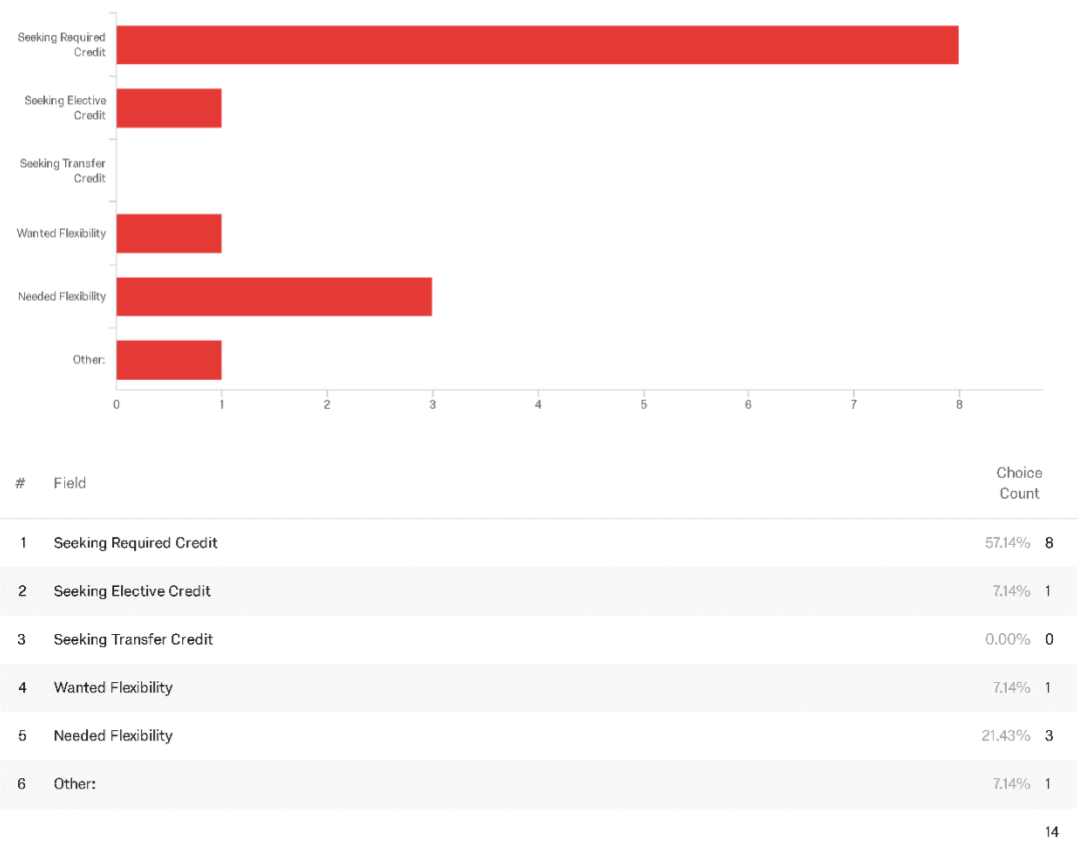
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
6	Announcements from the Instructor on the Website or Mass-Emails	4.00	7.00	6.00	1.32	1.75	8
3	Email Conversations or Messages Directly with the Teacher	4.00	7.00	6.00	1.32	1.75	8
2	Module Instructions or Weekly Schedules on the Course Website	4.00	7.00	6.00	1.22	1.50	8
10	Course Website Calendar or Task List	4.00	7.00	5.88	1.27	1.61	8
9	Individual Assignments	4.00	7.00	5.75	1.20	1.44	8
7	Feedback from the Teacher attached to Completed Work	4.00	7.00	5.75	1.20	1.44	8
1	Assignment Descriptions on the Course Website	4.00	7.00	5.75	1.39	1.94	8
5	Blog or Discussion Assignments	4.00	7.00	5.38	1.11	1.23	8
12	Grades (separate from feedback)	1.00	7.00	5.25	1.98	3.94	8
11	Video Tutorials	1.00	7.00	5.13	1.96	3.86	8
8	Peer Review	4.00	7.00	5.13	0.93	0.86	8
4	Email Conversations or Messages Directly with Other Students	2.00	7.00	5.13	1.69	2.86	8

Q17 - Overall, how would you rate each of the six categories in this class? (1=poor,

7=great)

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Shared Identification - the class has a shared identity	3.00	7.00	4.88	1.36	1.86	8
2	Trust - class members trust each other	3.00	7.00	5.00	1.32	1.75	8
3	Awareness - class members know what is going on	4.00	7.00	5.75	1.09	1.19	8
4	Coordination - synchronization of the class	4.00	7.00	5.75	1.09	1.19	8
5	Competency - effectiveness of work	4.00	7.00	5.25	1.20	1.44	8
6	Conflict - prevention or reduction of conflict	4.00	7.00	5.75	0.97	0.94	8

Q28 - Why did you take this online class?



