

POLICIES RELATED TO THE IMPLEMENTATION OF OPENNESS AT
RESEARCH INTENSIVE UNIVERSITIES IN THE UNITED STATES:
A DESCRIPTIVE CONTENT ANALYSIS

A Dissertation

Submitted to the Graduate Faculty of the
University of South Alabama
in partial fulfillment of the
requirements for the degree of

Doctorate of Philosophy

in

Instructional Design and Development

July 2014

by

Fredrick William Baker III
B.A., University of South Alabama, 2008
July 2014

Copyright © 2014 Fredrick William Baker III
All rights reserved.

UMI Number: 3645569

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



UMI 3645569

Published by ProQuest LLC (2014). Copyright in the Dissertation held by the Author.

Microform Edition © ProQuest LLC.

All rights reserved. This work is protected against unauthorized copying under Title 17, United States Code



ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 - 1346

Dedicated to the educators in my life:

The Lord God for your mercy and guidance;

Those few teachers who never accepted my excuses;

Family members who always offered love and devotion;

My three strong boys for teaching me meaning and permanence;

My beautiful wife Amy, for teaching me love, dedication, sacrifice, and purity.

I am who I am through you.

ACKNOWLEDGEMENTS

Without the following people in my life, this process would have fallen apart.

My Amy: Thank you for your unending love and support. You are always there to catch me when I fall, guide me when I am lost, and share joy when I am strong.

May it be ever so;

My three amazing boys—George, Charlie, and Sam: Thank you for your longsuffering. You always help me rediscover what is important—love, laughter, and being together.

My prayer is that this absence gives us more time in the future;

My committee: Thank you for all of your support and for your senses of humor.

You made the dissertation so much better, and this process much more enlightening;

Dr. Dan Surry: You have been an amazing mentor throughout my time in graduate school. Thank you for chairing so much of this process, and for investing so much in me.

You have helped me grow more than I can express;

Dr. Joe'l Lewis: Thank you for your nurturing guidance, compassion, and support.

You helped me be comfortable in my role and think more deeply about its purpose.

I am glad we are in each other's circles;

The Center for Design and Performance Improvement (CDPI) Research Studio:

May the Perrier and muffins abound!

TABLE OF CONTENTS

	Page
LIST OF TABLES	vii
LIST OF FIGURES	x
ABSTRACT	xii
CHAPTER I: INTRODUCTION.....	1
Organization of Dissertation	3
Defining Openness.....	4
Background.....	10
Implementation of Openness	21
The Critical Role of Policy in Change.....	24
Statement of the Problem.....	26
Purpose of the Study	27
Research Questions.....	28
Significance of the Study.....	29
Limitations of the Study.....	31
Definition of Key Terms.....	32
Chapter Summary	34
CHAPTER II: REVIEW OF THE LITERATURE	36
Philosophy of Openness.....	37
Technology and Openness.....	41
Openness in Education.....	47
The Transitioning Role of Higher Education in a Digital Age.....	54
Openness in Higher Education.....	56
Open Access.....	59
Open Source Software	62
Open Content	64
Open Teaching & Learning	65
Other Areas of Openness	67

Organizational Change & Organizational Development	68
Using Policy to Address Change in Higher Education	71
RIPPLES Implementation Model	75
Chapter Synthesis.....	79
Chapter Summary	84
 CHAPTER III: METHOD	 86
Institutional Review Board	87
Research Questions.....	87
Research Design.....	87
Methodology	88
Population and Sampling.....	90
Data Analysis.....	96
Keywords.....	102
Instrument.....	107
Recommendations.....	110
Reliability & Validity	111
Reflexivity.....	114
Chapter Summary	115
 CHAPTER IV: RESULTS.....	 117
Demographics	117
General Notes On The Policy Documents	124
Results of Research Questions.....	125
Research Question One.....	126
Research Question Two	138
Research Question Three	153
Research Question Four.....	171
Policy Statement Recommendations.....	177
Chapter Summary	181
 CHAPTER V: DISCUSSION.....	 185
Openness Policies and Implementation	186
Discussion of Primary Findings.....	188
Main Finding: Openness is Human-Centered.....	189
Related Recommendations for Practice.	201
Related Recommendations for Future Research.	204

Main Finding: Few Institutions Addressing Openness Through Policy	205
Related Recommendations for Practice.	213
Related Recommendations for Future Research.	215
Main Finding: Wide Variance in How Institutions Actually Address Openness	216
Related Recommendations for Practice.	223
Related Recommendations for Future Research.	225
Main Finding: More Attention to Open Access Than Other Areas of Openness.....	227
Related Recommendations for Practice.	231
Related Recommendations for Future Research.	231
Main Finding: Content Analysis as a Viable Method.....	232
Related Recommendations for Practice.	235
Related Recommendations for Future Research.	236
Reflection.....	237
Conclusion	242
Chapter Summary	248
REFERENCES	249
APPENDICES	293
Appendix A- Institutional Review Board Response Letter	297
Appendix B-All RU/VH: Research Universities	298
Appendix C- Open Policy Rubric	304
Appendix D- Coded Statements from Private Institutions	305
Appendix E- Coded Statements from Public Institutions	320
Appendix F- Keyword and Relevant Keyword Tables for Private and Public Institutions	327
Appendix G- Idealized Policy Statements Faculty Handbook	331
Appendix H- Idealized Policy Statements Strategic Plan.....	334
Appendix I- Idealized Policy Statements Technology Plan	337
BIOGRAPHICAL SKETCH	340

LIST OF TABLES

Table	Page
1. Stratified Random Sample of Private RU/VH Institutions.....	93
2. Stratified Random Sample of Public RU/VH Institutions.....	94
3. Keywords Used in the Search of Policy Documents.....	100
4. Results of Keyword Search.....	105
5. Sample Institutions by Region.....	119
6. Directness of Relevant Statements By Sample Strata	127
7. Number of Policy Documents with Relevant Statements by Strata.....	130
8. Mean Number of Statements per Policy Document with Relevant Statements by Strata.....	132
9. Number of Policy Documents with Relevant Statements by Strata Excluding Brown University.....	132
10. Mean Number of Statements per Policy Document with Relevant Statements by Strata Excluding Brown University.....	134
11. Combined Institutional Ranking by Rubric Score.....	135
12. Private RU/VH Institutions Strata with Rubric Score of Zero.....	135
13. Public RU/VH Institutions Strata with Rubric Score of Zero.....	136
14. Mean Rubric Score by Strata Excluding Brown University.....	137
15. Combined Institutional Ranking by Number of Relevant Statements.....	137
16. Relevant Statements by Area of Openness and Policy Document.....	144

17. Relevant Statements by Area of Openness and Policy Document Excluding Brown University.....	145
18. Relevant Statements by Area of Openness and Policy Document in Public Institutions	146
19. Relevant Statements by Area of Openness and Policy Documents in Private Institutions.....	147
20. Relevant Statements by Area of Openness and Policy Document in Private Institutions Excluding Brown University.....	148
21. Relevant Statements per School by Area of Openness.....	149
22. Policy Role of Direct Statements by Strata.....	155
23. Policy Role of Direct Statements by Strata Excluding Brown University.....	156
24. Policy Role of Direct Statements by Policy Document.....	156
25. Policy Role of Direct Statements by Policy Document Excluding Brown University.....	157
26. Policy Role of Direct Statements by Policy Document in Public Institutions.....	158
27. Policy Role of Direct Statements by Policy Document in Private Institutions	158
28. Combined Institutional Ranking by Number of Relevant Statements.....	159
29. Neutral and Enabler Statements by Combined Institution.....	160
30. Enabler Statements by Institution.....	161
31. Enabler Statements by Institution Excluding Brown University.....	162
32. Policy Role of Statements by Area of Openness.....	163
33. Percent of Policy Role of Statements by Area of Openness.....	163
34. Policy Role of Statements by Area of Openness Excluding Brown University.....	164

35. Percent Policy Role of Statements by Area of Openness Excluding Brown University.....	165
36. Policy Role of Statements by Area of Openness For Private Institutions.....	166
37. Percent Policy Role of Statements by Area of Openness For Private Institutions.....	166
38. Policy Role of Statements by Area of Openness For Private Institutions Excluding Brown University.....	167
39. Percent Policy Role of Statements by Area of Openness For Private Institutions Excluding Brown University.....	168
40. Policy Role of Statements by Area of Openness for Public Institutions.....	169
41. Percent Policy Role of Statements by Area of Openness for Public Institutions.....	169
42. Total Keyword Count, Rubric Score, and Their Ratio for Private Institutions with Non-Zero Rubric Scores.....	176
43. Total Keyword Count, Rubric Score, and Their Ratio for Public Institutions with Non-Zero Rubric Scores.....	177

LIST OF FIGURES

Figure	Page
1. Concept Map of Dissertation Organization.....	3
2. Matrix of Openness.....	10
3. Organization of Chapter Two.....	37
4. Open Educational Designs Taxonomy.....	48
5. Rubric Cell Value Tree.....	107
6. Geographic Map of Institutions in the Sample.....	118
7. Graduate Instructional Program Classification for Doctoral Programs.....	122
8. Graduate Students as Percent of Full Time Equivalent Enrollment.....	123
9. Relevant Statements by Policy Document	127
10. Distribution for the Number of Relevant Statements Made by Each Institution	129
11. Relevant Statements by Area of Openness.....	139
12. Analysis of Statements Dealing with Other Areas of Openness.....	139
13. Relevant Statements by Area of Openness Excluding Brown University	140
14. Relevant Statements at Public Institutions by Area of Openness.....	141
15. Relevant Statements at Private Institutions by Area of Openness.....	142
16. Relevant Statements at Private Institutions by Area of Openness Excluding Brown University	142

17. Total Keyword Use by Public and Private Institutions	172
18. Mean Keyword Use by Public and Private Institutions.....	172
19. Total Relevant Keyword Use by Public and Private Institutions.....	173
20. Total Relevant Keyword Use by Public and Private Institutions Excluding Brown University	175
21. Number of Relevant Statements by Area of Openness Excluding Brown University.....	228

ABSTRACT

Baker III, Fredrick William, Ph.D., University of South Alabama, July 2014. Policies Related To The Implementation Of Openness At Research Intensive Universities In The United States: A Descriptive Content Analysis. Chair of Committee: Joe'l P. Lewis, Ph.D.

In this dissertation, I describe a study examining institutional policy documents for statements related to the implementation of openness. The purposes of this study were to explore the current state of policies related to the implementation of openness in higher education, and to provide guiding recommendations to higher education institutions looking to address the issue of implementation of openness in their own policies. Policy plays a critical role in the implementation of innovations such as openness. The policy environment is complex and potentially confusing. Technology enables the proliferation of openness, and higher education institutions are now facing a number of challenges associated with the implementation of openness. Not much is known about the stance of higher education or the state of its response to openness. As a result, there was not much guidance available for institutions looking to address the implementation of openness in their institutions.

This dissertation involved a descriptive study that follows summative content analysis methodology. The research design was a qualitative dominant sequential mixed methods model, meaning that I focused primarily on the qualitative elements of the study and provided limited descriptive quantitative analysis derived from the qualitative data.

Five major areas of openness affecting higher education institutions were drawn from the literature. These are Open Access Research, Open Content, Open Teaching and Learning, Open Source Software, and Other, less pronounced, areas of openness. I searched the Faculty Handbooks, Strategic Plans, and Technology Plans of a stratified random sample of research-intensive higher education institutions for keywords related to the major areas of openness. I then evaluated the resulting statements based on the directness with which they address openness and on their policy role as enabler, barrier, or neutral toward the implementation of openness.

I provided 45 idealized policy statements as well as the best-found policy statements from the study. These statements were intended to be used as recommendations for guiding institutions in crafting their own policy statements to address openness through policy. The idealized statements were intended to fit in the three policy documents (Faculty Handbook, Strategic Plan, Technology Plan), serve each policy role (enabler, barrier, and neutral), and address area of openness (Open Access, Open Content, Open Source Software, Open Teaching and Learning, and Other Areas of Openness). Five major findings emerged from the study. These include the realization that openness is really a human-centered approach, and the discovery that openness is not commonly addressed in higher education policies. Additionally, I found that there was wide variance in how institutions actually address openness, that Open Access is addressed more than other areas in policy, and that content analysis is an effective method for obtaining information related to higher education policies. I provided my reflections and conclusions on the study in Chapter Five.

CHAPTER I

INTRODUCTION

The concept of openness has been intertwined with the field of education for centuries (Broudy & Palmer, 1965; Giaconia & Hedges, 1982; Peters & Britez, 2008; Peters & Roberts, 2012). However, it is often poorly defined and used in confusing or ideological ways (Baker III & Surry, 2013a; Peters & Britez, 2008; Peters & Roberts, 2012; Peters, 2010). It has been picked up like a banner, wielded like a weapon, chanted like a rallying cry, and cast as a scapegoat to escape responsibility (Baker III, 2012; Hays, 1991; Nyberg, 1975). More recently, openness has been used in efforts to promote broad innovation and change in education (Abel, 2006; Couros, 2009; Digital Connections Council of the Committee for Economic Development, 2006, 2009; Liyanagunawardena, Adams, & Williams, 2013). These efforts often present education institutions with novel and very public challenges, especially in the field of higher education (Henn, 2012; Khan, 2012; Leckart, 2012; SPARC, 2012). Policies play a critical role in implementation and institutional change (Surry, Grubb, Ensminger, & Ouimette, 2009; Surry, 2002; Trowler, 2002a). They are important elements for shaping institutional responses to the challenges presented by openness. The aim of this dissertation was to describe a study examining higher education policies related to the implementation of openness. The purposes of this study were to explore the current state of policies related to the implementation of

openness in higher education, and to provide recommendations to higher education institutions looking to address the implementation of openness in their own policies.

Three types of institutional policy documents were considered in this study: Faculty Handbooks, Strategic Plans, and Technology Plans. I obtained these policy documents from a stratified random sample of higher education institutions rated as “very high” research (RU/VH) by the Carnegie Classification System. Research intensive institutions are often held up as exemplars of higher education. I selected this population because I believed them more likely to have the policy documents publicly available and to have addressed openness in some way within their policies. The policy documents contain internal policies intended to convey the direction of the institution and to steer its members. I also gathered descriptive information on the sample institutions using the range of Carnegie Classifications.

Content analysis methodology (Hsieh & Shannon, 2005) was used to guide the search of policy documents. I searched for statements addressing active areas of openness in higher education. The major areas of openness considered in this study are Open Access (OA) research, Open Content such as Open Educational Resources (OER) and open textbooks, Open Source Software (OSS), Open Teaching and Learning practices such as open educational designs (OEDs) and digital scholarship, and Other Areas of Openness such as open data and crowdfunding. I performed follow up descriptive analyses on the results.

Organization of Dissertation

This dissertation was organized in chapters. A concept map is illustrated in Figure 1 which shows the chapter sections. In Chapter One, I provided key ideas and foundational information for the study. I introduced definitions and some background information; provided a statement of the problem; described the purpose, significance, and limitations of the study, and laid out research questions and key terms.

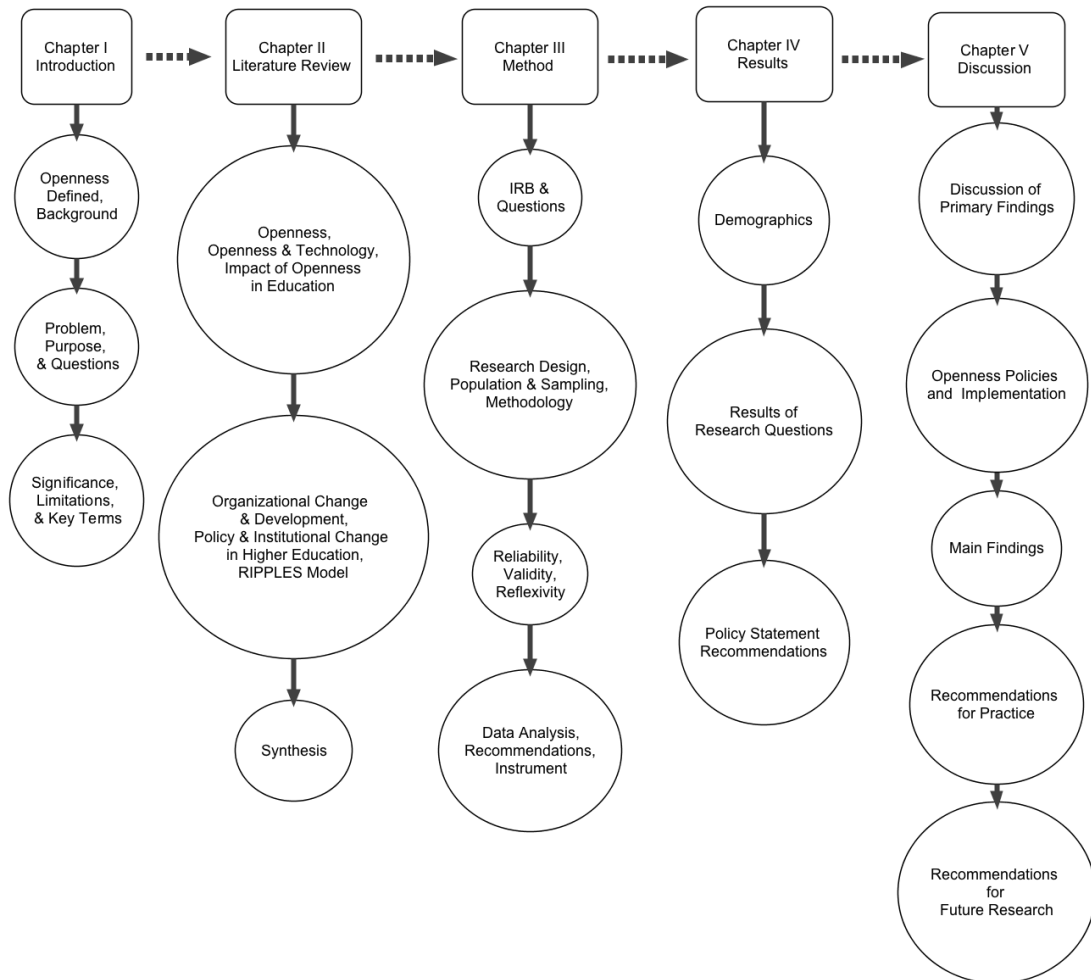


Figure 1. Concept Map of Dissertation Organization.