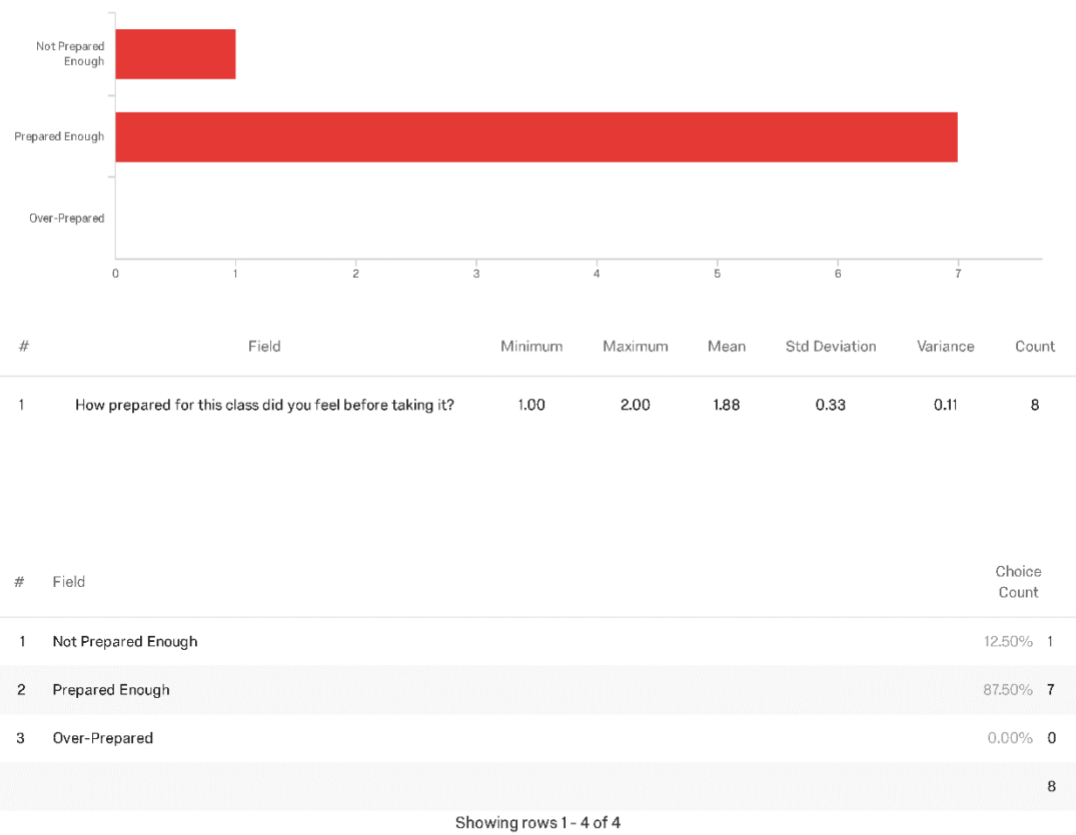
Showing rows 1 - 7 of 7

Q28_6_TEXT - Other:

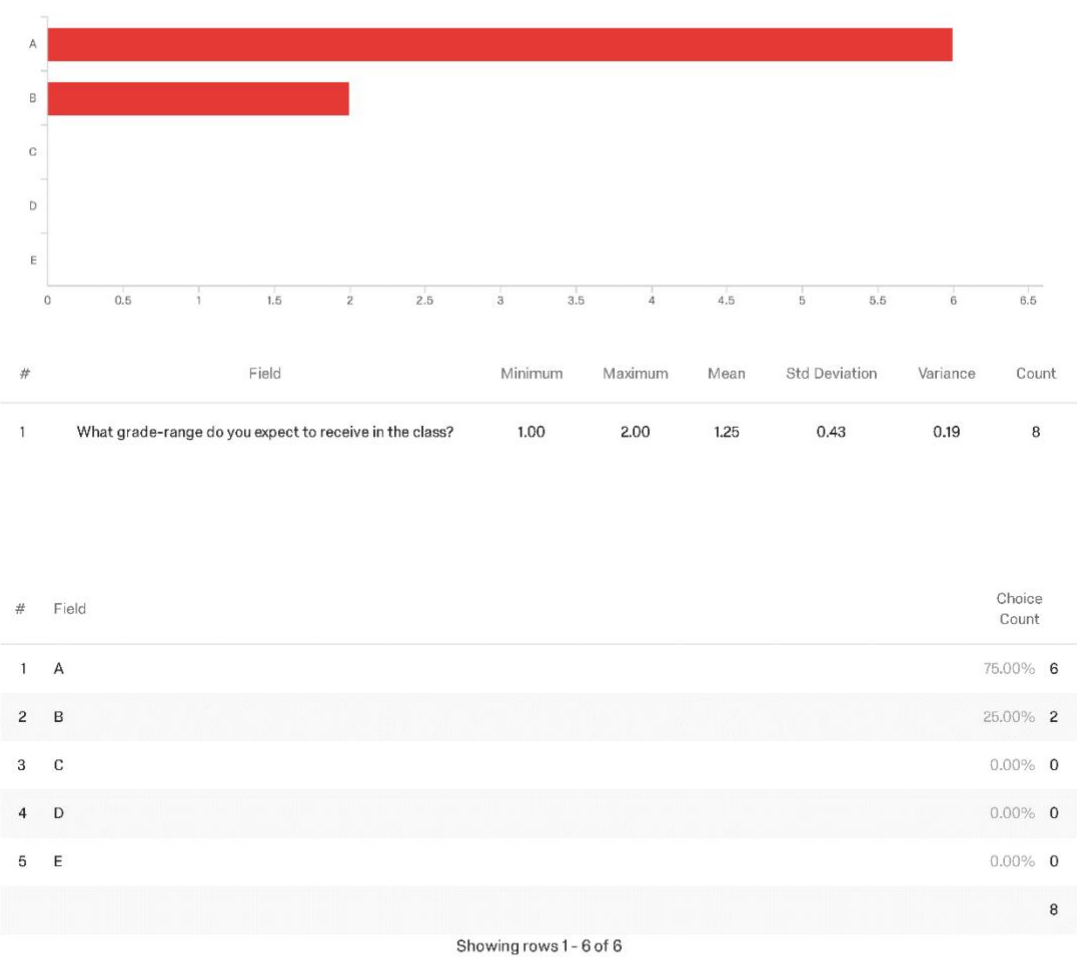
Other:

Sounded Interesting

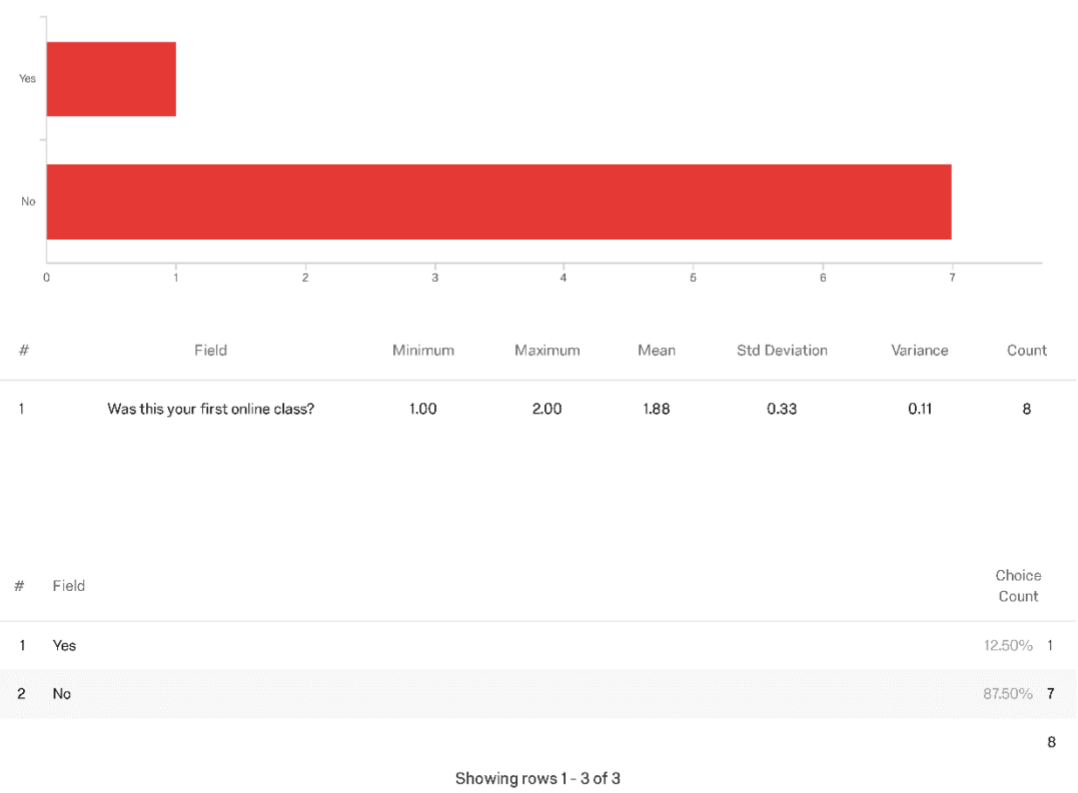
Q40 - How prepared for this class did you feel before taking it?



Q41 - What grade-range do you expect to receive in the class?



Q29 - Was this your first online class?



Q31 - What is your year of birth?

What is your year of birth?