In Chapter Two I examined the literature on openness in higher education including the philosophy of openness, technology and openness, the changing role of higher education, and the impact of openness in education. In Chapter Two I also examined the literature on the role of policy in change within higher education institutions, including organizational change and development, policy in higher education, and the RIPPLES Implementation Model. The purpose of this chapter was to ground the study within the framework of existing literature.

In Chapter Three I described the Institutional Review Board procedures; reiterated the research questions; described the research design, population and sampling, and methodology, and explored reliability and validity measures including reflexivity, data analysis, recommendations, and instrumentation. The purpose of this chapter was to make explicit the methods and characteristics of the study.

In Chapter Four I described the demographics and results, and listed the primary findings of the study. The purpose was to summarize the findings and present the major characteristics of the sample and findings. In Chapter Five I described the primary findings in more detail, tied the findings back into the literature, and provided areas for future research and the idealized policy statements. The purpose of this chapter was to explore and support an understanding of the findings, and to provide the relevance of the findings to the literature.

Defining Openness

The term “openness” historically resists formal definition. The concepts underpinning the term can be very fluid in meaning and often only make sense when situated in a given

context. Attempts to define openness have often taken one or some combination of three general approaches.

The first approach involves grounding openness in historical accounts of related movements and events. The purpose is to transfer the morals, characteristics, and ideals from the described movement into the current context. For example, Couros (2004, 2006) and Wiley (2006) describe openness as an emerging academic culture stemming from the Open Source Software movement. Peters and Britez (2008) discuss the social and political nature of openness by exploring the ideals of freedom and justice, tying the current movement to the enlightenment. Peter and Deimann (2013) extend the consideration of openness to include the mobile population of the late Middle Ages where education was escaping the traditional borders of the monastery. Giaconia and Hedges (1982) and Broudy and Palmer (1965) even note how debates between the methods of an inquisitive self-directed model of Open Education and the more formal top-down methods of traditional education have been ongoing since the time of Socrates.

The second approach often describes how openness underpins a given context in a philosophical or conceptual way. For example, the Digital Connections Council of the Committee for Economic Development (2006, 2009) describes openness as a continuous, rather than binary on/off, construct. For them, openness underpins participatory cultures by providing stakeholders with rights to access and change a work, thereby contributing to its betterment. Building on this, Wiley (2010) claims that education itself is about sharing, and therefore all education is by default open to some degree. Peters and Roberts (2012) explore openness as a virtuous force for the moral good. This moral good

underpins digital advancements in open scientific communication, open education, open knowledge production, open publishing, and other related areas.

The third approach to defining openness involves grounding it in a given practical context. This often involves considering the alternative copyright licenses, such as the GNU (not an acronym) General Public License (GNU GPL) (Free Software Foundation, n.d.-a) or the various Creative Commons Licenses (Creative Commons, n.d.-a). These licenses allow content creators to dictate inseparable permissions for the use of their works (Organisation for Economic Co-Operation and Development, 2007). They allow content creators to make their works more or less open depending upon the type of content license they choose (Baker III, 2012).

Availability and accessibility are the primary determinants of a resource's openness (The Digital Connections Council of the Committee for Economic Development, 2006). A resource can be a video, lesson plan, lecture, book, or other licensed creative work. Wiley (2010) extends this concept of a resource's openness to include specific affordances provided by alternative copyright licenses. These affordances are known as the "4 R's" of reusing, revising, remixing, and redistributing a resource. A fully open resource is one that is licensed under the least restrictive alternative copyright licenses (Wiley). Users of fully open resources have the right to use the resource for their own purposes (reuse), to update or change it to fit their context (revise), to combine it with other resources (remix), and to distribute the original work or their updated versions (redistribute) to whomever they wish (Wiley, 2012a). The Centre for Educational Research and Innovation (2007) reiterates that a resource's free digital availability and minimal "technical, legal, or price barriers" (p.32) restricting its use are the most

important considerations of its openness. Meiszner (2011) continues the idea of openness defined by access and use when defining open education as

the free and Open Access to the usage of and the right to modify and re-use digital open educational resources and digital educational tools, and the free and Open Access to the related virtual educational communities, in order to learn, teach, exchange or advance knowledge in a collaborative and interactive way. (p.6)

Tunnell (1975) proposed four rules common to the practice of open education in a learning environment. First, the freedom rule implies that learners should have agency over their educational experience. Second, the environment rule proposes that open education environments should be resource rich and full of opportunity for exploration and learning. Third, the individual instruction rule encourages instructors in open learning environments to personalize instruction wherever possible while guiding learners toward educationally worthwhile goals. Fourth, the respect rule insists that all instructors provide respect to the learner as a human being with rights and feelings (Baker III & Surry, 2013a; Tunnell).

Commonalities between these approaches to defining openness emphasize a variety of constructs. These include the role of freedom, justice, respect, openness as attitude or culture, the absence of barriers, promotion of sharing, accessibility, transparency, collaboration, agency, self-direction, personalization, and ubiquitous ownership. In this dissertation, I intend for the term open to refer to possession of transparency and freedom. Something that is transparent is “easily seen through, recognized, understood, or detected; manifest, evident, obvious, clear” (“Transparent,” 1914, definition 2b).

Something that, or someone who, possesses freedom is in “the state of being able to act without hindrance or restraint; liberty of action” (“Freedom,” 2008, definition 4a). These characteristics may be present in an idea, attitude, procedure, resource, implemented design, or other system or product. By transparency, I mean the visibility and accessibility of all parts of the system, process, idea, system, or other application. In a fully open system, transparency should be available to anyone anywhere inside or outside of the system. By freedom, I mean the absence of barriers. These barriers can take on a variety of forms such as limitations to access, directed use of the system, usability aspects such as required logins and data tracking, rules that inhibit flexible use of content and processes such as restrictive copyrights, and similar limitations. In a fully open system, freedom from barriers should be present for anyone inside of or outside of the system. I also intend to retain the concept of the sliding scale of openness so that an idea, product, process, system, etc. can be fully open, not at all open, or any degree of openness between these extremes.

When freedom and transparency are present to sufficient degrees, they enable other participant behaviors associated with openness (Baker III, 2014a). These participant behaviors include sharing, collaboration, obtaining agency over the experience or ownership of the ideas and content, feasible self-direction, and the growth of the attitude or culture of openness. An idea that is highly transparent and largely free can be shared with others, discussed in groups, modified for various purposes, incorporated into organizations, and so on.

By this definition, a fully open idea is one that is fully and publicly visible to, and usable by, anyone. The idea must be described in language anyone can easily understand

and must be available and accessible to anyone, (i.e., fully transparent), and licensed or made available in such a way that anyone has full use of the idea for any purpose in any manner they desire without limitation (i.e., fully free). Obviously, the fully open and fully closed ends of the continuum are very probably impossible standards. How can one communicate an idea well enough that absolutely anyone can easily see and understand it? How can we close off an idea so that it is so limited that no one knows of it? Still, retaining these extremes is useful in conceptualizing how open something is by placing it along the continuum.

In thinking about where something fits regarding its openness, it may be helpful to construct a matrix diagram as seen in Figure 2. This matrix considers the continua of transparency and freedom so that four quadrants emerge. The object, idea, or innovation in consideration may fall into the fully free (i.e., unencumbered) and fully transparent (i.e., visible) quadrant, Quadrant I, the fully free and not transparent quadrant, Quadrant II, the not free and fully transparent quadrant, Quadrant III, or the not free and not transparent quadrant, Quadrant IV. As these are continua, an idea, product, innovation, etc. can also be closer to the center or further to the outside of the matrix depending upon how much transparency and freedom it entails.

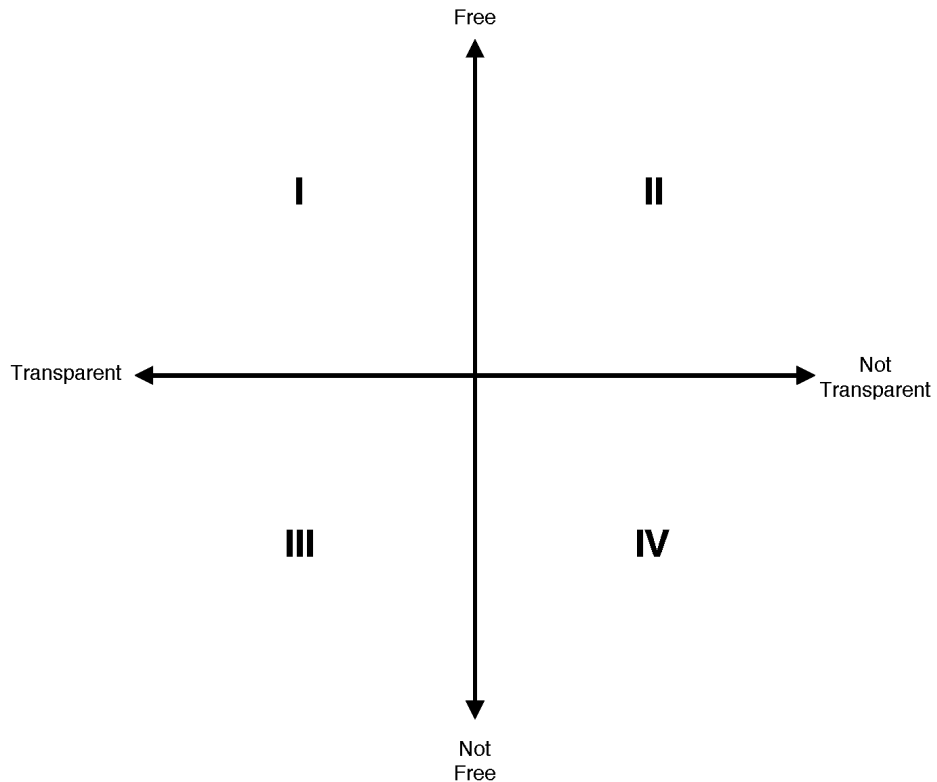


Figure 2. Matrix of Openness.

Background

Transparency and freedom have been critical concepts guiding many educational design decisions in the last century. These concepts were influential in school reform efforts early in the 1900s (Dewey, 1938; Montessori, 1912). They were also critical in the conceptualization of societal models focused on equality and opportunity for everyone, and in the thinking around the racial integration of the American school system (Association for Supervision and Curriculum Development 1974 Yearbook Committee, 1974). Additionally, the concepts of transparency and freedom are important to pondering the role of education as an oppressive structure (Freire, 1986), in thinking of

alternate schooling models (Illich, 1971), and in experimenting with physical designs and technology integration in the classroom (Evans & Lovell, 1979; Horwitz, 1979). They are also foundational ideas to the Open Source Software movement, Open Content licensing, and to the experimentation happening now with research and digital learning environments (Lessig, 2004, 2008; DiBona, Ockman, & Stone, 1998; Wiley, 2010). Technological advances bolster the prevalence of transparency and freedom in current educational thinking.

In the early 1900s, Dewey and Montessori both used the concepts of transparency and freedom to inform their efforts in educational reform. Dewey's experience-driven model encouraged learners to become reflective and inquisitive agents in their own learning processes (Dewey, 1938, 2012). This model focused on providing practical and meaningful learning with the larger aim of strengthening democratic society. Around the same time, Montessori (1912) promoted an education model emphasizing self paced exploration of environments. She encouraged organic collaboration and peer support between the learners as they explored environments designed to be rich in practical opportunities for discovery learning. The toys, tools, and resources in these environments were catered to support learning and to reflect lessons applicable to real life situations. This method of discovery teaching meant that lessons were happened upon by the learners instead of pushed upon them in a top-down fashion.

Transparency and freedom were also critical concepts in the development of the open society. An open society embraces the core values of freedom, toleration for and respectful serious consideration of opposing ideas, the grateful embracement of mistakes, and equal treatment of everyone (Lam, 2013).

Karl Popper is cited as the father of open thinking, and his ideals for an open society are a major influence of the Open Source Software movement (Tkacz, 2012). He wrote the seminal work on open society during a political exile and released it at the climax of World War II. This work emphasized the individual's role in evaluating truth, embracing transparency and freedom in processes, and practicing tolerance toward nearly everything save intolerance (Popper, 1966). The freedom referred to here is both positive freedom (i.e., freedom to grow and act) and negative freedom (i.e., freedom from interference and coercion) (Lam, 2013). Similar to Dewey, the Popperian education ideal focused on developing and nurturing the knowledge, skills, abilities, and values needed to participate in a democratic open society. This occurred through problem-solving, questioning, self directed engagement, criticism, and discussion (Lam, 2013). Here, openness was reactionary, rising in response to 'totalitarianism' and 'closedness.'

In the 1950s, 60s and 70s, the concept of an open society drove much of the thinking surrounding racial integration of the public school system. The open society was conceived of as a place where all manner of "cultures, value systems, and life styles not only coexist but are nurtured" (p.3) and one that "lets people come from wherever they are" (p.1) allowing equal opportunity for what the citizens want from a community (Association for Supervision and Curriculum Development 1974 Yearbook Committee, 1974). Conversely, the existing state of the school system was thought of as an oppressive structure that perpetuated racism, classism, and elitism, and ensured the continuation of the existing societal norms. In response, the Association for Supervision and Curriculum Development 1974 Yearbook Committee (1974) called for collective action focused on building shared power structures by enabling access to, and providing a

voice in, educational communications in school systems. These efforts concentrated on developing new curricular models and using instructional media methods and teacher practices that emphasized the reduction or eradication of barriers to transparency and connection with others. They also focused on integrating cultural diversity into the curriculum, connecting the curriculum with the experiences of the world community, and redefining the proficiency skill sets so they were more realistic and representative of needs in an open society (Association for Supervision and Curriculum Development 1974 Yearbook Committee, 1974).

Freire (1986) explored the nature of education as an oppressive structure and emphasized the necessarily mutual efforts of the oppressors and the oppressed to escape the process. Freire also emphasized the importance of obtaining a critical consciousness, or *conscientizacao*, in the dialectical process of gaining freedom. Critical consciousness holds that people are perpetually incomplete, and seek to constantly explore and understand, test ideas, be open to revision, and generally take a critical stance toward information (Freire, 1986). These concepts are very similar to the requirements of citizens in Popper's Open Society (Roberts, 2011).

In a critical statement on the nature of the current system of schooling, Illich (1971) challenged society to critically question the existing school concept, disestablish the system, and replace it with self directed learning webs. These learning webs would enable learners to connect and engage with ideas and others more on their own terms. Digital technology has made the learning webs concept more feasible; therefore some of the more current educational models share a lot in common with the concept. Some

examples include networked participatory learning, personal learning environments, and connectivist learning models.

According to Illich (1971), the three purposes of a good educational system should be to:

Provide all who want to learn with access to available resources at any time in their lives; empower all who want to share what they know to find those who want to learn it from them; and, finally, furnish all who want to present an issue to the public with the opportunity to make their challenge known. (p. 75)

Around the same time as Illich's work, Rogers (1969) provided a phenomenological and facilitative approach to teaching that was important in thinking about self-directed learning. Rogers' philosophy emphasized the need for providing a non-threatening environment where learners could reflect and experiment with ideas and "modes of being" (p. 99) in an effort to increase their "congruence with reality" (p. 99) which was considered necessary for positive growth to occur (Milhollan & Forsiha, 1972). He emphasized that the goal of education is facilitation of learning and adaptability to change; therefore, a person who is educated is a person who continually seeks to learn (Milhollan & Forsiha, 1972). Openness has encouraged an emphasis on freedom, critical reflection, and transformation of the self and societal systems.

Open distance learning emerged in the 1960s and 70s and allowed access to education for learners who were previously unable to attend. The Open University (OU) in the United Kingdom pioneered this effort by opening its distance learning system in 1971 without entry requirements. At the time, only about 5% of the UK population had access to higher education (McAndrew, 2010). A cost analysis done shortly after opening the OU showed that the cost for providing most of its distance classes were substantially

lower than the traditional alternatives, which bolstered the case for growth of the OU distance model (Laidlaw & Layard, 1974).

The OU's definition of openness has evolved over time. When the OU started, the focus was on delivering self-contained instruction that a person could use with the broadly available technologies of the time, such as telephones, televisions, and radio. With the widespread abundance of online information, the OU is now shifting focus to developing instruction that takes advantage of modern tools and distributed knowledge structures. This focus delivers for narrower needs than a class traditionally provides (McAndrew, 2010).

Experimental changes in the design of the physical learning environments also commanded much attention during the 1960s and 70s. Open plan school designs often featured communal open spaces free of most walls, obstructions, and physical barriers. High ceilings, innovative designs, and freely accessible common areas were common. These physical design features had predictable and measurable impacts on the behavior of learners in the environments (Evans & Lovell, 1979; Weinstein, 1977), and showed that the open classroom was a viable alternative, although not measurably superior to, the traditional classroom (Horwitz, 1979). It is important to note here that opening the floor plan of a school does not make it "open," but helps create an environment that enables open pedagogical methods and learner behaviors.

The 1960s and 70s were an important time for the exploration and implementation of new classroom and teaching practices as well. During this time, the demand to have respect for and trust in the learners drove open education. The open education practices during this time were built on the belief that learners learn through interacting with others

and with their environment. It was believed that learners' interests should dictate their interaction with their own education (Hays, 1991). Educators paid special attention to stimulating involvement in learning, optimizing teachers' interpersonal qualities, and utilizing the ideal type and amount of direction of the learning process. Concerns in the teaching process included structuring learning experiences, utilizing materials, and establishing dialogue between the teacher and student (Silberman, Allender, & Yanoff, 1972).

During the 1960s and 70s, the traditional classroom was often conceptualized as an oppressive, rule bound, authoritarian teacher-centered and teacher-directed structure that demanded obedience, stifled creativity, and crushed the student's voice. This view was often contrasted with the vision of the open classroom model as emphasizing a holistic approach featuring "trust in the student, freedom of movement and speech in the classroom," and promotion of "enthusiasm for and independence in thinking and learning" (Hays, 1991, p. 6). Kohl (1969) describes how "the authoritarian environment of the school...encouraged a collusive atmosphere in which everyone except the students pretended that the school was functioning smoothly and effectively and that teachers were 'doing a good job'" (p.12). He went on to describe the authentic, community-like classroom that he was able to develop by learning to listen, becoming involved with creating things in the classroom, and working together with the students in an open classroom (Kohl, 1969).