1999

1998

1999

1998

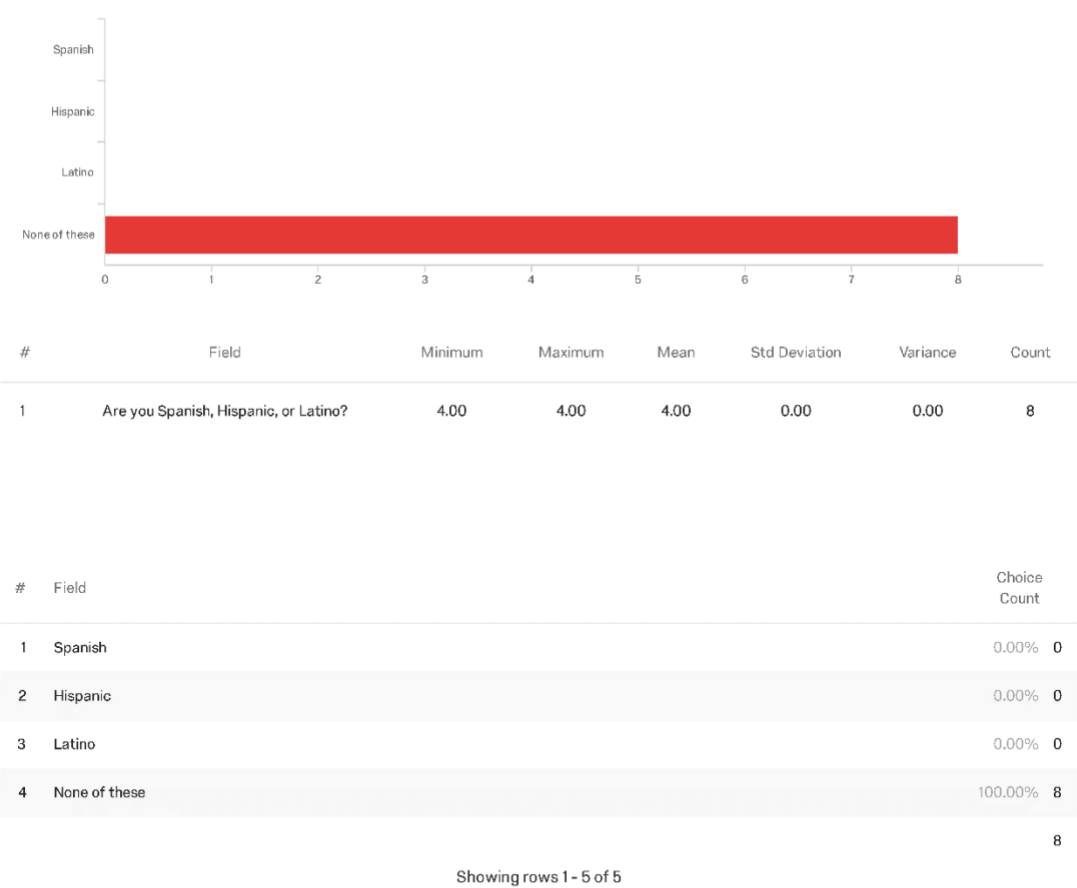
1975

1998

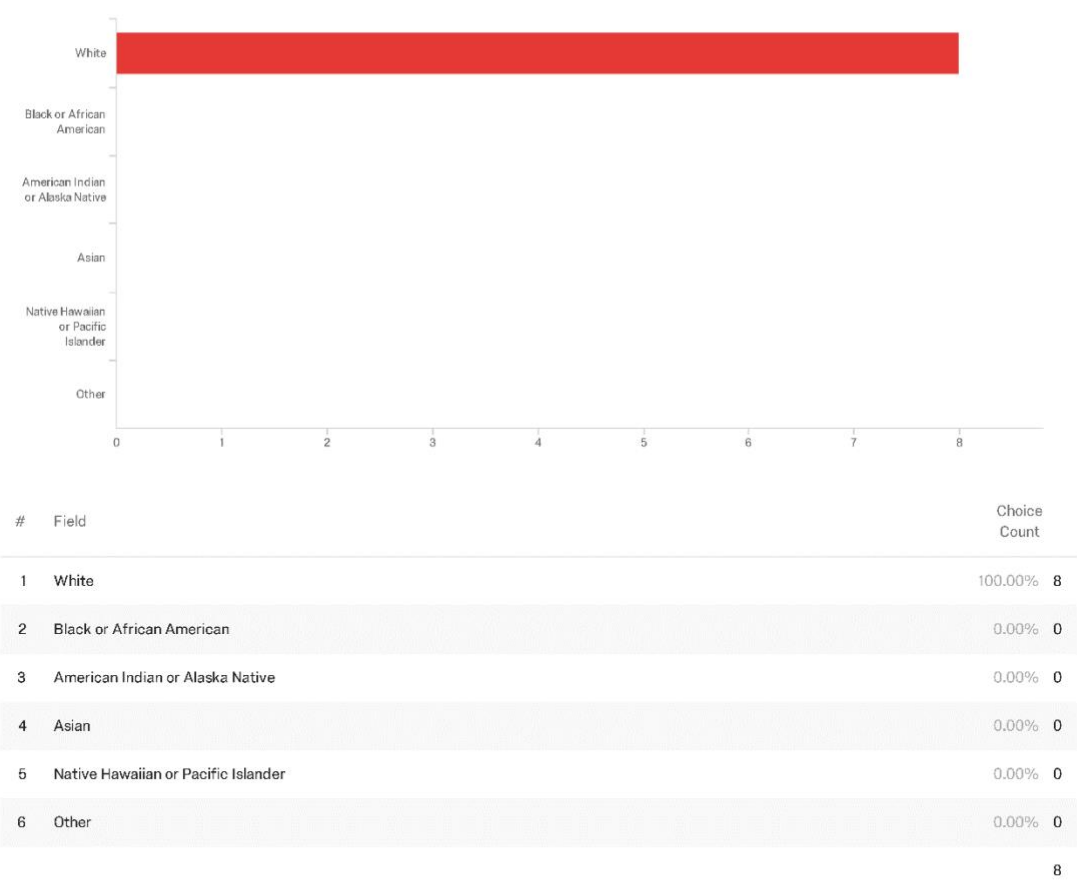
1997

1997

Q33 - Are you Spanish, Hispanic, or Latino?



Q35 - Choose one or more races that you consider yourself to be:

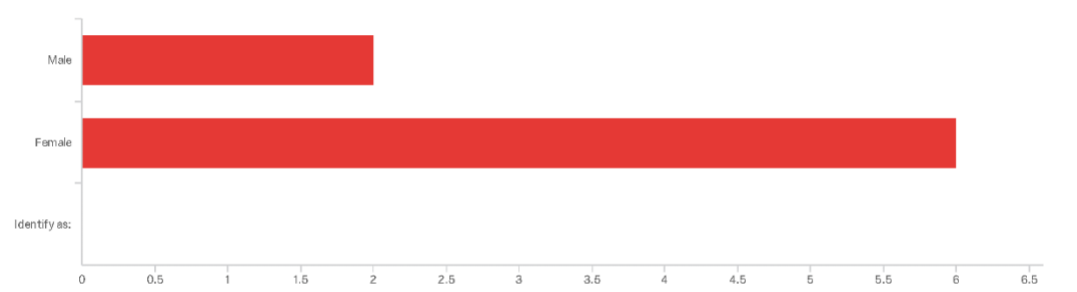


Showing rows 1 - 7 of 7

Q35_6_TEXT - Other

Other

Q37 - What is your sex?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	What is your sex? - Selected Choice	1.00	2.00	1.75	0.43	0.19	8

#	Field	Choice Count
1	Male	25.00% 2
2	Female	75.00% 6
3	Identify as:	0.00% 0
		8

Showing rows 1 - 4 of 4

Q37_3_TEXT - Identify as:

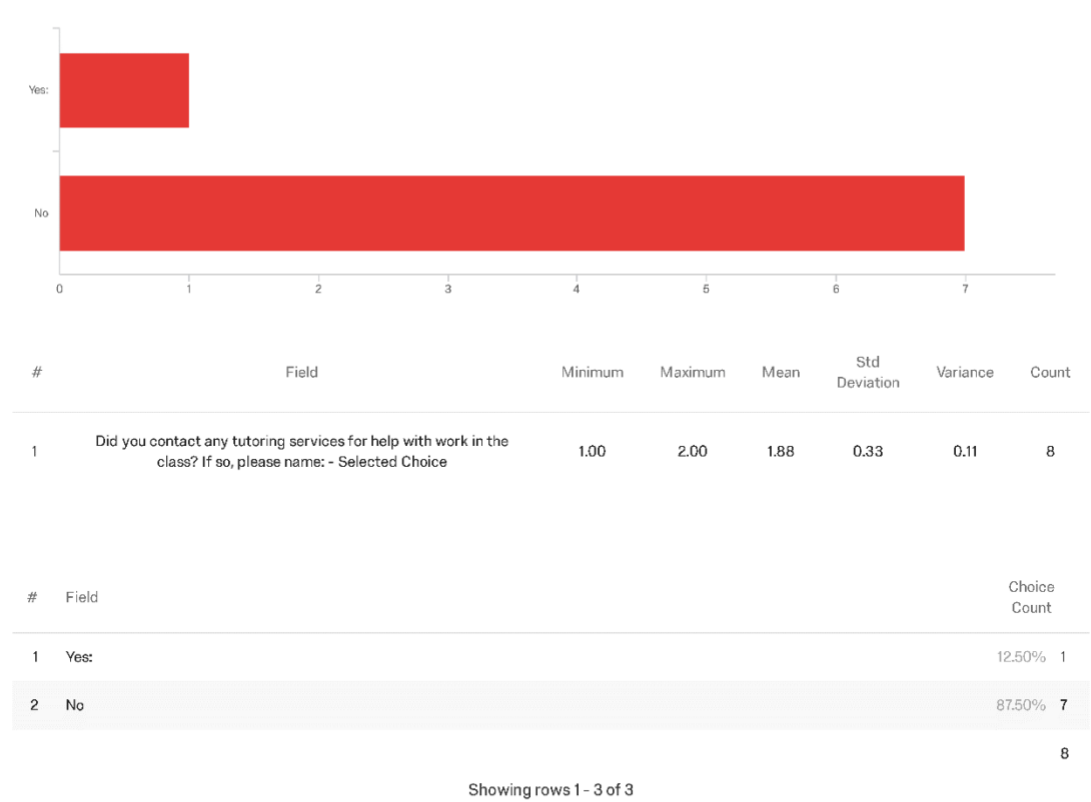
Identify as:

Q45 - How would you rate your LMS in the following areas (7=best):

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Accessibility	4.00	7.00	5.50	1.12	1.25	8
2	Self-Explanatory	4.00	7.00	5.38	1.32	1.73	8
3	Ease of Finding Information	4.00	7.00	6.00	1.12	1.25	8
4	Ease of Downloading Files	4.00	7.00	5.75	1.20	1.44	8
5	Ease of Getting Feedback	2.00	7.00	5.13	1.76	3.11	8
6	Ease of Communicating with other Students	4.00	7.00	5.00	1.32	1.75	8
7	Ease of Communicating with Instructor	4.00	7.00	6.00	1.00	1.00	8
8	Overall	4.00	7.00	5.50	1.00	1.00	8

Q43 - Did you contact any tutoring services for help with work in the class? If so, please

name:



Q43_1_TEXT - Yes:

Yes:
Writing Lab

Q46 - What was the largest source of difficulty in the course?



Showing rows 1 - 4 of 4

End of Report

REFERENCES

- Agar, M. H. (1996). *The Professional Stranger: An Informal Introduction to Ethnography*. Academic Press. 2nd Revised ed.
- Ahmed, S. (2004) *The Cultural Politics of Emotion*. Edinburgh: Edinburgh University Press, 2014 Ed.
- Angwin, J., Tobin, A., Varner, M. (2017). facebook (still) letting housing advertisers exclude users by race. *ProPublica*.
- Appen, J. D. and Stephens, S. H. (2017). digital humanities, middleware, and user experience design for public health applications. *Communication Design Quarterly*. 5.3. pp 24-34
- Aristotle. (2007). *On Rhetoric: A Theory of Civic Discourse*. Kennedy, G. A. (trans.). New York: Oxford University Press, Inc.
- Bacon, F. (1605). *Advancement of Learning*. Devey, J. (ed).
- Beldarrain, Y. (2006). Distance education trends: Integrating new technologies to foster student interaction and collaboration. *Distance Education*, 27:2, pp 139-153, DOI: 10.1080/01587910600789498
- Berlin, J. (1982). Contemporary composition: The major pedagogical theories. *College English* 44.8, pp 765-777.
- Berlin, J. (1996). *Rhetorics, Poetics, Cultures: Refiguring College English Studies*. West Lafayette, IN: Parlor Press. 2003 ed.
- Bitzer, L. F. (1968). The rhetorical situation. *Philosophy & Rhetoric*, Vol. 25, Selections from Volume 1 (1992), pp. 1-14
- Blair, K. L. and Monske, E. A. (2003). Cui bono?: Revisiting the promises and perils of online learning. *Computers and Composition* 20, pp 441–453.
- Boellstorff, T., Nardi, B., Pearce, C., Taylor T.L. (2012). *Ethnography And Virtual Worlds: A Handbook Of Method*. Princeton, NJ: Princeton University Press.
- Bowles, N. (2019). Human contact is now a luxury good. *The New York Times*. March 23.
- Boyd, P. W. (2008) Analyzing students' perceptions of their learning in online and hybrid first-year composition courses. *Computers and Composition*, 25(2), 224-43. Science Direct, doi:10.1016/j.compcom.2008.01.002

- Breen, R. L. (2006). A practical guide to focus-group research. *Journal of Geography in Higher Education*, Vol. 30, No. 3, 463–475, November 2006
- Brereton, J. C. (1996). *The Origins of Composition Studies in the American College, 1875-1925 :A Documentary History*. Pittsburgh: University of Pittsburgh Press.
- Brunk-Chavez, B., and Miller, S. J. (2006). Decentered, disconnected, and digitized: The importance of shared space. *Kairos*, 1(2), Retrieved from kairos.technorhetoric.net/11.2/binder.html?topoi/brunk-miller/index.html
- Buckland, M. K. (1991). Information as thing. *Journal of the American Society for Information Science*. 42(5): pp 351-360,
- Buckland, M. K. (2017). *Information and Society (The MIT Press Essential Knowledge series)*. Kindle ed.
- Busch, L. (2014). *Knowledge for Sale: The Neoliberal Takeover of Higher Education*. Cambridge, MA: MIT Press.
- Caplan, R., Hanson, L., and Donovan, J. (2018). Dead reckoning: Navigating content moderation after “Fake News.” *Data & Society Research Institute*, datasociety.net (February)
- Carnegie, A. (1889). Wealth. from *The Gospel According to Andrew: Carnegie’s Hymn to Wealth*, *HistoryMatters.org*
- Chaput, C. (2010). rhetorical circulation in late capitalism: neoliberalism and the overdetermination of affective energy. *Philosophy & Rhetoric*, Vol. 43, No. 1, pp 1-25.
- Christensen, G., Steinmetz, A., Alcorn B., Bennett A., Woods D., Emanuel, E.J. (2013). The MOOC phenomenon: Who takes massive open online courses and why? *University of Pennsylvania SSRN 2350964*
- Cicero. (2001) *On The Ideal Orator*. May, J. M. and Wisse, J. (trans.) New York: Oxford University Press, 2001 edition.
- Clinefelter, D. L. & Aslanian, C. B., (2016). *Online college students 2016: Comprehensive data on demands and preferences*. Louisville, KY: The Learning House, Inc.
- Conference on College Composition and Communication Committee for Best Practices in Online Writing Instruction. (2013). A position statement of principles and example effective practices for online writing instruction (OWI).
- Connell, J. (2009). Good and bad eLearning: How do we tell one from the other? *Professional Educator*. Vol 8 No 3, pp 24-27.

- Coole, D. and Frost, S. (eds.). (2010). *New Materialisms: Ontology, Agency, and Politics*. Durham, NC: Duke University Press.
- Crenshaw, K. (1989). demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics. *University of Chicago Legal Forum*. Vol. 1989: Iss. 1, Article 8. pp 139-167
- Cunningham, J. M. (2015). Mechanizing people and pedagogy: Establishing social presence in the online classroom. *Online Learning*, 19(3), 34-47.
- DePew, K. E., Fishman, T. A., Romberger, J. E., Reutnik, B. F. (2006). Designing efficiencies: The parallel narratives of distance education and composition studies. *Computers and Composition* 23. pp 49–67
- Derrick, T. J. (1986). DOSEQUIS: An interactive game for composition students. *Computers and Composition* vol 3, no 2.
- Dingo, R. (2012). *Networking Arguments: Rhetoric, Transnational Feminism, and Public Policy Writing*. Pittsburgh, PA: University of Pittsburgh Press
- DiResta, R. (2017). There are bots. Look around. *Ribbon Farm*. May 23.
- Eaton, A. (2005). Students in the online technical communication classroom. *Online education: Global questions, local answers*, Cook, K. C., and Grant-Davie, K. (Eds.), Amityville, NY: Baywood Publishing, 31-48.
- Eaton, A. (2013). Students in the online technical communication classroom: The next decade. *Online education: Global questions, local answers*, Cook, K. C., and Grant-Davie, K. (Eds.), Amityville, NY: Baywood Publishing, 133-58.
- Edbauer, J. (2005) Unframing models of public distribution: From rhetorical situation to rhetorical ecologies. *Rhetoric Society Quarterly*, 35: 4, pp 5-24.
- Edgeworth, M. (1808). *Essays on Practical Education Volume 2*. Google Books. PDF. 17 Sep 2014.
- Edwards, D. W. (2016). Framing remix rhetorically: Toward a typology of transformative work. *Computers and Composition*. Volume 39, pp 41-54.
- Fishman, T. (2002). Writing distance education: Select histories of distance education writing courses and their effect on ongoing distance education writing course pedagogy. Purdue University Dissertation.

- Foucault, M. (1975). The means of correct training. *The Foucault Reader*. Rabinow, P. (ed). New York: Vintage Books, 2010 ed.
- Foucault, M. (1975). The body of the condemned. *The Foucault Reader*. Rabinow, P. (ed). New York: Vintage Books, 2010 ed.
- Foucault, M. (1978). right of death and power over life. *The Foucault Reader*. Rabinow, P. (ed). New York: Vintage Books, 2010 ed.
- Foucault, M. (1984). What is enlightenment? *The Foucault Reader*. Rabinow, P. (ed). New York: Vintage Books, 2010 ed.
- Freire, P. (1970). *Pedagogy of the Oppressed: 30th Anniversary Edition*. Continuum International Publishing Group. Ramos, M. B. (Trans). 2005 ed.
- Galloway, A. R. (2006). Protocol. *Theory Culture and Society* 23(2-3) pp 317-320.
- Gleick, J. (2011). *The Information: A History, A Theory, A Flood*. Pantheon Books, NY. 2011 ed. Knopf Doubleday Publishing Group. Kindle Edition.
- Gries, L. (2013). Iconographic tracking: A digital research method for visual rhetoric and circulation studies. *Computers and Composition*. 30 pp 332-348
- Gries, L. (2015). *Still Life with Rhetoric: A New Materialist Approach for Visual Rhetorics*. Boulder, CO: Utah State University Press. Kindle ed.
- Gunkel, D. J. (2009). Beyond mediation: thinking the computer otherwise. *Interactions: Studies in Communication and Culture* 1 (1): 53– 70.
- Haas, M. and Gardner, C. (1999). Moo in your face: Researching, designing, and programming a user-friendly interface. *Computers and Composition* 16, pp 341-358.
- Hall, G. (2016). *The Uberfication of the University*. Minneapolis, MN: University of Minneapolis Press. Kindle ed.
- Harris, H. S, Melonçon, L., Hewett, B. L., Mechenbier, M. X., Martinez, D. (2019). A call for purposeful pedagogy-driven course design in OWI. *Research in Online Literacy Education*. Vol 2.1 March 2019.
- Haswell, R. H. (2005). NCTE/CCCC's recent war on scholarship. *Written Communication* 22, 198.
- Hewett, B. (2015). Grounding principles of OWI. *Foundational Practices of Online Writing Instruction*. Hewett, B. and DePew, K. with Guler, E. and Zeff Warner, R. (eds). Fort Collins, CO: The WAC Clearinghouse