In the mid-to-late 1970s, the open education movement fell out of favor largely due to theorists overpromising results, confusion over what the approach entailed, and conflicting research results (Hays, 1991). However, emerging computer technology gave

rise to alternative conceptualizations of what learning could be. For example, Papert (1980) helped create the LOGO programming language and encouraged its use in conjunction with robots called Turtles as “objects-to-think-with” (p. 11) that would allow children to freely explore ideas and learn the fundamental rules and processes of geometry and math experientially.

The concept of free software, created in the 1980s, has had a tremendous impact on openness since its creation. The Free Software Foundation (FSF) was founded in 1985 with the purpose of designing computing that is accessible, usable, and beneficial to all human beings (DiBona, Ockman, & Stone, 1998). The concept of free software is less about the cost of the software than it is about the freedom that comes with it. The free software concept as applied to a software program means a user is “free to run a program for any purpose,” free to “modify the program,” free to “redistribute copies,” and free to “distribute modified versions of the program so that the community can benefit from” the improvements (Stallman, 1998, p. 32). The emphasis on freedom in this new software movement necessitated the development of a license that would preserve the freedom of the software even after it left the hands of the creator. This led to the creation of the GNU General Public License (GPL) Copy Left license that flips copyright by using its protections with the purpose of preserving freedom rather than with restricting use of the work (Stallman, 1998). The FSF-spawned idea that specific technologies, such as the Internet, should themselves be considered human rights is a concept still being debated today (Wicker & Santoso, 2013).

The 1990s was a time for intense advancement in open computing and Open Content. Around 1992, the free software movement helped develop the world’s first free operating

system: Linux (Stallman, 1998). This decade also saw the first Open Content licenses that extended the free software concepts to content of other types (Caswell, Henson, Jensen, & Wiley, 2008). Toward the end of the decade, the FSF had developed some rigid political views about software and human rights (DiBona, Ockman, & Stone, 1998). Its focus on developing products that were both free as in gratis, or cost, and free as in liberty, or freedom, led to often poor relations with businesses seeking to utilize the software. This encouraged the development of the open source concept. Open Source Software (OSS) still shared the source code and provided freedoms and rights to users, but with a focus on creating less restrictive user and more business friendly products (DiBona, Ockman, & Stone).

The 2000s have been dubbed the open decade (Materu, 2004). During the 2000s, maturing alternative copyright licenses were extended to include options for texts, videos, and other creative works, the first major open educational resources (OERs) were released, the open course was created, and Open Access research started coming into focus. In 2001, the Free Software Foundation created the GNU Free Documentation License (FDL) (Free Software Foundation, n.d.-b) that applied to texts and other content (Caswell et al., 2008), and the Creative Commons alternative copyright licenses were developed and released to the public in 2002 (Creative Commons, n.d.-b). That year the Massachusetts Institute of Technology (MIT) also created a large set of OERs by releasing their course content under the Open CourseWare (OCW) system. In 2004, MIT OCW adopted the Creative Commons Licenses for OCW (Massachusetts Institute of Technology, n.d.). The first open courses were created and released in 2007 (Rodriguez,

2012; see “The Wiley Wiki,” n.d.), and the Harvard Law School faculty adopted an Open Access policy for its research in 2008 (Hyman, 2013).

The 2010s have seen the expansion of these movements. There were over 400 million Creative Commons Licenses estimated to be in use at the end of 2010 (Creative Commons, 2013). MIT OCW now has over 2100 courses published (Massachusetts Institute of Technology, n.d.). The amount and types of open courses available have grown into divergent paths that operate under different types of openness and have entirely different design structures. An umbrella term for these open courses are Open Educational Designs (OEDs) (Baker III & Surry, 2013a). Open Access research is the subject of debates and legislation (Khan, 2012; Knutson, 2013). The advance of digital technologies is an important element in driving and enabling this expansion.

Digital technology enables the broad application of transparency and freedoms to various systems (Lessig, 2004, 2008). In many cases, an extensive application of openness was impossible or infeasible before technology enabled it. Sometimes, applying the concepts of openness calls into question the traditional methods used in the system, and other times it forces the institution to deal publicly with novel challenges (Lessig). This can result from decisions made by faculty or administrators, or from governmental or societal pressures. These novel challenges have occurred in higher education in the areas of OA research (Khan, 2012; Knutson, 2013), OSS (Abel, 2006; Digital Connections Council, 2006), Open Content (Bliss, Robinson, Hilton, & Wiley, 2013; Matkin, 2009; Wiley, Hilton III, Ellington, & Hall, 2012), Open Teaching and Learning practices (Baker III & Surry, 2013a; Henn, 2012; Liyanagunawardena et al., 2013; Rodriguez, 2012), and other less focused areas such as open data (Minister of State for

the Cabinet Office and Paymaster General, 2012) and crowdfunding (Anderson, 2011; Wheat, Wang, Byrnes, & Ranganathan, 2013).

Digital technology has enabled the inexpensive, efficient, and widespread communication and distribution of research. OA research emerged as a concern when the ability to broadly and inexpensively distribute information was combined with pressures for transparency, access, and lower barriers throughout the research system (Laakso, Welling, Bukvova, & Nyman, 2011). These pressures were especially prevalent around the demand for access to publicly funded research (Lewis, 2012). The same digital distribution that supports the case for OA research also enables honest consideration of openly licensed digital content such as OER and open textbooks as practical alternatives. Open Source Software provides often-reliable alternatives to, and sometimes supplements for, standard restricted access and profit driven models of software development and use (Abel, 2006; DiBona, Ockman, & Stone, 1998). Open Teaching and Learning uses openness and digital technology, including the shift toward online learning, to challenge the definitions and assumptions of effective learning on the web. Proponents for Other Areas of Openness take advantage of this digital openness to experiment with and challenge their own traditional structures (see Baker III & Surry, 2013a; Rodriguez, 2012; Siemens, 2005). It is important to note that technology enables the broadened implementation of openness, but does not provide specific affordances that are unavailable without the technology. Technology is simply a tool, and the principles of openness can be implemented in systems without digital technology.

Implementation of Openness

The implementation of innovations such as openness fit within the theoretical framework of Organizational Development and Change. Within this framework, the innovation and change literature considers the distinct stages of adoption, diffusion, implementation, and institutionalization of innovations in organizations (Surry & Ely, 2007). An innovation is defined as “a change made in the nature or fashion of anything; something newly introduced; a novel practice, method, etc.” (“Innovation,” 1900, definition 2a). Another definition of an innovation is “an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (Rogers, 2003, p. 12). In higher education, openness encourages educators to reframe the thinking around processes. It introduces new values to be considered in practices, changes the emphases of designs, and generally challenges the way that people think about, practice, and perform things such as research, teaching, dealing with content, and so on. Because of this, openness can be considered an innovation.

According to Sternberg, Pretz, and Kaufman (2003), the concept of innovation can be broken down into eight qualitatively distinct types. These innovation types are Replication, Redefinition, Forward Incrementation, Advance Forward Incrementation, Redirection, Reconstruction/Redirection, Reinitiating, and Integration. These eight types of innovation make up the Propulsion Model of Creative Contribution (Sternberg et al.). Replication innovations duplicate existing products. Redefinition innovations attempt to change the way people think about a product, for example the way video games make a television interactive. Forward Incrementation innovations move an innovation to the next step that a consumer is willing to take. Similarly, Advance Forward Incrementation

innovations are ahead of their time and beyond what consumers are ready for.

Redirection innovations are products that are in some way different than anything that has existed before. Reconstruction/Redirection innovations are those that use an older innovation in some new way. Reinitiating innovations are those that take full advantage of imagination and venture off in entirely new directions. These often challenge our basic assumptions about what constitutes a product. Does a dog have to be alive to fill the role of pet? Does music have to be composed intentionally? Integration innovations are those that combine any two of the distinct domains of invention into the same product (Sternberg et al.). Understanding the different types of innovations will be useful for anyone thinking about specific implementations of openness as an innovation.

The implementation of an innovation occurs through a process rather than as a single act (Rogers, 2003; Surry & Ely, 2007). Rogers (2003) describes the innovation-decision process as the cycle through which individuals gain knowledge of an innovation, form an attitude toward it, decide whether to adopt or reject the innovation, implement the new idea, and confirm their decision. This process follows five stages: knowledge, persuasion, decision, implementation, and confirmation (Rogers). Following this process, individuals who gain knowledge of openness would come to think of it in positive, negative, or neutral terms, decide whether to adopt or reject the concept, implement openness in their organization, and then confirm their decision.

People adopt innovations at different rates. The distribution of these rates forms a normal curve which differentiates the adopter categories (Rogers, 2003). According to Rogers, About 2.5% of any population are Innovators who adopt an innovation readily. About 13.5% are Early Adopters. The largest portions of the population, those centered

about the mean of the distribution, are the Early Majority adopters (34%) and the Late Majority adopters (34%). The remaining 16% of the populations are Laggards who resist implementation at all costs (Rogers, 2003; Surry & Ely, 2007). From this, it is clear that some percentage of the population will readily adopt openness, and some percentage of the population will reject it even if it becomes the dominant practice in higher education. The issue then becomes determining what stage of adoption openness in higher education is in.

The diffusion process follows the path of an S-shaped curve. The percentage of people adopting any successful innovation starts out at a slow rate, which gives way to a period of rapid adoption before gradually leveling off (Rogers, 2003; Surry & Ely, 2007). The rapid adoption period most often results from the combination of social and technical factors surrounding the innovation (Surry & Ely). Diffusion involves an innovation traveling through communication channels over time throughout a social system (Rogers, 2003). As more and more people adopt the innovation, it diffuses throughout the system. At some point on the S-curve, enough people adopt an innovation so that a critical mass is reached where the innovation's diffusion and adoption become self-sustaining (Rogers). Openness has been around for centuries as a social construct that interacts with beliefs about education, but with the emergence of new technologies it has started to reframe educational structures. Is it possible that some facets of openness are nearing this critical mass of adoption in higher education?

Implementation is "the actual use of an innovation or what an innovation consists of in practice" (Fullan & Pomfret, 1977, p. 336). The prominent thinking around implementation has transitioned from emphasizing the use of one well-defined and fully

replicable innovation model for all settings over to a system of mutual adaptation (Surry & Ely, 2007). Mutual Adaptation involves considering the local context of the implementation and adjusting to fit the innovation (Fullan & Pomfret, 1977; Surry & Ely, 2007). This implies that institutions looking to implement an innovation such as openness will likely modify the details of the implementation to fit the specific context of their institution.

The ultimate sign of a successful long-term implementation is that the innovation becomes institutionalized. When an innovation is institutionalized it becomes routine practice and no longer seems like an innovation at all (Surry & Ely, 2007). The desired end result of any implementation is that it becomes institutionalized. If openness were institutionalized in higher education it would become the standard; Open Access research publishing would be the default, classes would emphasize transparency, freedom, and community, and content would be shared more freely.

The Critical Role of Policy in Change

Policy plays an essential role in institutional change, especially in regard to the implementation of innovations such as technology or openness (Surry et al., 2009; Surry, 2002; Trowler, 2002b). Policies do not in themselves create or implement change, but serve to direct behavior within a system (Porter, 2012). Policies serve as guides for those seeking to perform in line with organizational goals, visions, and processes. If openness is implemented, or ultimately institutionalized, in higher education, policies will be critical in making a number of key decisions. It is therefore important to understand the role of policy in relation to organizational change.

Policies can act as enablers, barriers, or neutrally in the implementation of an innovation (Surry et al., 2009). To enable something is to make it “possible or easy” (“Enable,” 1891, definition 5a). In the case of this study, a policy that enables openness would encourage or allow faculty or others looking to the policy for guidance to implement openness in some way within the organization.

Conversely, a barrier is something that “prevents access, or produces separation” (“Barrier,” 1885, definition 3a). In the case of this study, barrier policies would be those serving to obstruct or prevent the implementation of openness within the organization.

Something that is neutral is “not belonging to, associated with, or favouring any party or side” (“Neutral,” 2003, definition 4). In this study, a neutral policy is one that would generally have no influence in either direction regarding the implementation of openness.

Policy is critical for implementing change in higher education, but effective implementation requires consideration of a larger framework of concerns (Du Toit & Forlin, 2010). Policies are implemented within organizations through a complex process that considers various conditions and components. Individual policies exist within larger policy environments, which in turn exist within larger institutional frameworks of consideration. The policy implementation environment for higher education is described in Chapter Two.

The policy environment in higher education is complex (Trowler, 2002a). The RIPPLES Implementation Model provides a theoretical framework in which to consider the role of policy in the process of implementation in higher education (Surry, 2002). The RIPPLES Model considers implementation in higher education within seven components: **R**esources, **I**nfrastructure, **P**eople, **P**olicy, **L**earning, **E**valuation, and **S**upport. In this

study, policy will be examined in consideration of its role in implementation as an enabler, barrier, or as neutral to the innovation of openness. This will be framed with consideration to the larger theoretical framework of the RIPPLES Model.

Statement of the Problem

There have been numerous calls for including openness in higher education (e.g., Liyoshi & Kumar, 2008; Couros, 2006; Digital Connections Council of the Committee for Economic Development, 2006, 2009; OLCOS, 2007; Wiley, 2010), but its actual implemented role in education has not been evaluated. It is unclear whether or how higher education institutions have attempted to implement openness into their organizations, or how successful any attempts to do so have been.

Openness increasingly presents novel and publicly visible challenges to higher education institutions. One example of these challenges is the unapproved opening of the Stanford Artificial Intelligence class to the public by the instructors. The course gained approximately 10,000 unregistered students over the weekend, and eventually 160,000 total enrollees, without the consent of the institution (Henn, 2012). Another example is the pressures brought about by Massively Open Online Courses (MOOCs) to reduce the cost of education (Office of the Press Secretary, 2013). These challenges result from faculty or administrative decisions, the actions of other organizations, governmental regulations, societal pressures, and other sources. It is also unclear whether or how higher education institutions have responded to these situations, or how successful any attempts to do so have been.

Institutions face increasing pressures to incorporate the practices of openness, and to form official positions responding to the challenges that openness brings (Digital Connections Council of the Committee for Economic Development, 2009). Higher education institutions have never faced many of the challenging situations arising from openness before, and those situations that have been seen provide relatively little guidance to institutions in formulating responses. Further, these situations are often intensely ideological and value laden, requiring the institution to be carefully introspective about organizational values and cautious in official responses. Literature searches produce no existing efforts to empirically examine the responses of higher education institutions to the implementation of openness. Organizations wishing to address openness, either proactively or reactively, have relatively little to draw on by way of literature or from the actions of other institutions. From this, it is clear that a need exists to conduct research on how higher education institutions are responding to the growing impact of openness and to provide guidance in the form of recommendations for institutions facing similar situations.

Purpose of the Study

There are two purposes for this study. The first is to explore the current state of policies related to the implementation of openness in higher education. The second is to provide guiding recommendations to higher education institutions looking to address the implementation of openness in their own policies, whether they are looking to support, block, or simply recognize its influence in their institutions.

Some specific goals related to exploring the current state of policies related to the implementation of openness include determining the extent to which higher education institutions address openness in their policies, if at all; examining the implementation role of any existing policy statements addressing openness (as enabler, barrier, or neutral); and gathering the most representative policy statements regarding openness from each type of policy document. This examination provides evidence of the degree to which organizations address the implementation of openness in their policies, and provides insight as to the general institutional stance toward openness, if any.

Specific goals related to providing guiding recommendations for other institutions include creating a ranking of higher education institutions based on results from the analysis and producing recommendations by developing an idealized set of policy statements that address openness as an enabler, as a barrier, and neutrally. Institutions referring to this study will be able to obtain some idea of which schools were doing the most to address openness in their policies and the general stance of those institutions toward openness. They will also have resources for addressing openness in specific policy documents in a manner befitting their goals.

Research Questions

The research questions addressed in this study were:

1. To what extent do research intensive (i.e., research university/very high, RU/VH) higher education institutions address openness in their policies?

2. Which of the major areas of openness defined in this study (Open Access research, Open Content, Open Source Software, Open Teaching and Learning, Other Areas of Openness) are addressed in these institutional policies?
3. What is the policy role (enabler, barrier, neutral) of the policy statements related to openness?
4. Is there a relationship in institutional policy documents between the use of keywords related to openness and the types of statements related to the implementation of openness as defined by the rubric?

Significance of the Study

This study was important for at least five reasons. First, it expanded the literature on policy and institutional change in higher education by providing data on the role of internal policies within a context of analysis at a certain point in time.

Second, this study was important because it provided a snapshot of existing policies addressing openness in research-intensive higher education institutions. This snapshot included an evaluation of the implementation role of policy statements, most representative example statements, and a ranking of the institutions based on how well they addressed openness in their policies. This was important because the extent to which higher education institutions addressed openness in their policies is unknown. Further, it is important to understand the types of policy responses, if any, taken by higher education institutions in order to later evaluate what has worked and what hasn't. This information is also useful for informing other institutions of what has already been tried.

Third, this study provided a model and a method for examining higher education policy documents using content analysis methodology. This was important because it provides others hoping to perform similar studies with a method and a path to follow, and it provides some information as to the effectiveness of the method.

Fourth, it extended the literature on the RIPPLES Implementation Model by focusing on the policy component of the larger framework. This was important because there have been no previous studies looking solely at the policy component of the RIPPLES framework. This study provides grounding literature for future researchers who wish to examine individual components of the RIPPLES framework in higher education more closely.

Fifth and finally, it provided idealized enabler, barrier, and neutral policy statements that can inform institutions looking to address openness in their policies. The policy implementation literature has been criticized for not providing enough specific recommendations (Elmore, 1979). This study was important because it provided specific guidance for institutions looking to address openness in their policies no matter what their stance on openness is. This guidance allows the institution to customize specific policies to support or dissuade different areas of openness. For example, institutions wishing to support Open Access to research while dissuading open teaching practices now have resources providing idealized examples for each of these functions.

Limitations of the Study

The major limitations for this study were that it used limited data sources, that the technology and tools it used have limitations, that it relied on a single human evaluator who was making judgments about the content, and that it was based on a sample of a larger population.

One potentially limiting factor for this study were the limited data sources used for the content analysis. The study only examined the Faculty Handbooks, Strategic Plans, and Technology Plans from the sample, and these were searched using only a list of eight keywords. This means that relevant data located outside of these documents was missed, and that the keywords might not have brought up some of the relevant data inside the documents.

Locating, identifying, and processing relevant content surrounding these search terms depended on the abilities and judgments of a human evaluator, who also made evaluative judgments about the implementation role and created the idealized statement recommendations for enabler, barrier, and neutral policy statements. Although the relevant policy statements are in the appendices for readers to examine for themselves, people hold biases and values that are impossible to separate from our judgments; this could have potentially impacted the study. There is also the potential that the evaluator missed or miscoded relevant statements.

The search relied on the search tools available on the websites in cases where the documents were unavailable for download as a single file, and in the PDF reader or Microsoft Word for Macintosh in cases where the documents were downloadable. These tools could have had limitations or issues that could have impacted the study. For

example, critical areas of content could have been inaccessible or otherwise unreadable by the search tools, typographical errors could have impacted the search, processing errors could have occurred during the search, or issues with the inventorying of files could have produced false hits or irrelevant results.

Finally, although the results were based on a stratified random sample of RU/VH higher education institutions, there is always the possibility that the sample was skewed or that the results did not actually apply to the larger population. With this in mind, future researchers should use caution, as always, when making generalizations or assumptions about the larger population based on these results.

Definition of Key Terms

- **Access:** Access is defined as “the power, opportunity, permission, or right to come near or into contact with someone or something; admittance; admission” (Section II, definition 3a) or “the right or opportunity to benefit from or use a system or service,” (Section II, definition 3b) (“Access,” 2011). In this study, access refers to the right or ability of users both inside and outside of the system to gain visibility and use of the system and content under question.
- **Barriers:** Obstructions or impediments serving to keep something separate or apart. In this study, barriers refer to barrier policies, which serve to obstruct or prevent the implementation of openness in higher education.

- Change: The process of cognitively and behaviorally accepting something in a different way (Beck, 2012). Change may also be thought of as accepting different procedures or instituting new tools and practices in a given setting.
- Diffusion: The process through which innovations are communicated throughout systems via distinct channels and among members of the social system (Rogers, 2003).
- Enablers: Something that makes something else possible, gives something effectiveness, or supplies the necessary power and opportunity for an end. In the case of this study, the end in question is the implementation of openness in higher education, and the enablers are policies that support the implementation of openness in higher education.
- Implementation: Implementation is the process of instilling, putting into place, carrying out, or otherwise executing a procedure, plan, directive, etc. in a real setting. Beck (2012) defines it as “using instructional materials or strategies in real settings” (p.13). Regarding policy, implementation has been defined as encompassing “those actions by public and private individuals (or groups) that are directed at the achievement of objectives set forth in prior policy decisions” (Van Meter & Van Horn, 1975, p. 447).
- Openness: The characteristics of transparency and freedom as manifested in any idea, attitude, procedure, resource, implemented design, or other system or product in a high degree relative to the standard.

Chapter Summary

Openness is a difficult concept to define. Attempts to define it have traditionally followed the practice of grounding openness in a historical account, using openness to underpin some existing structure, or grounding openness in some practical context or object. In this study, the concept of openness is defined as the characteristics of transparency and freedom as manifested in any idea, attitude, procedure, resource, implemented design, or other system or product in a high degree relative to the standard.

In the last century, openness has played an influential and important role in education. The concept was influential in the progressive reform movements led by Dewey and Montessori. Openness was also a driving factor for the concept of an open society and education in an open society by Popper. Openness played an important role in the racial integration of the American school system and in reflections about school structures as oppressive forces. Openness also guided experimentation in accessibility and physical designs of schools in the 1960s. The concept became intertwined with technology in the 1980s through the work of Papert, the concepts of free and open software, and the development of alternative copyright licenses and Linux. Openness expanded greatly in the 2000s with the introduction of MIT OCW, Harvard's embrace of Open Access policies, and the birth of the open course. The 2010s have seen confusion and exploitation of the concept of openness and the various models of OEDs.

Higher education institutions are increasingly facing novel situations resulting from decisions surrounding openness. This study examines the responses of higher education institutions by examining policy documents and provides guidance to other institutions facing similar scenarios. Research questions involve taking stock of higher education

policies and examining which of the major areas of openness are addressed in them. The major areas of openness include Open Access research, Open Content, Open Source Software, Open Teaching and Learning, and Other Areas of Openness such as open data and crowdsourcing. Limitations of the study were also discussed. The study will be important because it will provide a snapshot of existing policies and a model and method for using content analysis for policy examination in higher education. It will also extend the literature of the RIPPLES Implementation Model, and will provide recommendations for institutions seeking guidance on addressing openness in their policies. The organization of the dissertation was also discussed and shared in a concept map.

CHAPTER II

REVIEW OF THE LITERATURE

In this chapter, I addressed the literature relating to technology and openness in education, and the role of policy in organizational development and change. This chapter was organized as reflected in Figure 3. In the section on openness, I discussed the philosophy of openness, the relationship between technology and openness, and openness in education. I also described the changing role of higher education, openness in higher education, and the major areas of openness in higher education. These major areas of openness are Open Access, Open Source Software, Open Content, Open Teaching and Learning, and Other Areas of Openness.

The literature relating to the role of policy and organizational development include organizational change and development, the use of policy in higher education to address change, and the RIPPLES Implementation Model. The chapter concludes with a synthesis of the literature and a summary of the chapter.



Figure 3. Organization of Chapter Two.

Philosophy of Openness

In this section, I described the overarching construct of openness. I briefly discussed the nature of open and closed systems, and how the implementation of openness affects various systems. I also briefly discussed how different elements are emphasized when openness is implemented in different systems.

The overarching philosophy of openness is associated with a variety of concepts, characteristics, and ideals. These include the concepts of freedom through removal of barriers, transparency, community, inclusiveness, collaboration, networks of participation, distributed power, governance, knowledge, sharing, and access (e.g.,

Christensen, 2005; Meiszner, 2011; Peters, 2010; Roberts, 2011; Veletsianos & Kimmons, 2012; Wilson, Ludwig-Hardman, Thornam, & Dunlap, 2004). Openness as used in this dissertation refers to the characteristics of freedom and transparency imbued into an idea, attitude, procedure, resource, implemented design, or other system or product. As an attitudinal or cultural feature, transparency and freedom may be associated with ideas such as honesty, flexibility, tolerance, cooperation, autonomy, or a willingness to share, change, or embrace new experiences. In this respect, openness may speak to the moral good, virtues, ideals, and tolerance of ambiguity and change (Peters & Roberts, 2012). As design characteristics, transparency and freedom are assimilated or designed into systems, products, and resources where they enable affordances such as flexible procedures, feedback systems, sharing, collaboration, and accessibility.

Systems theory provides a solid example of the affordances enabled by openness. Systems are essentially objects or events that are made up of smaller parts or phases which function synchronously (Filbeck, 1974). Open and closed systems work on a continuum in the same way that the concept of openness does. The closer to the open end of the spectrum a system is, the more flexible and adaptable it is; where as it becomes more inflexible and stable the closer it moves to the closed end of the spectrum. Closed systems are often considered mechanistic with strict cause and effect elements and linear features. They are isolated from their environments and are inherently change resistant, emphasizing stability and inflexibility in all cases (Richey, Klein, & Tracey, 2011). Open systems are often considered organic with chaotic patterns and instability. They are flexible and adaptable to change and interact with their environment, but are not inherently stable (Richey et al., 2011). The characteristics of a purely open system are

that it is fully flexible and adaptable, interacts fully with its environment, and may be unstable. All participants in the fully open system are free to work with and within the system and all of its parts on their own terms, and all elements of the system are fully visible and modifiable by any party and in any way.

Systems exist within environments that contain all elements of the system and any related parts. The suprasystem contains the system under consideration, which in turn contains subsystems that are related to the functioning of the target system (Richey et al., 2011). An example may be a community acting as the environment that contains the school system acting as the suprasystem. The school suprasystem contains the school under consideration, our target system, and that school contains classrooms and departments, which are the subsystems in this case. Resources, products, feedback, and information flow within and throughout the entire environment where the outputs of any one system serve as inputs for the smaller level and as feedback for the larger level. The more transparency and freedom inherent in this system, the more open it is.

The philosophy of openness impacts a wide variety of societal systems. As people experiment with infusing its practices into their professional roles within these systems, the results are sometimes disruptive innovations that make returning to a time before implementation unimaginable. To date, openness has made its mark in a number of broad areas. These include inspiring new philosophical positions on government (Popper, 1966), expanding the concepts of business and innovation (Chesbrough, 2004, 2006; Christensen, 2005; Von Hippel, 2005), and establishing the collaborative crowd sourced creation of software (DiBona, Ockman, & Stone, 1998; Raymond, 1999). Changes have also occurred with research models (Laakso et al., 2011), the publishing industry

(Matkin, 2009), copyright licensing (Creative Commons, n.d.-a; Free Software Foundation, n.d.-a, n.d.-b), education models (Liyoshi & Kumar, 2008), and other areas.

It is important to consider a variety of characteristics when implementing openness into a system. Openness can either be implemented into an existing system, or an entirely new system can be designed to include openness. Augmenting an existing system requires changing relevant rules, subsystems, and structures so that openness can be accommodated in the design. Implementing openness into a new system requires designing it in such a way that it has open qualities and is flexible enough to accommodate openness. Whether designing a new system or augmenting an existing system, implementing openness produces a variety of options and challenges that must be considered. Some of these considerations include decisions about designing for the freedom to participate, engage, and disengage the system on the user's own terms. Others include the freedom to access, use, modify, migrate, and share parts and products of the system, or the freedom to see all the aspects and inner workings of a system. Another question may be whether to include the freedom to fork the system, which is to copy the entire project or system and branch off at any time. These considerations largely center around the details of designing transparency and freedom into the system.

Different implementation contexts for openness emphasize different aspects of the concept. These contexts are broad and can produce a confusing variety of perspectives on openness. For example, in community areas such as scientific communication, open education, open cultures, and open learning systems, the concept of openness is often manifested as a value laden "moral excellence" that enables "good" through enabling and promoting certain brands of freedom, justice, transparency, democracy, participation, and

collaboration (Peters & Roberts, 2012, p.1). In Popper's view, transparency and access were necessary components both for the concept of falsifiability to bear fruit and for his democratic open society to function (Magee, 1973). Many tangible Open Content objects, software, and resources such as OER, open data, open textbooks, emphasize being free. Certain types of OEDs also include this branding as free. This can lead to confusion between "free" as providing certain rights and privileges (i.e., free as in freedom) and "free" as being available at no cost to the user (i.e., free as in gratis) (Digital Connections Council of the Committee for Economic Development, 2006; Kelty, 2008; Stallman, 1998). Going back to the continuum, something at the most open end of the spectrum is likely free in both regards, but there is debate over where to draw the line and still consider something as open (Wiley, 2012b). Ultimately, the philosophy of openness deals with the concepts of transparency and freedom, but these concepts can be manifested and emphasized in a variety of ways depending upon the context.

Technology and Openness

Openness is intimately tethered to technology. While the concept of openness exists outside of technology, technology enables the practice of openness to become widespread. Historically, the practice of openness in education is strongly linked to socio-technological improvements, yet it is dangerous to tie the practices and concepts of openness to any specific technology (Peter & Deimann, 2013). When technology and openness interact, the results can completely reframe the basic assumptions of a system (Raymond, 1999). Combining the concept of openness and the affordances of technology can lead to never before seen innovations that are self-sustaining in interesting ways. This

combination has altogether changed the nature of motivation (Hars & Ou, 2002), diffusion (Bonaccorsi & Rossi, 2003; Couros, 2004), and innovation (Lakhani & Von Hippel, 2003) in some systems. Technology enables openness to become ubiquitous.

There is some debate about the role of technology in driving change and its overall impact on society. Technology researchers make a distinction between instrumentalism, the concept that humans are collectively in control of technology and use it as a tool, and determinism, the idea that technology is an autonomous force outside of human control and is the primary force driving social change (Surry & Farquhar, 1997). Surry and Farquhar (1997) also make distinction between technological utopianists, those who think that technology is leading to a world with relatively few problems, and technological dystopianists, those who think technology is increasing the costs and problems associated with society. More recent perspectives on technology recognize the codependent nature of these two views of technology (Surry, & Baker III, in press).

As technology systemically enables previously unimagined possibilities, societies are suddenly faced with the cultural dilemma of learning how to address and regulate certain behaviors. Often the struggle is between banning these behaviors as criminal because they don't fit the norm, or embracing them in the spirit of openness thereby allowing creativity to flourish in new and interesting ways (Lessig, 2004, 2008). For example, the rise of the Internet enabled the inexpensive sharing of information to mass audiences. This information sharing started as a one-to-many model, often called Web 1.0, where web makers could create a webpage that others could visit. This gave way to a many-to-many model, Web 2.0, where the barriers-to-entry for creation were dropping rapidly and consumers were suddenly able to take on the role of producer and distributor. This

evolution changed the fundamental assumptions of operating on the Internet. It challenged organizations to innovate or get out of the market, and enabled millions of users to suddenly have a voice where they previously had none (Brown & Adler, 2008).

The dilemma of whether to embrace or condemn the technology or the behaviors it enables is complex and does not have a clear answer. Innovative technology sometimes affords great benefits to its users, but the same technology can enable illegal or immoral behaviors that are potentially unstoppable. For example, the development of Peer-to-Peer (P2P) file sharing allows for the mass distribution of files using a distributed network of linked computers which together are more powerful than individual computers (Lessig, 2004, 2008). This system provides a boon to users who create content and wish to disseminate it freely and widely to the world, such as distributors of various Linux Distributions (“Distro’s”) or bands who wish to get their sound out. However, abuse of this system through piracy has crippled the traditional models of the entertainment industry as music, movies, audiobooks, and other intellectual property are illegally released en masse and shared freely with the world. These business models rely upon closed systems that limit access to their product in order to obtain profits. When the functionality of these models are subverted by creating a leak in the pay wall, the stability of the business and the larger system of which it is a part is impacted.

While traditional organizational models often depend on limiting access to products and information, some models seek more openness by maximizing transparency, access, and freedom to elements of their practice. This approach has enabled innovations in business (Mackey & Sisodia, 2013), software (Raymond, 1999), education (Brown, 2006;

Liyoshi & Kumar, 2008; Peters, 2012), science (Peters & Roberts, 2012), research (Lewis, 2012), and other fields.

Regardless of morality or legality, the presence and uses of technology within a system have an impact on operation within that system. When new uses of technology change the way a system functions, organizations seeking to survive or thrive within that system are often forced to reframe operating practices to fit the new assumptions. For example, when theft through Internet piracy was emerging as a serious threat to the profitability of the recording industry, Apple Computer revolutionized the way people consume music by developing the iPod and iTunes. These technologies enabled people for the first time to easily own, manage, and carry a massive amount of songs and audio content in their pockets. Steve Jobs, founder and Chief Executive Officer (CEO) of Apple during this time, felt that as much as 80% of people pirating music didn't want to be, but were suffering from the fact that technology had not provided an easy way for users to manage their music digitally (Isaacson, 2011). If music industry organizations had refused to reframe their practices and business models, they would likely have continued to bleed profits through file sharing until they were insolvent. Organizations faced with disruptive change from digital technologies are often forced to innovate or get out of the industry.

The question over which technologically enabled behaviors to allow and which to condemn is complex. Certain uses of technology can lead to great advances in practice or relief from suffering and burdens; however, people sometimes use technologies in ways that can be devastating to existing practices, add burdens, or threaten safety. In some instances, the question of regulation is moot because the technology needed to stop the

behavior is simply nonexistent or is too costly to realistically implement. Technology itself is not to blame; it is just a tool. However, just as technology can be used for the good or to the detriment of society, openness too can be used to supportive or destructive ends.

Having the ability to share information broadly and inexpensively is wonderful, provided the creator of the information wants it disseminated. Content creators wishing to disseminate information and other content for use and modification by others have benefitted greatly from the development of open and alternative copyright licenses (Cheliotis, 2009; Lessig, 2004, 2008). Licenses such as the GNU General Public License (GPL) and the assortment of Creative Commons licenses enable content creators to set terms of use that follow their work and help confine its use to fit with the creator's wishes (Digital Connections Council of the Committee for Economic Development, 2006; Kelty, 2008; Organisation for Economic Co-Operation and Development, 2007). However, when private information is unwantingly stripped away from its enclosures and shared freely with the world, the situation can become instantly more complex than even the issues plaguing the music industry.

Many people would agree that it is clearly wrong to illegally steal intellectual property. Releasing and disseminating certain types of information, however, can be seen either as a threatening betrayal of trust or as the heroic actions of a whistleblower called to duty, depending upon one's perspective. This is evident in the currently ongoing case of Edward Snowden, the whistleblower/traitor who released information on the National Security Agency (NSA) PRISM mass surveillance operation (Gidda, 2013). The public was unaware of this operation before Snowden's actions and many view it as a betrayal

by the United States Government and an overstepping of boundaries (Davidson, 2013). Sometimes the release of information gets into political and moral gray zones where the rights of citizens, the checks and balances for keeping organizations and governing bodies accountable, and the value judgments of what “should” and “should not” be publicly visible are called into question.

In some instances, the drive for greater openness in society leads to innovations that are good for everyone, such as the We The People Petition Platform (The White House, n.d.), which gives all American citizens a voice and the opportunity to garner support for their perspective. As an aside, the We The People Petition software is also open source (GitHub, n.d.)! On the other hand, attempts to force transparency upon society such as the actions of hacker groups like ANONYMOUS (Bryan-Low & Gorman, 2011), whistleblowers like Private Bradley Manning (Martinez & Saenz, 2013), and news groups like WikiLeaks (Wikileaks, n.d.), can threaten the safety, security, and integrity of citizens, military operations, and relationships with other countries.

The philosophy of openness serves as a banner to be picked up and carried by those interested in donning the mantra for their purposes. Just like technology, openness is a tool that can be used for the benefit or detriment of society. At the extremes of these uses, there are those pushing for tightly controlled technological systems that limit freedom and increase security, and those pushing for more open and ill-defined technological structures that encourage freedom and sharing at expense of control. While the philosophical concept of openness transcends technological barriers, its manifestation in a digital world is closely tied to the fate of technology. Openness is societally regulated in the same way that technology is.