- Hewett, B. and DePew, K. with Guler, E. and Zeff Warner, R. (eds). (2015). *Foundational Practices of Online Writing Instruction*. Fort Collins, CO: The WAC Clearinghouse.
- Hinks, D. A. G. (1940). Tisias and Corax and the invention of rhetoric. *The Classical Quarterly*, Vol. 34, No. 1/2 (Jan. - Apr., 1940), pp 61-69.
- Ingold, T. (2011). *Being Alive: Essays on Movement, Knowledge, and Description*. New York, NY: Routledge
- Iwarsson, S. and Ståhl, A. (2003) Accessibility, usability and universal design—positioning and definition of concepts describing person-environment relationships, *Disability and Rehabilitation*, 25:2, pp 57-66, DOI: 10.1080/dre.25.2.57.66\
- Johnson, R. R., Salvo, M. J., Zoetewey, M. W. (2007). User-centered technology in participatory culture: Two decades “Beyond a Narrow Conception of Usability Testing.” *IEEE Transactions on Professional Communication*, vol. 50, no. 4, December.
- Johnson-Eilola, J. (2001). Datacloud: Expanding the roles and locations of information. *SIGDOC '01*, October 21-24, 2001, Santa Fe, New Mexico, USA. pp 47-54
- Kahn, S. (2011). putting ethnographic writing in context. *Writing Spaces: Readings on Writing*, Volume 2. Lowe, C. and Zemliansky, P. (eds). West Lafayette, IN: Parlor Press.
- Katz, S. B. (1992). The Ethic of Expediency: Classical Rhetoric, Technology, and the Holocaust. *College English* Vol 54, No 3: pp 255-275.
- Kelleher, J. D., & Tierney, B. (2018). *Data Science (The MIT Press Essential Knowledge)*. Kindle Edition
- Kitchin, R. (2014). *The Data Revolution: Big Data, Open Data, Infrastructures and Their Consequences*. Thousand Oaks, CA: SAGE Publications Inc. Kindle ed.
- Kohn, E. (2013). *How Forests Think: Toward an Anthropology Beyond the Human*. Los Angeles, CA: University of California Press.
- Kolko, B. E. (1998). Intellectual property in synchronous and collaborative virtual space. *Computers and Composition*, 15, pp 163-183.
- Krug, S. (2014). *Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability*. New Riders. epub.
- Latour, B. (2013). *An Inquiry Into Modes of Existence: An Anthropology of the Moderns*. <http://modesofexistence.org/inquiry/?lang=en>
- Law, J. (2004). *After Method: Mess in Social Science Research*. New York, NY: Routledge.

- Lazer, D. M. J., Baum, M. A., Benkler, Y., Berlinsky, A. J., Greenhill, K. M., Menczer, F., Metzger, M. J., Nyhan, B., Pennycook, G., Rothschild, D., Schudson, M., Sloman, S. A., Sunstein, C. R., Thomson, E. A., Watts, D. J., Zittrain, J. L. (2018). The science of fake news: Addressing fake news requires a multidisciplinary effort. *Science*. 359 (6380), pp 1094-1096. DOI: 10.1126/science.aao2998
- Locke, J. (1689). An Essay Concerning Human Understanding. *The Works of John Locke in Nine Volumes*. London, 1824 edition.
- Locke, J. (1693). *Some Thoughts Concerning Education*. London: Cambridge University Press, 1895 edition.
- Love, P. and Karabinus, A. (forthcoming). Creation of an alt-left boogeyman: information circulation and the emergence of ‘antifa.’ *After 2016*. Trice, M. and Jones, J. M. (eds).
- Martinez, D., Mechenbier, M. X., Hewett, B. L., Melonçon, L, Harris, H. S., St. Amant, K., Phillips, A., Bondir, M. I. (2019). A report on a U.S.-based national survey of students in online writing courses. *Research in Online Literacy Education*. Vol 2.1 March 2019
- McAuley, A., Stewart, B., Siemens, G., and Cormier, D. (2010). The MOOC model for digital practice. *University of Prince Edward Island*
- Merrill, M. D. (2002). First principles of instruction. *Education Technology Research & Development*, Vol. 50, No. 3, pp 43–59
- Montell, F. (1999). focus group interviews: A new feminist method. *NWSA Journal*, Vol. 11, No. 1 (Spring, 1999), pp. 44-71.
- Mortensen, T. E. (2016). Anger, fear, and games: the long event of #GamerGate. *Games and Culture*, pp. 1-20. DOI: 10.1177/1555412016640408
- Morton, T. (2010). *The Ecological Thought*. Cambridge, MA: Harvard University Press. Kindle ed.
- Nied, A. C., Stewart, L., Spiro, E., Starbird, K. (2017). Alternative narratives of crisis events: communities and social botnets engaged on social media. *CSCW*.
- O’Neil, C. (2016). *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. New York, NY: Broadway Books.
- Redish, J. and Barnum, C. (2011). overlap, influence, intertwining: The interplay of UX and technical communication. *Journal of Usability Studies*. Vol. 6, Issue 3, May. pp 90-101.