Openness in Education

The rise in digital and hybrid learning environments has alleviated many of the issues associated with practicing openness in a physical space, and enabled new opportunities for openness to flourish in education. One of the current trends in open education is an experimentation with Open Education Designs (OEDs) (Baker III & Surry, 2013a). OEDs are training and learning environments that embrace some or all of the ideals of openness in their design and implementation. These can be conceived of in three major categories that each emphasizes a different type of openness. These are the Topic Focused Models emphasizing normative openness, Alternate Education Models emphasizing revolutionary openness, and the Traditional Education Models featuring procedural openness (Baker III & Surry). A conceptual diagram for these categories of OEDs can be seen in Figure 4.

The OED framework is useful for categorizing most of the current major models of educational experimentation regarding implementing openness into learning designs. Different organizations and interested parties are implementing openness into learning environments in different ways. They are also operating under different branches of openness with different assumptions and intentions. These learning design experiments are manifested in different environments within different contexts. The OED taxonomy is useful for sorting these various experiments into their relevant branches of education.

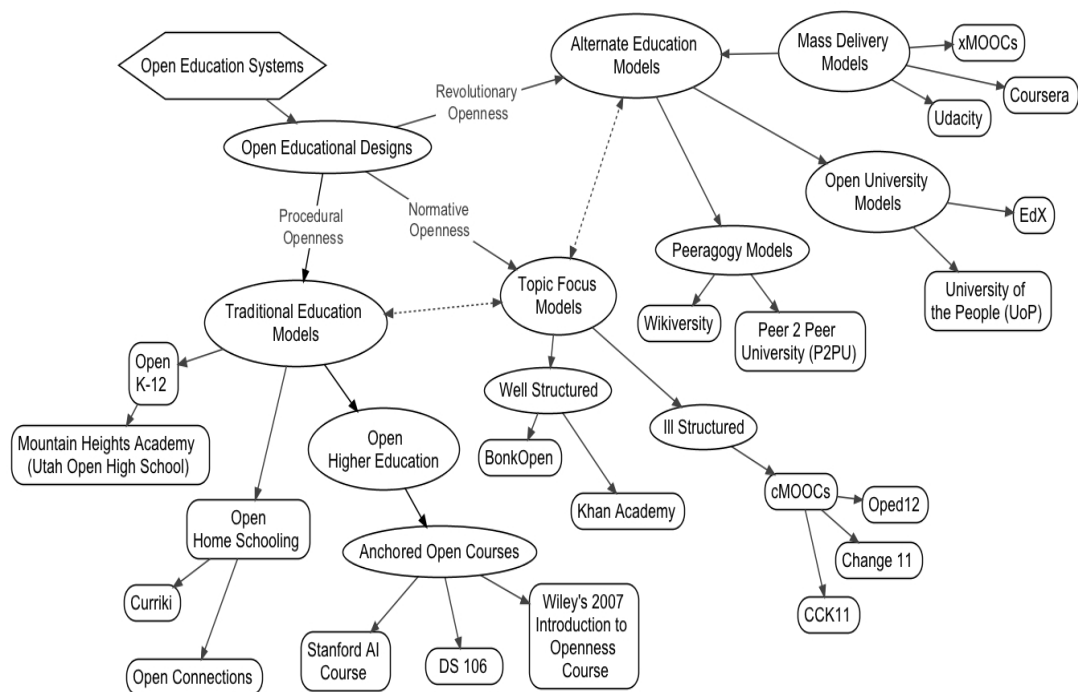


Figure 4. Open Educational Designs Taxonomy (Baker III & Surry, 2013a).

The Topic Focus Model is an OED category for models operating under the concept of normative openness. The idea behind normative openness is that the learner should be in full control over all aspects of their learning, should be able to engage and disengage with the content and others at will, and should have full agency over all aspects of their learning experience (Baker III & Surry, 2013a). This type of openness seeks to experiment with, inform, and modify educational thinking and practice. Topic Focused Models tend to fit under well-structured and ill-structured designs. This structured-ness has to do with the whether the design suggests or imposes a structure or suggested path on the learner regarding sequencing of materials, goals, assignments, etc. Topic Focus Model OEDs encourage learners to engage on their own terms, but they do provide some structure. Well-structured models suggest a path and provide a clear structure for the

learner, but do not require adherence to this path or structure. Ill-structured models do not generally provide a recommended path or structure, although some suggestions of connecting with other groups may be involved (Tschofen & Mackness, 2012).

The Khan Academy is probably the best example of a well-structured topic focused model. It was founded in 2006, and focused on sharing mathematics tutorial videos online via YouTube and providing a space for learners to practice and chart their progress. The Khan Academy model grew out of an effort by Sal Khan to tutor his niece. This effort led to his placing of tutorial videos on YouTube, where they were viewed thousands of times, mostly by students and parents trying to figure out their homework (Khan Academy, n.d.). This model grew in popularity and is influential in the concept of the flipped classroom (Brannan & Baker III, 2013; Thompson, 2011; Tucker, 2012). This evolving model now provides learners with a diagnostic pretest and a customized recommended path to build math skills from basic 1-digit addition through implicit differentiation; however learners can still access content in whatever sequence they wish (Khan Academy, 2013).

Connectivism is a learning theory that conceptualizes learning as occurring through a process of connecting with others and with content (Siemens, 2005). Connectivism embraces the key principles of autonomy, connectedness, diversity, and openness (Tschofen & Mackness, 2012). In 2008, Siemens, Downes, and Cormier created the Massively Open Online Course (MOOC) platform to enable and experiment with connectivist learning principles (Rodriguez, 2012). This type of MOOC, dubbed the cMOOC for its connectivist underpinnings (Rodriguez, 2012), is probably the best example of ill-structured Topic Focused Models. cMOOCs generally enable thousands of

participants to take part, provide free Open Access to sharable content, and encourage collaboration and self-governed participation. They are digitally available on the Internet, and they are course-like collections of information arranged in some systematic way that is intended to increase the learner's knowledge and understanding of a topic. cMOOCs are constructed of freely available and openly licensed materials that are always accessible. They are structured to allow learners to dictate their own goals and freely access, engage, and disengage the course, content, and their peers on their own terms. cMOOCs are designed with as few barriers as possible. For example, there is no registration or login required to participate in many of them. The ill-structured model is probably the most conceptually similar model to Illich's (1971) learning webs.

Later, some organizations adopted the MOOC banner to promote courses featuring widely accessible, but not necessarily "open" access to the course materials for a scaled learner experience. These MOOCs, dubbed xMOOCs, or institutional MOOCs because they are generally for-profit or institutionally supported ventures (Downes, 2012; Rodriguez, 2013; Siemens, 2012a), fall under the Alternate Education Models OED category. This category consists of several different designs including peeragogy models like Wikiversity and Peer To Peer University, Open University Models such as EdX and the University of the People, and Mass Delivery Models such as xMOOC providers Udacity and Coursera. In 2012, Udacity founder Simon Thrun said there would only be ten institutions of higher education left in fifty years due to the impact of MOOCs (Leckart, 2012); however, Udacity recently closed its doors on MOOCs, focusing instead on paid classes with a vocational goal (Chafkin, 2013, November). Additionally, Udacity recently stopped offering free certificates to learners in an effort to be more rigorous in

validating that the person with the knowledge is the person with the certificate (Thrun, 2014). Alternate Education Model OEDs operate on the concept of revolutionary openness, which emphasizes challenging the fundamental assumptions of traditional education structures and tends to seek the transformation and replacement of current educational systems and practices (Baker III & Surry, 2013a).

Finally, the Traditional Education Models OED category includes open home schooling, open K-12 Models, and open higher education, mirroring the structure of education in the United States. These models operate under the concept of procedural openness where the design, rules, and procedures of the course are modified to embrace openness and to use these changes to enhance the educational goals (Baker III & Surry, 2013a).

The examples of open homeschool Traditional Education Model OEDs are somewhat limited. Internet searches produced only one active open homeschool model and another group focused on k-12 that also provides OER for homeschoolers. Curriki, the group focused on k-12 schools, has gathered or produced over 51,000 OER at the time of this writing. They make these resources available for everyone's use (Curriki, 2013). The open homeschool group, Open Connections, emphasizes an approach featuring agenda free questions, meaningful assignments, experiential learning, process consciousness, collegiality without hierarchies, and flexible thinking, among other aspects (Open Connections, n.d.). In keeping with the concept of agency in learning emphasized in openness, homeschool parents appear to be motivated by the ability to take an active role and help produce successful results in their children's learning (Green & Hoover-Dempsey, 2007).

Open k-12 Traditional Education Model OEDs include The Open High School of Utah and The Open High School in Richmond, Virginia. The Open High School of Utah, now called Mountain Heights Academy, was a charter school founded with a commitment to using, building, and sharing OERs for the purposes of encouraging individualized instruction and providing a highly responsive curriculum (Tonks, Weston, Wiley, & Barbour, 2013). The Open High School in Richmond, Virginia is another example of an open k-12 school. This high school opened in 1972 and emphasizes connecting and learning within the larger community, giving the learners ownership of their learning, and instilling social responsibility into the learners (Richmond Public Schools, n.d.). The Open High School in Richmond is considered a magnet school and is ranked among the best high schools by U.S. News & World Report (U.S. News & World Report, 2013).

While the examples of open homeschool and k-12 models are sparse, there are numerous examples of Open Higher Education Models. The Anchored Open Course (AOC) is a traditional university course that is accredited or supported by the university. The AOC design allows and encourages collaboration and interaction between the registered class members and the larger society (Baker III & Surry, 2013a; Baker III, 2014a). These AOC courses have institution-registered students who are paying to attend the course. They also provide access for participants who are not registered with the institution. AOC instructors may offer an unofficial certificate or open badge to non-university registered participants for taking part in the course. These courses often include some use of Personal Learning Environments (PLEs), which are distributed networks of online services tied together for learning (Attwell, 2007; Chatti, Jarke, &

Specht, 2010), as platforms for registered students to engage the larger society (Baker III, 2014a). David Wiley's 2007 Introduction to Openness in Education course (Open Content, 2011) is cited as most likely being the first of this type of course (Baker III & Surry, 2013a; Rodriguez, 2012).

Jim Groom and others have carried this concept even further with the University of Mary Washington's Digital Storytelling 106 (DS106) course which started in 2010 (University of Mary Washington, n.d.). The DS106 course has expanded from a standard model AOC to become what Groom calls an "open online experience" (Groom, 2011, par. 6). This course experience features student created participatory internet radio with Open Access, a blog hub, game servers for Minecraft (a popular building game), YouTube channels, and photo sharing sites where course participants, including currently registered students as well as past students and participants from the larger community, all create and share with each other. Peer learning is an important component to the course. The students create many of the assignments and develop instruction showing others how to perform them, and they are also very active in providing feedback to others.

Research examining the procedures and design features of AOCs could allow this type of course to be more easily replicated or implemented in different settings. Literature searches produce no current instruments aimed at gauging perceptions or features of openness in higher education learning environments. However, identifying and extracting the perceptions and design features that enable openness within a learning environment could allow further differentiation, replication, and scaling of OEDs. I have made some preliminary attempts to develop a questionnaire with the intention of helping to identify

the features and perceptions of openness useful to AOC implementation at the classroom level (Baker III, 2014b).

Openness has brought challenges to educational traditions and forced educators to reflect on the basic assumptions underpinning their efforts. It has led to the creation of new learning environments, and the modification of existing ones, each emphasizing different types of openness with entirely different ideals. Traditional education concepts are being redesigned and refitted to accommodate access, connected learning, participatory networks, and to embrace the affordances that the open philosophy and digital technology provides.

Openness has some potential downsides that must be considered as well. For example, Stewart and Gosain (2006) found the open source developer environment to be driven primarily by allegiances to ideologies that could damage the functionality of the team. Clow (2013) discusses the high attrition rate for Massively Open Online Courses and redefines the phenomena as a Funnel of Participation. In addition to boycotts over Open Access research (Khan Academy, 2012, March; SPARC, 2012, March), there is also some debate as to whether it is safe to mix the use of proposed Open Access models (Guédon, 2004, 2008; Harnad, 2005). There is certainly a broad range of issues that must be considered in the implementation of something as complex as openness.

The Transitioning Role of Higher Education in a Digital Age

Higher education is currently in a transitional state (Duderstadt, Atkins, & Van Houweling, 2002). This transition is impacted by the emergence and impact of digital technology. The concept that digital technology enables anyone to “learn anything from

anyone at any time” pressures educational institutions to critically reflect upon their roles in society (Bonk, 2009, p.7). The threat of a technology driven unbundling of higher education goes back at least to the mid 1970s (Wang, 1975), while visions of using education as the vehicle for socializing certain philosophies and value structures into the larger population are still ongoing (Baker III, 2012; Cortese, 2003).

There has also been a push to transition into digitally enhanced positive learning environments. These positive learning environments encourage student-faculty contact and cooperation among students, value active learning and prompt feedback, emphasize time on task, and respect diversity in learning and talent (Hanna, 2000). The theories that underlie positive learning environments include “collaborative learning, cooperative learning, problem-based learning, communities of practice, and learning communities” (Hanna, p.52). Most open learning environments are positive learning environments. The introduction of these types of learning environments forces participants to reflect on their roles and functions within the environment, and it challenges the standard operating procedures such as instruction, assessment, and discipline (Hanna).

The emergence of digital information technology is also affecting the activities, form, function, financing, and enterprise of higher education (Duderstadt et al., 2002). Activity changes in higher education include shifts to asynchronous web based learning environments, changes in scholarship practices and communication methods, and the virtualization of the library and university. Changes in form, function, and financing are perhaps more subtle. Academic loyalties are shifting from one’s institution over to one’s more global discipline or field. Disaggregation and unbundling of services are still ongoing. There is a move toward digital infrastructure. There are also shifts in the

conceptualization of productivity, culture, and decision-making. These changes have led to a pronounced and imperative need for a “cohesive and consistent set of policies to guide the use of information technology” (Duderstadt et al., p.107). The impact on the enterprise of higher education is the result of technological change, shifts in societal needs, economic and market forces, and a more global perspective with new competition (Duderstadt et al.).

The role of higher education is currently in transition due largely to the emergence of digital technology. Discussions regarding the transitioning role of higher education in the digital age can be framed around policy questions. These policy questions center around three areas. These policy areas involve how best to respond to the diverse needs of knowledge driven societies, how to harness information technologies for the advantage of the institution, and how the institution can become flexible enough to respond to market forces while retaining its purpose (Duderstadt et al., 2002). By critically reflecting on the purpose of the institution and being introspective of organizational values, higher education institutions can find ways to adapt and remain viable in the digital age.

Openness in Higher Education

In much the same way that society faces socio-technical dilemmas related to openness, higher education institutions face very similar issues when addressing the various implementations of openness in their institutions. Interestingly, these two dilemmas are inseparably linked. This is because the responses of higher education institutions in addressing openness will inevitably help stifle or support the societal diffusion of openness (Baker III, 2012). Institutional responses to openness have

implications not only for the institution, but also for the larger community and the global society.

Surry, Stefurak, and Kowch (2011) identify three types of questions that must be asked when implementing technology or other innovations into higher education. These are First Order Questions, Second Order Questions, and Third Order Questions. First Order Questions are straightforward and focus on issues such as cost, availability, and capabilities. Second Order Questions are deeper examinations of First Order Questions, and they involve issues such as how to effectively implement an innovation within the context of the institution. Third Order Questions require intense organizational introspection. These questions often do not have answers, but their consideration is important. Third Order Questions may include critically reflecting on the fundamental role of higher education in society, examining aspects of control in an institution, or considering the impact of technology and innovations in an organization. If higher education institutions are to successfully or effectively respond to or implement openness, it is important that they consider questions at each of these levels.

The major areas of openness currently affecting higher education are Open Access research, Open Content and resources, Open Source Software, Open Teaching and Learning, and other less pronounced areas of openness. The interplay of openness and technology plays an interesting role in each of these areas. For example, digital technology has enabled the feasible distribution of scholarly articles and other knowledge for reduced or negligible costs (Finch, 2012; Weller, 2011; West & Bergstrom, 2013), and augmenting the research process with openness has enabled increased accessibility and wider citation of research papers (Antelman, 2004; Eysenbach, 2011; Harnad &

Brody, 2004; Laakso et al., 2011). This has called the role of traditional journal publishers into question and led to examination of the rights of ordinary citizens to publicly funded research (Khan Academy, 2012, March; SPARC, 2012; The Right to Research Coalition, 2010). While Open Access (OA) models are growing in demand, the actual cost of OA publishing as a business model is still under debate (Waltham, 2005).

The rise of Open Content is another area where openness is impacting education. Efforts such as OERs and MIT's Open CourseWare are providing replacement and supplemental resources that are in many ways more flexible than traditional resources. These resources are lowering cost structures by enabling educators to build upon, and share freely, the works of others (Bliss, et al., 2013; Open Educational Quality Initiative, 2011; Wiley, 2007). Open textbooks are also proving to be equally effective lower cost alternatives than standard resources (Bliss et al., 2013; Wiley, Green, & Soares, 2012).

The rise of OEDs, such as the various types of MOOCs and AOCs, are yet another area where openness is impacting education (Baker III & Surry, 2013a). The literature on MOOCs is growing, and researchers are beginning to make distinctions between the various types of course designs (Baker III & Surry; Liyanagunawardena, et al., 2013; Rodriguez, 2012, 2013). They are also building evidence for the types of learner strategies needed to succeed, and examining the tension surrounding offering the MOOC for institutional credit (Friesen & Wihak, 2013; Rodriguez, 2013). Many of these connections are made possible through technology.

Open data, transparency, and new collaboration systems may constitute other areas of technology driven openness impacting education. Augmenting traditional education concepts with openness has created alternative models for these structures and processes.

Traditional research models now contend with OA research models. Learning objects and other resources have evolved into Open Content such as OERs. The open philosophy has enabled Open Source Software (OSS) to proliferate. Opening up teaching and learning practices have given rise to OEDs and associated instructional strategies, and similar changes have happened regarding government models, data, and other areas. Each of these instances holds interesting and important interactions between technology and openness, and each is an example of a traditional education structure or process that has been modified by this interaction.

Open Access

Open Access (OA) is an alternative scholarly publication model that provides free access to research articles by covering the publishing costs by means other than subscription fees (Lewis, 2012). Technology and openness have modified the area of research through enabling the feasible distribution of scholarly articles and other knowledge for negligible costs and increasing citation rates of papers through opening access (Antelman, 2004; Eysenbach, 2011; Harnad & Brody, 2004; Laakso et al., 2011; Weller, 2011).

Two main business models of OA have emerged. One is the Green OA model and the other is the Gold OA model, where Gold OA has several versions. Essentially, the Green OA model involves authors being allowed to self-archive their research in addition to the article being published in a journal, where the Gold OA model involves an author publishing in a journal that will provide Open Access to the article (Harnad et al., 2004). The Gold OA models are Direct Gold, where the article is made accessible at the time of

publishing, Delayed OA, where the article is made accessible some period of time after publication, or Hybrid OA, where authors pay a fee to make their particular work immediately available (Lewis, 2012). Only 5% of journals are Gold OA, where over 90% of journals already provide a green OA option, although only about 10-20% of articles are self-archived (Harnad et al., 2004). The Direct Gold OA model can be considered a disruptive innovation and could account for as much as 50% of scholarly journal articles by 2017-2021 and as much 90% of scholarly articles by 2020-2025 following S-curve predictions (Lewis, 2012). Of course, futures predictions are always dangerous and these predictions are built upon estimated data at best, but they should lend credit to the idea that the role of OA research is growing.

There has been a rise in the number of OA journals. The Directory of Open Access Journals now boasts 9,954 journals and 1,522,417 articles (Directory of Open Access Journals, 2013). OA journal publishing has increased at a steady 1% per year over the last decade (Laakso & Björk, 2012). In the United States, OA is becoming a standard in many institutions. Harvard Law School has adopted an Open Access policy for their faculty (Hyman, 2013). The National Institutes of Health (NIH) have a public access policy requiring authors performing NIH funded research to submit final versions of the manuscript to a repository (NIH, 2013), and California (State of California, 2013), Illinois (State of Illinois, 2013), and New York (State of New York, 2013) are considering legislation mandating public access (Vollmer, 2013a). The White House has issued a directive (Office of Science and Technology Policy, 2013) for Federal Agencies with more than “\$100 million in annual conduct of research and development expenditures” (Holdren, 2013, Section 2) to plan on making research freely available

within one year of publication (Vollmer, 2013b). They have also introduced the Fair Access to Science, Technology, and Research (FASTR) Act calling for expansion of the NIH public access policy to other federal agencies (SPARC, 2013; Vollmer, 2013c). The United Kingdom, following the recommendations of the Finch Report (Finch, 2012), is also experimenting with methods for implementing broader reaching Open Access policies to publicly funded research (Research Councils UK, 2013).

Björk and Solomon (2012) found the impact factor for a large sample of traditional and OA journals was largely equivalent when journal age, discipline, and location were accounted for. However, Mukherjee (2009) found that some OA journals in Library Information Systems had strong impact scores, where others did not. A journal's OA status is therefore not necessarily indicative of its impact. Harnad and Brody (2004) suggested that impact analysis between OA and traditional journals should not be focused on impact factor, but instead they should focus on citation counts between articles appearing in OA and non-OA journals. OA articles are twice as likely to be cited in the first 4-10 months after publication, and OA articles are generally more immediately recognized than even those in widely distributed traditional journals (Eysenbach, 2006).

In a comparative content analysis of a popular OA and a popular traditional access educational technology journal, Surry, Baker III, Morgan, Leblanc, and Beck (2014) found significant differences between the journals in research methods and goals based on region, and that there was commonality of research topics between journal types and region. This supports a regional construction of the importance of research topics. It also indicates important differences in the journal content between OA and traditional journals in the educational technology area.

While many of the issues between OA and traditional access are as yet unsettled, it is clear that OA is challenging the concept of research. Higher education institutions are heavily dependent upon research and these issues have a serious impact on them. Some institutions report being unable to afford the cost of access to research (Sample, 2012, April 24), and the role of traditional journal publishers and the rights of ordinary citizens in regard to publicly funded research has come into question (Khan Academy, 2012, March; SPARC, 2012; The Right to Research Coalition, 2010). The introduction of Open Access has brought about debates among scholars and academic boycotts against publishers (SPARC, 2012), the formation of student coalitions and activist research groups (The Right to Research Coalition, 2010), and even a White House petition that achieved sufficient signatures to demand a response in just 22 days (We The People, n.d.). These issues not only impact higher education institution budgets, values, and goals, but also their ability to produce viable graduates who are up-to-date on the knowledge in their field and feed researchers the needed information to produce top-notch research.

Open Source Software

The concept of Open Source Software (OSS) grew out of the Free Software Movement concepts of freedoms underlying software (Stallman, 1998). The OSS concept emerged with the intent of being more usable by businesses and the general public (Kelty, 2008). The institutionalization of some popular Open Source Software such as Mozilla Firefox, Open Office Suite, Ubuntu Linux, Apache Server, and other such OSS Projects have proven the power of collaborative efforts of a distributed community of

learning. These projects are created by groups of volunteers and are openly licensed so that anyone can use them with minimal restrictions.

The introduction of these systems into higher education and other organizations has often led to cost savings. Their use provides flexibility and an update cycle that would not be otherwise possible, often with a very similarly functioning product than what is available commercially (Abel, 2006). Fifty-seven percent of all U.S. higher education institutions have implemented OSS infrastructure products, 25% have implemented OSS or compatible application products, and a number of vendors have either been replaced or considered for replacement with OSS alternatives (Abel). Although the Free/Libre Open Source Software (FLOSS) developer community primarily consists of young single hobbyist males with strong IT backgrounds, students were found to play a significant role in the developer community (Ghosh, Krieger, Glott, & Robles, 2002).

Considering the use of OSS in higher education could also provide potential solutions for calls to ensure the right of access to technology for students (Plumb, 2011), and for accessible multicultural tools that fit the understanding of how students use technology (Ensminger & Lewis, 2011). Because OSS is freely available to users, students would theoretically have greater access to this software than to traditional paid applications. Further, because there are more people contributing to finding and solving issues, then the product will theoretically be more robust, have fewer issues, and satisfy a greater degree of user needs. This is also known as Linus's Law: "Given enough eyeballs, all bugs are shallow" (Raymond, 1999, p. 8).

Open Content

Reusable learning objects are generally digital instructional components designed to be reused in a variety of settings (Wiley, 2000). These may be videos, modules, tests, or some other chunk of instruction or instructional components. When these are licensed in a manner that enables their free reuse, distribution, and modification, these objects become OERs. The rise of Open Content is an area where openness is impacting education by lowering cost structures, providing replacement and supplemental resources that are in many ways more flexible, and enabling educators to build upon and share freely the works of others (Open Educational Quality Initiative, 2011; Wiley, 2007).

Open Educational Resources (OER) and Open Textbooks are seeing increased use and positive results as well (Bliss et al., 2013). Wiley, Hilton III, Ellington, and Hall (2012) found an open textbook model that provided cost savings of around 50%, where textbooks could be printed for around \$5.14 each, and there were no significant differences between the open textbook and traditional book groups on standardized tests. It is important to note that sample size may have been an issue in this study.

Alternative copyright licensing and digital technology directly enables the widespread use of Open Content, but it is not without issues. Difficulties can arise when different OERs using licenses that grant different permissions are combined, resulting in a comprehensive OER that is very limited in its usability or is difficult to understand what constitutes acceptable use.

A study of faculty enthusiasm toward compulsory participation in an OER resource repository showed a preference among faculty for releasing their work under a creative commons non-commercial share alike (CC BY-NC-SA) license (Baker III & Surry,

2013b). The CC BY NC-SA requires content users to share any modifications they make to an OER under a similar license. While these quantitative results were not statistically significant overall, and could therefore be simply due to chance, the qualitative follow up interviews lend credibility to the results. One of the big concepts emerging from this study is that educators generally don't mind sharing their work, provided they have trust in administrative decisions at their institution and that there is some guarantee that their work won't be abused. This illustrates the concept that Open Content tools exist in a larger context where elements such as trust can seriously impact their successful implementation. While Open Content is affecting higher education, it is important to attend to the larger framework when considering the role of these tools in the higher education environment.

OER and Open Content are having interesting interactions in higher education. The emergence of reusable digital learning objects combined with open licensing has enabled experimentation with a theoretically sustainable system that has tremendous potential for enabling better learning design and improving outcomes (Wiley, 2007). Still, it is important to remember that OER are simply tools that enable us to better accomplish things that we should already be able to do, and therefore do not enable explicitly new behaviors in education.

Open Teaching & Learning

Open Access research has probably seen the most governmental support of the major areas of openness. There are, however, now calls from the government to utilize OED models for reducing the cost of accessing higher education (Office of the Press Secretary,

2013). In this call, President Obama cites OED models as evidence of the possibility of designing more accessible and lower priced working alternatives to traditional education. These models, of course, come with their own set of concerns. These concerns include misunderstandings of the nuanced differences between the various models and types of openness that drive them (Baker III & Surry, 2013a), and concerns about the true openness and possible use of some types of OED models for commercial purposes (Rodriguez, 2013). They also include issues related to instructional quality, completion rates, and problems surrounding accreditation and awarding certificates and degrees (Weller, 2011). There are concerns that openness is increasing the digital divide as well (Lane, 2009). These concerns sometimes lead to innovative solutions. One example is the introduction of the Open Badges System as an alternative to certification (Mozilla Foundation, n.d.).

The instructors of one of the first AOCs placed their employing university in an interesting predicament. One Artificial Intelligence class at Stanford University garnered 160,000 students (Rodriguez, 2012) when the instructors announced over the weekend that the course was freely accessible to anyone. Five thousand people signed up within a couple of hours, and 10,000 had signed up by the end of the weekend (Henn, 2012). The vast majority of people who signed up were not enrolled at Stanford and the instructors had not discussed the decision with the Stanford administration beforehand. This placed the institution in a unique and very public response situation.

The literature on MOOCs is growing (Kop, Fournier, & Mak, 2011; Kop, 2011; Liyanagunawardena et al., 2013; Meister, 2013, August 13; Siemens, 2005, 2012b), and researchers are starting to distinguish between the various types of open course designs

(Baker III & Surry, 2013a; Rodriguez, 2012, 2013). Others are building evidence for the types of learner strategies needed to succeed, and examining the tension surrounding accreditation of OEDs (Friesen & Wihak, 2013; Rodriguez, 2013). Many of these designs and affordances are made possible through technology. Personal Learning Environments (PLEs), flipped classrooms, and other interesting education models enabled by technology and openness are currently being experimented with in higher education. It is the interaction between technology and openness that makes these learning environments possible.

Other Areas of Openness

There have been other interesting examples of openness impacting higher education, though none so prominent as OA, OSS, OER, and Open Teaching and Learning. These include the gathering and use of open data, the development of new learning environments, and crowdsourcing, among other things.

Data gathering practices have led to an interest in open data that is accessible, machine readable, and free of restrictions on use and redistribution (Minister of State for the Cabinet Office and Paymaster General, 2012). These open data are expected to provide institutions with the predictive tools needed to improve outcomes and better customize education (Guthrie, 2013, August 15). Gathering and using this type of data could be part of the reason that some institutions have chosen to experiment with OEDs and have developed large platforms such as EdX.

The Reclaim Open initiative is a collaboration of institutions, organizations, and individuals seeking to research connected learning and provide tools for creating and

using connected learning environments (Reclaim Open Initiative, n.d.). They are currently seeding grant money to innovative firms and individuals who promote 21st century connected learning environments and teaching methods.

There have also been interesting developments in crowdsourcing such as the concept of crowdfunding projects. Crowdfunding is the process of raising money to carry out a project or develop a product through appealing to the public at large for donations. The focus is often on a large amount of small donations during a set amount of time, and financial backers often take cues from the actions of others in choosing whether or not to donate (Kuppuswamy & Bayus, 2013). The type of crowdfunding project proposed is geographically related, and project quality and personal networks are associated with their success (Mollick, 2014). Crowdfunding methods are now being used to support research efforts (Wheat et al., 2013), and have been used to cover the expenses related to opening a class and community to the public (Groom, 2012).

Organizational Change & Organizational Development

Organizational change and organizational development (OD) are distinct concepts. Each addresses the implementation of planned change with concern to the activities, processes, and leadership that improve organizations. The organizational change concept is broader than the organizational development concept. Organizational change focuses on gaining efficiencies through valuing cost, quality, and schedule, where OD emphasizes preparing the organization for future change through transfer of skills and knowledge (Cummings & Worley, 2009). OD primarily draws knowledge from social and behavioral systems, change theory and processes, and the role of the OD practitioner

as 3rd party change agent. OD is underpinned by a value system primarily comprised of a humanistic philosophy, democratic principles, a client-centered consulting focus, and an evolving social-ecological systems orientation (Jones & Brazzel, 2006).

Beck (2012) places OD as an aggregation of developments in scientific management, human relations, and systems theories of organizational behavior. The systems view considers organizations to be open systems with consistent interaction throughout. Because organizations rely heavily on the collaborative and coordinated efforts of people, they are inherently social systems in themselves. Innovations such as openness or technology are communicated throughout and among members of these social systems via distinct channels through a process called diffusion (Rogers, 2003). Diffusion of innovations theories strongly influence change theory (Courros, 2006). “Change is defined as the process of cognitively and behaviorally accepting something in a different way” (Beck, 2012, p.6).

Rogers' (2003) model for the adoption of innovations, discussed earlier, provides the concept that adopters have different attitudes and perceptions toward innovations and that these will affect their decision to adopt. The Concerns Based Adoption Model (CBAM), developed by Hall and Hord (1987), is another important change model. It considers the concerns of the adopter as they work through the levels of concern (Miller, 2010). It is perhaps the most widely cited model for educational change, and the two most widely discussed elements are the “stages of concern” and “levels of use” (Surry, 2002).

The S-curve model, discussed earlier, was introduced by Tarde (1903). The S-curve is an important concept in the research on organizational change because it “illustrates the gradual transition that occurs between the rollout point of an innovation and the adoption

and usage of it” (Porter, 2012, p. 45). This concept is important because it gives some indication of the life cycle and state of adoption for an innovation. Being able to identify where an innovation is on the S-curve can be helpful in planning or creating policies to manage the innovation.

Kotter (1996) describes change-ready 21st century organizations as being largely self-reliant and having a persistent sense of urgency. These organizations are run by collaborative administrators and empowered employees and have adaptive cultures that develop leadership and communicate vision. They utilize distributed power structures with a high degree of delegation.

Porter (2012) identifies seven key issues in organizational change. These issues include the ideas that managing and assessing organizational change is inherently a high risk situation, and that organizations must effectively assess all barriers and enablers to change if they are to move forward successfully. Also, change is an ongoing process that requires buy-in from stakeholders; therefore, organizations must be introspective and open to adapting to internal and external variables in order to remain viable. Effective communication channels are also a critical part of an organization’s adaptability, and assessing and understanding both the culture and the individuals in an organization is essential because different people react and process change differently. Finally, Porter notes that change is not strictly a top-down process, but instead requires consideration of the concerns and effective dialogue with all stakeholders, and that sustainable organizations develop a culture of dynamic systemic learning that is driven by innovation. Considering the inflexibility and change resistant nature of closed systems, a

change-ready system must have at least some characteristics of an open system if it is to survive and evolve.

Couros (2006) identifies five key assumptions impacting change theory in education. These are that change can be studied, understood, planned, and managed through strategies, that change emphasizes innovation at the individual level, and that change is inherently value-laden and must be negotiated through engaging and reconciling different sets of interests and perceptions. Additionally, change is a human-reliant process driven by change agents, and it is a complex process requiring many tools and approaches. In higher education, policy is often used to address change.

Using Policy to Address Change in Higher Education

Policy is a critical part of the larger implementation process. Policy is defined as “a definite course or method of action selected from among alternatives and in light of given conditions to guide and determine present and future decisions,” (definition 2a) or “ a high-level overall plan embracing the general goals and acceptable procedures especially of a governmental body” (definition 2b) (“Policy,” n.d.). Another definition of policy is “the written and unwritten rules, practices, traditions, and regulations that govern your organization’s day-to-day operations,” (Jasinski, 2007, p.214). Policy itself does not create or implement change; rather, policies serve as guidelines that help direct the behavior of those within the system (Porter, 2012). Policy is an important step in adapting to change in education, however, effective educational change requires much more than simply implementing policy (Du Toit & Forlin, 2010).

Ely (1999) identified eight conditions that are important to facilitating implementation. These include the idea that end users believe things could be better or that they are being left behind; that the required knowledge and skills exist in the system; that the resources required for implementation are available; that there is sufficient time available for people to acquire and practice the knowledge and skills; that rewards for performance and expectations of incentives exist; that there is shared decision making, communication, and participation among all parties in the process; that people are committed to the innovation and change, and; that there is sufficient leadership involved with the change (Surry & Ely, 2007). In other words, the change must not only be technically possible given skills and resources, but there are critical elements of the organization's social system that must be incorporated if change is to succeed. Therefore, policy must be considered with the understanding that it is part of a larger ecology of conditions necessary for successful change to occur.

The policy implementation process is generally conceived as occurring in a top-down rational-purposive model. In this model, policies are formulated at the highest levels of an organization and are clearly articulated and cleanly diffused throughout the organization. The belief is that people within the organization adhere to the policies because of the rewards and incentives or because they have congruent goals (Trowler, 2002b). However, this rational-purposive model is inadequate to describe the processes of policy creation and implementation in higher education.

In higher education, the policy process is more organic and complex. Rather than a tightly coupled process where policy is dictated from the top and implemented cleanly at the bottom, the policy process is a loosely coupled and interactive. Policy implementation

in higher education is negotiated by social processes, and executive decisions are made by individuals and groups who are situated at different levels (Trowler, 2002b). The different contextual levels influencing the perceptions and negotiations between the individuals and groups can be envisioned as making up a policy implementation staircase model (Reynolds & Saunders, 1987; Trowler, 2002b). In higher education, policy levels can include the national level for governmental policy, the institutional level, the departmental level, the office or common room level, or even the classroom level (Trowler, 2002b). This dissertation examines policies at the institutional level of the implementation staircase.

The policy related change environment is complex. Change through policy is the combined result of changing preferences and power barter between change agents and other actors, pressures from external events such as political and economic conditions, and the structural norms and values that provide context for individual identity in a given situation (Bleiklie, 2002). Successful policy implementation results from facilitative conditions, clean diffusion through effective communication structures, negotiations, social processes, localized executive decisions, and the effects of individual power and congruence of identity within a given setting. Understanding the larger policy implementation environment is important when examining institutional policy.