- Ridolfo, J., and DeVoss, D. N. (2009). Composing for recomposition: rhetorical velocity and delivery. *Kairos: A Journal of Rhetoric, Technology, and Pedagogy*. 13(2).
- Rife, M. C. (2013). *Invention, Copyright, and Digital Writing*. Carbondale, IL: Southern Illinois University Press.
- Salvo, M. (2004). rhetorical action in professional space: Information architecture as critical practice. *Journal of Business and Technical Communication*, Vol. 18 No. 1 January. 39-66 DOI: 10.1177/1050651903258129
- Schmalstieg, D., and Hollerer, T. (2016). *Augmented Reality: Principles and Practice (Usability)*. Boston, MA: Addison-Wesley. Kindle ed.
- Seas, K. (2012). Writing ecologies, rhetorical epidemics. *Ecology, Writing Theory, and New Media: Writing Ecology*. Dobrin, S. I. (ed). New York, NY: Routledge. pp 51-66.
- Shaughnessy, M. P. (1977). Introduction to errors and expectations: A guide for the teacher of basic writing. *The Norton Book of Composition*. Miller, S. (ed). New York: W.W. Norton, 2009. pp 387-396.
- Siegler, MG. (2010). Eric Schmidt: Every 2 days we create as much information as we did up to 2003. *TechCrunch*, August 4
- Simmons, W. M., Moore, K., Sullivan, P. (2015). Tracing uncertainties: methodologies of a door closer. *Thinking With Bruno Latour in Rhetoric and Composition*. Lynch, P. and Rivers, N. (eds.). Carbondale, IL: Southern Illinois University Press. Kindle Edition.
- Smith, A. (1776). *An Inquiry Into the Nature and Causes of the Wealth of Nations Volume 1*. Cannan, E. (ed). retrieved from the Online Liberty Library
- Spinuzzi, C. (2008). *Network: Theorizing Knowledge Work in Telecommunications*. New York, NY: Cambridge University Press
- Spinuzzi, C., Hart-Davidson, W. and Zachry, M. (2006). Chains and ecologies: Methodological notes toward a communicative-mediational model of technologically mediated writing. *SIGDOC'06*, October 18–20, 2006, Myrtle Beach, South Carolina, USA.
- Star, S. L. and Griesemer, J. R. (1989). Institutional ecology, 'translations' and boundary objects: Amateurs and professionals in Berkeley's museum of vertebrate zoology, 1907-39. *Social Studies of Science*, 19: 387. DOI: 10.1177/030631289019003001
- Star, S. L. and Strauss, A. (1999). Layers of silence, arenas of voice: The ecology of visible and invisible work. *Computer Supported Cooperative Work* 8: 9–30.

- Starbird, K. (2017). examining the alternative media ecosystem through the production of alternative narratives of mass shooting events on twitter. *Association for the Advancement of Artificial Intelligence* (www.aaai.org)
- Steuer, J. (1993). Defining virtual reality: Dimensions determining telepresence. *Social Responses to Communication Technologies* October 15
- Strauss, A. L. (1987). *Qualitative Analysis for Social Scientists*. Cambridge, UK: Cambridge University Press. 2003 ed.
- Sullivan, P. (1989). beyond a narrow conception of usability testing, *IEEE Transactions on Professional Communication*, vol 32 no 4, December. p256-264
- Sullivan, P. and Porter, J. (1993). Remapping curricular geography: Professional writing in/and english. *Journal of Business and Technical Communication*. 7: 389 DOI: 10.1177/1050651993007004001
- Trice, M. (2015). Putting GamerGate in context: how group documentation informs social media activity. *SIGDOC '15*, Limerick, Ireland.
- Tsing, A.L. (2015). *The Mushroom at the End of the World: On the Possibilities of Life in Capitalist Ruins*. Princeton, NJ: Princeton University Press
- Villanueva, V. (1993). *Bootstraps: From an American Academic of Color*. Urbana, IL: NCTE, 91-118.
- Walker, J. R., Blair, K. L., Eyman, D., Hart-Davidson, B., McLeod, M., Grabill, J., Kemp, F., Palmquist, M., Purdy, J. P., Sorapure, M. Tulley, C., Vitanza, V. J. (2011). Computers and Composition 20/20: A conversation piece, or what some very smart people have to say about the future. *Computers and Composition*, Volume 28, Issue 4, pp 327-346.
- Warnock, S. and Gasiewski, D. (2018). *Writing Together: Ten Weeks Teaching and Studenting in an Online Writing Course*. NCTE.
- Weick, K. E., Sutcliffe, K. M., Obstfeld, D. (2005). Organizing and the Process of sensemaking. *Organization Science*. 16(4):409-421. <https://doi.org/10.1287/orsc.1050.0133>
- Williamson, B. and Kowalewski, S. J. (2017). cultivating a rhetoric of advocacy for usability studies and user-centered design. *Communication Design Quarterly* 5.3 pp 35-47.
- Yates, J. (1989). The emergence of the memo as a managerial genre. *Management Communication Quarterly* vol 2 no 4 May. pp 485-510

Zawacki-Richter, O. and Naidu, S. (2016). Mapping research trends from 35 years of publications in Distance Education, *Distance Education*, 37:3, pp 245-269, DOI: 10.1080/01587919.2016.1185079

Zuboff, S. (2019). *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. New York, NY: PublicAffairs.