Drucker (1999) wrote that change cannot be managed, and that institutions wishing to be successful in the 21st century must stay ahead of change by becoming *Change Leaders*. This is accomplished largely through policy development. Change Leaders must initiate policies of *Organized Abandonment*, where failing or unfocused investments must be dropped, and *Organized Improvement*, where performance is defined and

systematically improved. They must also institute policies for *Exploiting Success*, where opportunities are fed, and they must enact a *Systematic Policy of Innovation*, which helps instill an organizational mindset of being a Change Leader (Drucker).

Policy statements are used to guide decisions and communicate intentions within organizations. Policies related to the areas of openness would serve to inform faculty and other stakeholders about the expectations and perspectives of the institution regarding related choices and subsequent actions. Faculty and other stakeholders view policies as enablers, barriers, or as neutral in the implementation of innovations (Surry et al., 2009). Therefore, policy influences the decisions that faculty members make in their roles (e.g., whether to publish OA, what is acceptable regarding opening a class to the public, the role of OER, how Open Source Software is used/viewed in the institution, etc.), and the institution responds to situations by examining their own policies and sometimes updating them.

There is a need to address openness in policy in higher education. Digital Connections Council of the Committee for Economic Development (2009) provides thirty-five specific policy recommendations to harness openness in higher education institutions for the purposes of improving research, teaching, and learning. These include reevaluating faculty recognition policies regarding tenure and advancement, establishing open-source digital repositories, and reexamining technology transfer policies especially regarding licensing arrangements. They also include establishing e-portfolios for students to carry their work with them, creating education programs for faculty, serving as a voice for greater openness, and participating in efforts to digitize information, among others recommendations. Policy will play a critical role in any efforts to implement these

recommendations, but the organization must also be ready for change if these implementations are to be successful.

RIPPLES Implementation Model

The RIPPLES Model is a generic macro level framework for implementation of innovations in higher education and other organizations (Jasinski, 2007; Surry, Ensminger, & Haab, 2005). The model consists of a seven-component framework that considers the role of **R**esources, **I**nfrastructure, **P**eople, **P**olicy, **L**earning, **E**valuation, and **S**upport in regard to implementation. The model has a supportive and growing body of literature surrounding it (Benson & Palaskas, 2006; Buchan & Swann, 2008; Ensminger, 2008; Jasinski, 2007; Miller, 2010; Muldoon, Tennent, & Tickle, 2013; Surry et al., 2005, 2009; Tickle, Muldoon, & Tennent, 2009). Components of the model can be used independently to help predict the potential impact that an innovation may have before it is implemented (Porter, 2012).

Researchers have used the RIPPLES Model components as a framework of criteria useful for evaluating their projects. They have also used the framework in the form of a survey instrument for gathering and assessing perceptions related to innovations in a number of higher education settings. Surry (2002) used the model to determine college Deans' opinions about factors affecting technology integration. Jasinski (2007) used the model as a framework for guiding an examination of the state of e-learning and teaching practices. Romero and Sorden (2008) used the model to guide their thinking on the implementation of a learning management system (LMS) at a university in Mexico. Similarly, Tickle et al. (2009) used the model to frame discussions of a Moodle LMS

integration. Vandover (2013) explored the reflections and perceptions of directors and staff members in instructional technology at small liberal arts colleges and universities in regard to the development and adoption of small self-developed, open source, free web-based, or commercially available tools.

The policy element of the RIPPLES framework “refers to the need for organizational policies and procedures to adapt to new technologies” (Surry, 2002, p. 9). The model emphasizes the role of policy, as part of the larger framework, in serving as an enabler or barrier to the implementation of innovations. In other words, policy can serve to either support the process of implementation or as a hindrance that blocks implementation for certain innovations (Surry et al., 2009). While there have been no previous studies specifically looking at the policy element of the RIPPLES implementation framework, the RIPPLES model provides theoretical grounding for examining policy in regard to the implementation of openness in higher education settings. Official policy statements for each area of openness considered in this study inevitably serve as enablers, barriers, or take a neutral stance toward openness depending upon the institution’s position on the subject.

Porter (2012) provides a summary of enablers and barriers to innovative teaching practices as found by Jasinski (2007). In Porter’s summary, policies are said to enable innovative teaching practices when they are clear and guide practice. They are also said to serve as barriers when policies regarding professional development or compliance are lacking, and where leaders do not understand legal and policy implications. Jasinski (2007), who used the RIPPLES Model to examine innovative teaching practices, also found perceptions that policy is sometimes used as a means of trying to control people’s

actions and prevent the possibility of mistakes in organizations. This use of policy is likely ineffective and seems to have negative effects on the people subject to the policies.

Buchan and Swann (2008), using the RIPPLES Model to validate their own work, note that blanket policies attempting to cover all aspects and uses of a tool necessarily limit the innovation and ability to use the tool, technology, or innovation. This line of thinking extends to policies addressing openness and related areas in higher education. If a blanket policy stifles access to certain content, teaching styles, or types of learning environments, for example, then options relating to teaching and learning methods requiring that access are similarly stifled by the same policy. Although these policies are likely aimed at the prevention of possible misuses, it is important to be aware that blanket application of policies or using policies for the wrong reasons can lead to the stifling of innovation and limiting potentially positive uses of available resources. From these examples, it is evident that using policy with the intent of instituting a culture of control and tight management of procedures leads to policies serving as barriers to innovation.

Using the RIPPLES Model to examine perceptions and reflections related to implementing small free, open source or self developed tools in higher education, Vandover (2013) found that the policy environment can be an enabler for implementation, especially when the policies are supportive but are not so extensive that they limit the freedom to experiment. This finding serves as an interesting contrast highlighting the ability of policy to enable innovation in an environment that embraces some degree of freedom and autonomy as opposed to seeking control and tight management. Vandover also considered a broad range of policy types including staffing policies, policies related to commercial technology, and policies related to technology

selection, experimentation, and implementation, and described these types as existing within a policy environment. This type of description lends to the idea that any given policy exists within a larger environment of policies, which in turn must be considered within a larger framework of systemic components.

Romero and Sorden (2008) used the RIPPLES Model as a framework for discussing the collaborative implementation of a Learning Management System (LMS) in a higher education institution. They discussed the role policy played in helping people to adapt to the new LMS. They also discussed the need to support policy by including incentives and rewards for using new innovations and adhering to proper procedures. They cite strong signaling by administration as the most critical element of policy. They also provide examples of employees meeting minimum requirements without actually buying into the change. They blame poor incentive structures and a lack of budgets available to support the implementation process.

In an evaluation using the RIPPLES Model to examine a WebCT implementation, Benson and Palaskas (2006) found that policy was one of the highest priorities for action in their implementation. They also noted critical issues in policy related to communication. These communication issues involved situations where policy was not specifically articulated at an institutional level and were therefore not operationalized through management structures, leading to confusion over the policies and their implementation. Benson and Palaskas (2006) note that appropriate policies are vital to implementation, but require complementary processes if they are to be successful.

Policy must be well communicated at every level, and must be sufficiently articulated and supported if implementation is to be successful. However, overly specific policies

that seek to control people and manage performance can serve as barriers to implementation. Conversely, well-articulated and well-supported policies that are intended to guide rather than control are generally supportive of innovation and provide enough freedom for people to experiment. These policies tend to serve as enablers for innovation in higher education.

Chapter Synthesis

Openness is associated with a variety of concepts, ideas, and characteristics. It is primarily manifested through transparency and freedom, but is often associated with a broad range of constructs such as virtuosity, justice, and flexibility, willingness to experiment, distributed or democratic governance, and collaboration (Christensen, 2005; Meiszner, 2011; Peters & Roberts, 2012; Peters, 2010; Veletsianos & Kimmons, 2012; Wilson et al., 2004). Openness is a continuous construct that augments systems (Digital Connections Council of the Committee for Economic Development, 2006, 2009; Wiley, 2012a). The more open a system is, the more flexible and accessible it is, where the more closed it is, the more rigid and disconnected from the environment it is (Richey et al., 2011). Openness emphasizes different elements and characteristics depending upon the system it augments.

Technology enables openness, but openness shouldn't be tied too closely with any specific technology (Peter & Deimann, 2013). Technology can be seen as a tool that is socially constructed and can lead society into being better or worse off depending upon how it is used (Surry & Farquhar, 1997). Openness is similarly socially constructed. Technology modifies practices and abilities as it evolves, but what people choose to do

with these abilities makes all the difference. The use of technology to solve societal problems and design tools for the good of the masses can lead the betterment of society. However, uncritical use of technology for the wrong reasons can lead to the associated costs becoming greater than the benefits. Society collectively has the ability to support or criminalize these abilities, but the tools themselves are neutral (Lessig, 2004, 2008). For example, crowdsourcing and distributed computing enabled both the development of the Linux operating system and the widespread phenomena of piracy via peer-to-peer file sharing. Organizations faced with the impact of these tools must innovate if they are to survive the constant changes of society.

Similar to technology, the use of openness can serve as a boon or burden.

Collaborative drives for openness can lead to societal benefits such as a more transparent and approachable government. However, when entities force openness on society, such as by releasing troves of classified information, openness can be devastating (Baker III, 2012; Bryan-Low & Gorman, 2011, June 23; Gidda, 2013; Martinez & Saenz, 2013, August 21). It is important to have checks and balances to help preserve favorable power structures, but the question of what is right in regard to the release of private information can be difficult to answer (Davidson, 2013, June). Value questions about what is practically or morally right play an important role in policing and regulating technology. As technology enables the broad diffusion of openness, their fates are largely intertwined.

In education, openness is allowing for experimentation with learning designs.

Different forms of Open Educational Designs operating with wholly different goals and principles are being developed and implemented in a variety of settings (Baker III & Surry, 2013a). These OEDs each operate under different brands of openness and can have

serious implications for the design of learning environments and the values and features emphasized in their implementation.

Higher education itself is in transition. Technology is challenging higher education in new and interesting ways (Duderstadt et al., 2002). There is a push for new collaborative learning environments that focus on problem solving and communities of practice. Technology is affecting nearly every aspect of higher education from its structure to its enterprise (Hanna, 2000). Policies are essential to each of these challenges and organizations must be careful to produce policies that lead to the desired ends of the organization (Duderstadt et al., 2002).

Openness is impacting higher education in some particularly interesting ways. OA research is affecting tenure decisions, producing new models of research and scholarly communication, impacting policy decisions, and even stirring up debates and boycotts (Antelman, 2004; Digital Connections Council of the Committee for Economic Development, 2009; Eysenbach, 2006; Harnad & Brody, 2004; Khan Academy, 2012, March, March; Laakso et al., 2011; SPARC, 2012; The Right to Research Coalition, 2010).

Open Source Software is actively adopted and implemented in higher education and has potential to provide solutions for issues related to inclusiveness and the right to technology (Abel, 2006; DiBona, Ockman, & Stone, 1998). Crowdsourcing software development creates a distributed workload that has the potential to create more up-to-date products that solve more needs and have fewer active issues (Raymond, 1999).

Open Content is producing cost savings in traditional systems and is lending support to collaboration and sharing (Bliss et al., 2013; Wiley et al., 2012; Wiley, 2010). It is

important to remember that these resources must operate in a larger system where trust, intention, and protection from abuse, among other things, can all play critical and sometimes hidden roles in the success of the content (Baker III & Surry, 2013b).

Open Teaching and Learning practices are similarly impacting higher education through challenging assumptions of what value institutions provide, introducing new competition and challenges to traditional models, and by making these challenges often very public situations (Baker III & Surry, 2013a; Friesen & Wihak, 2013; Liyanagunawardena et al., 2013; Rodriguez, 2012, 2013).

Other Areas of Openness, such as open data and the use of crowdfunding to support research and courses, are starting to impact higher education as well (Minister of State for the Cabinet Office and Paymaster General, 2012; Reclaim Open Initiative, n.d.; Wheat et al., 2013). These areas are not affecting higher education to the same degree, but have the potential to make sweeping changes in the way that higher education operates. For example, open data could potentially give institutions the predicted tools to create targeted instruction (Guthrie, 2013).

Openness in higher education is producing interesting situations for educators and administrators to consider. These situations are often enabled by technology. Institutions can either choose to proactively address openness in their industries and organizations, or they can ignore it and potentially face public and unexpected situations completely unprepared. Openness has the potential to support the mission, goals, and operations of higher education institutions in an unimaginable number of ways, but if institutions are not prepared it can place them into interesting binds.

Organizational change is a broader field than OD and is more tightly focused on costs (Cummings & Worley, 2009). The literature on organizational change and development shows us that OD has humanistic underpinnings that value democratic principles, client-centered consulting, and a constantly evolving orientation toward socio-ecological systems (Jones & Brazzel, 2006). These underpinnings share a lot in common with the philosophy of openness itself. The change process is a complex human driven process that often relies on change agents to navigate the political environment and garner support for an innovation (Porter, 2012). Although it is complex, the change process can be studied, and policies are critical to the process of organizational change (Couros, 2006).

Rather than top-down, policy is implemented in a system that is similar in complexity to the change process, and is often diffused throughout the system and negotiated on different levels of the organization following the implementation staircase model, at least in higher education (Trowler, 2002b). Policy can act as an enabler or barrier to innovation and influences the decisions that people make at the different levels of the implementation staircase (Surry et al., 2009; Surry, 2002; Trowler, 2002b). Policy implementation is often the result of strong communication and diffusion of the policy, negotiation of power struggles, promotion by change agents, and executive decisions at the implementation setting level (Trowler, 2002a).

The RIPPLES Model is an implementation framework useful for guiding, evaluating, or gathering perceptions about change in organizations, especially in higher education (Surry et al., 2005). The RIPPLES Model consists of seven components, one of which is policy. The policy component can be used independently to help predict the impact an

innovation may have before it is implemented (Porter, 2012). Policy is critical to implementation and the way it is executed can stifle or promote an innovation's success (Surry et al., 2005; Vandover, 2013). Overly restrictive policies intended to control and prevent mistakes can stifle innovation and damage the morale of the people. Supportive policies that leave enough room for people to be free to experiment can enable innovation and promote positive change (Vandover, 2013). Focused policies exist in a larger body of policies, which in turn exists in a larger framework.

While policies can be addressed and considered as a lone component regarding change, this must be done with caution and consideration of the larger policy ecosystem context. If policies neglect this larger environment they are less likely to be successfully implemented and can lead to wasted efforts and resources and can even damage the morale of the people and the functionality of the organization. Policies are a critical component of implementation. They can be singled out for study, but it must be understood that they exist within a larger context. Therefore, if the role of policy in the implementation of openness in higher education is to be studied, the study must acknowledge the larger framework and any results must be considered as part of the larger environment of related components that impact implementation.

Chapter Summary

In this chapter I discussed the literature relating to openness and the role of policy in organizational change and development. The literature on openness included the philosophy of openness, the relationship between technology and openness, openness in education, the transitioning role of higher education in the digital age, openness in higher

education, and the major areas of openness. Openness changes the dynamic of systems and processes when it is applied. Technology is an enabling factor for openness in each of these contexts. Openness impacts higher education in the primary areas of Open Access research, Open Content such as OERs, Open Source Software, Open Teaching and Learning, and other ways such as open data and crowdsourcing.

The literature surrounding the role of policy in organizational change and development included organizational change and development, the use of policy to address change in higher education, and the RIPPLES Implementation Model. The policy environment is complex, value-laden, and implemented through a system of negotiations, power differentials, and executive decisions on site. The RIPPLES Model provides a theoretical grounding for policy as part of a larger framework that considers policy as enabler, as barrier, or as neutral in the implementation of an innovation. Overly restrictive policies intended to control people and processes can stifle an innovation, where supportive policies that allow freedom to experiment can encourage innovation. A successful policy implementation takes place in a larger policy environment that considers other components such as budget and communication of the policy; the RIPPLES Model shows us that this policy environment exists in a larger framework that considers other components such as resources, infrastructure, people, learning, evaluation, and support.

CHAPTER III

METHOD

In this chapter I described the methodology used in the study. I also discussed reliability and validity, including a brief section on reflexivity, data analysis, the recommendations, and the instrument. It concludes with a chapter summary.

The purposes of this study were to explore the current state of higher education's policy response to openness and to provide guidance to institutions for future responses to related situations. I used content analysis methodology to examine policy documents for statements addressing openness. I described the methods used to rate any statements I found on directness with which they address openness and their implementation role as an enabler, a barrier, or neutral. I also described the rubric I used to guide this scoring and rank the institutions on how well they address openness in their policies. I discussed the idealized policy statements, which I provide later, that serve as enablers, barriers, or neutrally in implementing openness in education. These recommendations were derived from the best statements found in analysis and from idealized statements created for the recommendations.

Institutional Review Board

The study was submitted to the Institutional Review Board (IRB) at the University of South Alabama. The IRB determined that the study does not need IRB approval because it did not deal with human subjects data and because the information used was publicly available. The IRB response letter is attached as Appendix A.

Research Questions

The research questions addressed in this study were:

1. To what extent do research intensive (Research University/ Very High, RU/VH) higher education institutions address openness in their policies?
2. Which of the major areas of openness defined in this study (Open Access research, Open Content, Open Source Software, Open Teaching and Learning, Other Areas of Openness) are addressed in these institutional policies?
3. What is the policy role (enabler, barrier, neutral) of the policy statements related to openness?
4. Is there a relationship in institutional policy documents between the use of keywords related to openness and the types of statements related to the implementation of openness as defined by the rubric?

Research Design

This study followed a dominant status sequential mixed methods research design (QUAL→quan) (Johnson & Christensen, 2012; Johnson & Onwuegbuzie, 2004). The QUAL dominant status means that the qualitative elements of this study are the primary

focus and are given more weight in the study than the quantitative elements. The sequential element of the study means that the qualitative data collection comes first in the study, and the quantitative elements that come later are dependent upon the qualitative elements of the study. The qualitative elements include the content analysis methodology, the determination of policy statements as direct, indirect, or absent, and the judgment of direct statements into an implementation role as enablers, barriers, or neutral. Additionally, the production of idealized recommendation policy statements are qualitative in nature. Quantitative elements include descriptive statistics of the sample, a ranking of institutions based on rubric scores, and keyword counts. Conversely, an equal status concurrent mixed methods study (qual+quan) would require gathering the qualitative and quantitative data simultaneously and that both the qualitative and quantitative elements of the study were given equal consideration and weight in the study (Johnson & Christensen; Johnson & Onwuegbuzie).

Methodology

The methodological goal for this study was to generate descriptive data on the state of research intensive higher education institutional policies related to the implementation of openness. These data are useful for institutions wishing to implement or otherwise address openness in their own institutions. The descriptive data are primarily qualitative, but some quantitative data such as institutional rankings also resulted. Qualitative descriptive studies often utilize a qualitative content analysis approach and emphasize a low-inference approach to data collection and interpretation (Sandelowski, 2000). The

purpose of the low-inference approach is to provide a description of the situation that is likely to result in consensus among researchers.

A summative content analysis approach was used in this study. This qualitative approach involves analyzing textual material for the appearance of certain keywords that are established prior to the search (e.g., manifest content) and then considers some analysis of latent content (Hsieh & Shannon, 2005). Manifest content is surface information that anyone should easily understand, where latent content requires some interpretation of meaning (Potter & Levine-Donnerstein, 1999). Using the Potter and Levine-Donnerstein (1999) framework, I looked at content that rests in the overlap between manifest and latent pattern data, and used theory deductively by looking for policy statements that fit the theory, rather than inductively allowing the policy statements to drive the theory.

Content analysis methodology has been used to look at policy several times in the literature. While an inductive content analysis approach was used to examine hospital policies for stances on euthanasia (Lemiengre, Dierckx de Casterlé, Denier, Schotsmans, & Gastmans, 2008), the majority of content analyses revealed in searching the literature use a deductive approach. For example, Smith, Smith, Osborn, and Samara (2008) developed a list and coding scheme for examining UK policy documents in primary and secondary schools in search of sufficiency in anti-bullying statements, and Hassink, Vries, and Bollen (2007) utilize a deductive approach in analyzing policy documents, clauses in corporate codes of conduct, and supplementary information on websites and elsewhere for policies related to whistleblowing.

This use of content analysis methodology for reviewing policy has some precedence in the literature. Three other studies particularly relate to this study. The first of these uses a deductive content analysis to examine higher education policy documents for statements regarding pedagogy (Timmerman & Metcalfe, 2009). Timmerman and Metcalfe (2009) disregarded any section of the policy that did not specifically discuss pedagogy. Second, Roberge (2011) used a deductive approach to determine policy statements regarding bullying in Canadian schools and makes a determination about their directness as part of the analysis. Finally, Daugbjerg et al. (2009) created a list of a priori codes that are used as an analysis grid for the content analysis. These papers show successful uses of content analyses with similar features as the one described in this dissertation.

Population and Sampling

One strategy for developing a sampling frame in mixed methods research is known as intensity sampling. The strategy for intensity sampling is to purposefully consider a group based on the perceived richness or concentration of the desired characteristics for the study (Collins, Onwuegbuzie, & Jiao, 2007; Teddlie & Yu, 2007). The success of this study depended on the researcher having access to several types of institutional policy documents. Ideally, these documents were from institutions that have also proactively generated some type of policy implementation response to openness. It is not likely that every higher education institution in the United States has developed the required policy documents, nor is it likely that they are all accessible or suitable to the needs of the study. In an effort to reduce the likelihood of including unusable institutions in the sample,

those without the required accessible documents, I decided to narrow the population to a subset of the U.S. higher education population. I am making the assumptions that this subset is more likely to have the necessary policy documents fully developed and available, and that they are more likely to have generated some implementation response to openness.

The subset of the larger population, and therefore the effective population for this study, are higher education institutions rated as “very high” research by the Carnegie Classification System (RU/VH). This RU/VH subsection of the larger population of higher education institutions in the United States represents the intensity sampling frame for this study. This subsection of the population is differentiated from the larger population by level of research activity and their status as doctorate granting universities (Carnegie Foundation for the Advancement of Teaching, n.d.-a). While there is no reason to believe that, outside of these considerations, this population is entirely different from the larger population of higher education institutions in the U.S., extending any findings from this study to the larger higher education population should be done with caution. Additionally, extending any findings from the sample to the RU/VH population should consist of conceptual generalizations rather than probabilistic. As a primarily qualitative study with the goal of description, generalizability of the results was not a factor in drawing the sample.

It was also important that the sampling strategy be easily replicable by future researchers. According to Kemper, Stringfield, and Teddlie (2003), randomly drawing a sample provides an explanation for why certain cases were retained or left out of a study and also provide a systematic way to make the sample manageable. Because of this, I

derived a stratified random sample from the intensity sampling frame of research intensive higher education institutions. The purpose behind randomly drawing from a purposive sample is to add trustworthiness to the findings (Kemper, et al, 2003). In order to derive the sample, I went to the Carnegie Foundation's Carnegie Classification website (Carnegie Foundation for the Advancement of Teaching, n.d.-b) and selected the *Classifications* tab. I then selected the *Custom Listings* option, and, under *Basic Classification*, selected *RU/VH: Research Universities (very high research activity)*. This returned a list of 108 institutions, 73 public and 35 private, representing all United States Higher Education Institutions rated "very high" research. In order to make it into this pool, the institution had to be a doctorate-granting university that awarded at least 20 research doctoral degrees, excluding degrees that qualify participants for professional practice (i.e., Juris Doctorate, Medical Doctorate, etc.), during the update year. This pool also excludes Tribal Colleges and Special Focus Institutions (Carnegie Foundation for the Advancement of Teaching, n.d.-a). This pool was further subdivided into three groups based on research activity as determined by expenditures on a number of research related categories (Carnegie Foundation for the Advancement of Teaching, n.d.-c). I obtained a stratified random sample of 40% of RU/VH's by obtaining 40% (30) of the 73 public universities, and 40% (14) of the 35 private universities.

In order to select the institutions, I numbered the public and private universities separately and used a random number generation website to select random numbers with replacement. During the first round of selection for the public universities, five numbers returned were duplicates. I then used the random number generator for a second round to randomly select five additional numbers from the possible 73 with replacement and used

these in place of the duplicated numbers. Two of these numbers were also duplicates, necessitating a third round of selection for a total of 30 unique numbers representing public institutions drawn from the 73 total. During the first round of selection for the private universities, I encountered two duplicated numbers, and used the same process of selecting two additional random numbers from the total 35 possible to obtain 14 unique randomly selected institutions from the list. Through the sampling process I obtained the results in *Tables 1 and 2*. The entire list of institutions in the RU/VH intensity sample is listed in Appendix B.

Table 1

Stratified Random Sample of Private RU/VH Institutions

Private Institutions	
1. Brandeis University	8. Northwestern University
2. Brown University	9. Princeton University
3. Columbia University in the City of New York	10. Tulane University of Louisiana
4. Dartmouth College	11. University of Miami
5. Emory University	12. University of Notre Dame
6. Georgetown University	13. University of Southern California
7. Johns Hopkins University	14. Vanderbilt University

Table 2

Stratified Random Sample of Public RU/VH Institutions

Public Institutions	
1. Arizona State University	16. University of Connecticut
2. Georgia Institute of Technology- Main Campus	17. University of Delaware
3. Louisiana State University and Agricultural & Mechanical College	18. University of Florida
4. Mississippi State University	19. University of Hawaii at Manoa
5. Montana State University	20. University of Houston
6. Ohio State University-Main Campus	21. University of Kansas
7. Oregon State University	22. University of Kentucky
8. Purdue University-Main Campus	23. University of Missouri-Columbia
9. The University of Tennessee	24. University of Nebraska-Lincoln
10. University of Arizona	25. University of New Mexico-Main Campus
11. University of California-Berkeley	26. University of North Carolina at Chapel Hill
12. University of California-Irvine	27. University of South Carolina- Columbia
13. University of California-Riverside	28. University of South Florida-Tampa
14. University of California-San Diego	29. University of Virginia-Main Campus
15. University of Cincinnati-Main Campus	30. Washington State University

Two of the schools, Johns Hopkins University on the private list and University of California-San Diego on the public list, were resampled because they did not have documents fitting the study criterion. Johns Hopkins University had policy documents for each college, and University of California-San Diego had a Strategic Plan that was in development and a Faculty Handbook that was for the larger University of California system and was outside of the specified date requirements. In order to replace these

schools, I retained the original numbers for the population and used the same random number generation website to generate more numbers with replacement. Replacing Johns Hopkins University required three cycles of number generation, as the first two rounds duplicated universities already in the sample. The replacement for Johns Hopkins University was Yeshiva University. For the University of California-San Diego, two cycles were required as the first round yielded a duplicate institution. The usable result was the University of Maryland-College Park.

The literature does not provide much information on obtaining sample size for a qualitative content analysis study. In fact, it has been stated that “there are no rules for sample size in qualitative inquiry” (Patton, 2002, p. 244). Literature reviews provided no suggested number for obtaining a sample size for a qualitative content analysis. The literature provides recommendations that mixed methods samples should generate enough data to allow thick, rich descriptions, obtain data saturation, and make analytical generalizations (Collins et al., 2007). Researchers using purposive samples seek to minimize the sample in non-random ways to emphasize the information relevant to the study (Kemper et al., 2003). Patton (2002) discusses the trade offs between obtaining enough breadth of samples to understand the broader concept of the situation and obtaining enough depth within samples to provide a thick, rich description of the phenomena under study. Teddlie and Yu (2007) frame this same discussion as the representativeness/saturation tradeoff, where emphasis on saturation of data reduces the ability to manage a representative sample.

Other content analyses have used response rates (Hassink et al., 2007; Lemiengre et al., 2008; Roberge, 2011; Smith et al., 2008) or attempted to obtain all findable and

usable results (Malloy & Fennell, 1998) in order to determine sample size; however, neither of these methods fit with the limitations and conditions of this study. According to Morrow (2005), arbitrarily picking a number for predicting the necessary sample size is as efficient as any other method because the goal is to reach the saturation point where the incoming information is redundant. The 40% sample size was arbitrarily selected for this study based on the absence of recommendations in the literature. I feel confident that the analysis reached saturation of the data, therefore I did not randomly select any further sample cases.

Data Analysis

Given the ubiquity of distance learning and digital presence in higher education, it is safe to assume that each of the institutions in the sample has a significant web presence. Using a common web-based search engine, I located the websites for each institution in the sample, and searched the site using the site search tools for the relevant Faculty Handbook, Strategic Plan, and Technology Plan. The search terms I used were “faculty handbook,” “handbook,” “strategic plan,” “technology plan,” and “plan.” In the event that these searches produced no results, I repeated the relevant search using a web search engine and the name of the institution as a search term. The University of Miami is the only case where results produced a relevant plan that did not specifically identify itself. The plan identified itself as *The Miami 20/20 Plan* and appeared to deal primarily with institutional strategy, so I made the decision to regard the plan as a Strategic Plan and rated the plan and relevant statements as pertaining to that category.

Any institution with at least one of the policy documents was included in the sample. Only documents pertaining to the entire institution were considered. Therefore, plans produced by or limited primarily to specific colleges or departments were not considered. Additionally, the need to examine recent plans meant that no plans dated as older than five years (prior to 2008) since last update were considered. If a plan was undated it was presumed to be recent and included in the study. This helps ensure that the documents are consistent and relevant to the study.

The initial content analysis process involved six steps. These steps included searching the document for each term in the list of keywords; reading the statement containing the keyword and the surrounding statements if necessary in order to comprehend the context; deeming the statement as either relevant to the study or not; categorizing the statement into one of the areas of openness; judging the existence/directness of the statement as nonexistent, indirect, or direct; and judging the implementation role of the statement as an enabler, barrier, or neutral toward openness.

The quantitative analysis phase involved ranking the institutions by rubric score, determining a keyword count for each institution by policy document, and gathering other general descriptive information such as the average number of keyword occurrences in the data. I also examined the relationship between total word count for an institution and its total score on the rubric through a correlation. I did not perform a chi-square analysis on the total keyword count across institutions because the expected values for the cells were too low. Typically, chi square analysis is not recommended when expected values are smaller than five (McDonald, 2009). However, I did create charts that represent the total keyword count across institutions so they may be visually

compared. Demographic information for the institutions were also obtained from the range of Carnegie Classifications.

The Carnegie Classification System provides demographic information on the *Level* (4 year or above), *Control* (public, private not-for-profit), and *Student Population* (number of students attending) of an institution. It also provides all-inclusive classifications of *Undergraduate Instructional Program*, *Graduate Instructional Program*, *Enrollment Profile*, *Undergraduate Profile*, *Size & Setting*, and *Basic Classification* (Carnegie Foundation for the Advancement of Teaching, n.d.-a). There is also an elective classification of *Community Engagement*.

The Undergraduate Instructional Program Classification is based on “the level of undergraduate degrees awarded (associate’s or bachelor’s), the proportion of bachelor’s degree majors in the arts and sciences and in professional fields, and the extent to which an institution awards graduate degrees in the same fields in which it awards undergraduate degrees” (Carnegie Foundation for the Advancement of Teaching, n.d.-d, par 2). The Graduate Instructional Program Classification is based on “the level of graduate degrees awarded (master’s degrees, and doctoral degrees categorized as either research, professional practice, or other doctorate), the number of fields represented by the degrees awarded, and the mix or concentration of degrees by broad disciplinary domain” (Carnegie Foundation for the Advancement of Teaching, n.d.-e, par. 2). The Enrollment Profile Classification compares the mix of students at undergraduate and graduate or professional levels (Carnegie Foundation for the Advancement of Teaching, n.d.-a). The Undergraduate Profile Classification describes the undergraduate population in consideration of “the proportion of undergraduate students who attend part- or full-

time; achievement characteristics of first-year, first-time students; and the proportion of entering students who transfer in from another institution” (Carnegie Foundation for the Advancement of Teaching, n.d.-f, par. 1). The Size and Setting classification considers the size and residential character (made in consideration of student status as commuting, residing, or distance) of the institution (Carnegie Foundation for the Advancement of Teaching, n.d.-a). The Basic Classification was used to identify the intensity sample for this study; therefore all institutions in the sample are RU/VH for very high research doctorate-granting universities. As a voluntary elective measure, the Community Engagement Classification considers collaboration between an institution and the larger communities in which it is involved (Carnegie Foundation for the Advancement of Teaching, n.d.-a).

The Faculty Handbook, Strategic Plan, and Technology Plan are collectively referred to in this study as policy documents. I searched these policy documents for a list of 8 *a priori* key terms using the search tools from the website, Skim PDF reader version 1.4.8 (82), or Microsoft Word 2011 version 14.3.9 (131030) for Macintosh, depending upon the format and availability of the documents.

The keywords are compiled in Table 3. The keyword list includes partial words that draw related words in a search. For example, a search for free* (entered as “free”) would include free, freedom, freely, or other possible combinations. The presence of one of these keywords in a search does not necessarily determine its relationship to the study. For example, the keyword “open” could be referring to security policies for locking the physical grounds, which would not be relevant to this analysis. The majority of results returned from the document searches were not relevant to openness. Therefore, I

evaluated each of the returned statements for relevance before determining their directness. Any statement that was not immediately relevant to openness was counted as a zero on the rubric as discussed under the instrument section. The origination of these particular keywords will be explained later in the dissertation.

Table 3

Keywords Used in the Search of Policy Documents

Access	Free*	Open*	*Source
Collaborat*	Licens*	Participat*	Technolog*

Note: * Indicates partial word with multiple possible prefixes or suffixes

An example of a statement on access that is immediately relevant to openness is: “The institution permits faculty to keep and maintain a web presence and to make their own course materials accessible online, provided that proper copyright restrictions are adhered to.” An example statement where access is not immediately relevant to openness is: “Faculty will be granted immediate online access to information regarding employment benefits and health plans through the institutional portal.”

If a relevant statement did not directly address openness it was counted as indirectly addressing openness. An example of a statement that directly addresses openness is: “Faculty are encouraged to make their research openly accessible by depositing copies of their published manuscripts into the university’s institutional research repository.” An example of a statement that indirectly addresses openness is: “When making tenure

decisions, the tenure committee will consider faculty research participation based, in part, on the reputation, h-index, and accessibility status of the publication journal.” An example of a non-relevant statement is: “Consideration of faculty participation in research for tenure decisions will be made, in part, based on the reputation and h-index of the publication journal.” Essentially, if the statement did not directly and intentionally address openness, it was considered as indirect. If the statement did not at least indirectly address or consider openness, it was considered a non-relevant statement.

The statements were then coded into the rubric instrument depending on the statement’s directness and its implementation role. This required an evaluation of a direct statement’s role as an enabler, barrier, or as neutral toward openness. An example of an enabler statement is: “Faculty are encouraged to make their research openly accessible by depositing copies of their published manuscripts into the university’s institutional research repository.” An example of a barrier statement is: “Faculty are not permitted to store copies of their published manuscripts on personal websites or in an openly accessible manner.” An example of a neutral statement is: “Faculty wishing to make their research or course materials accessible to the public online should not utilize institutional resources.” No barrier statements were found in the data.

Once the data were gathered, the institutions were ranked, descriptive results were compiled for the data, and idealized recommendation statements for the different policy implementation roles were produced. The derivation of the keywords and the development of the instrument are discussed in the next sections.

Keywords

The a priori keywords used for the search are compiled in Table 3. The list consists of eight terms that are commonly found in the literature and discussions associated with the concepts and areas of openness. For example, the terms “open,” “access,” and “technolog*” are used frequently in the Open Access literature (see Eysenbach, 2006; Lewis, 2012; Research Councils UK, 2013). Similarly, the terms “open,” “free,” “source,” “participat*,” and “collaborat*” are used frequently in the literature on Open Source Software, Open Content, and OEDs (see Baker III, 2012; Hars & Ou, 2002; Morgan & Carey, 2009; Rajani, Rekola, & Mielonen, 2003; Romero & Sorden, 2008; Stallman, 1998; Veletsianos & Kimmons, 2012). The term “license” is discussed as an important component by Cheliotis (2009), Keltly (2008), Lessig (2004, 2008), Materu (2004), and Piedra and Chicaiza (2009), among others. The term “access” is similarly discussed in Christensen (2005), Eysenbach (2006), Harnad and Brody (2004), Krikorian (2010), Laakso et al. (2011), and Laakso and Björk (2012), among others. “Open” is a term common to almost all literature surrounding any area of openness, just as the variants of “technolog*” are common across technology integration and technology in education literature; they are overarching categorical terms.

The term access is defined as “the power, opportunity, permission, or right to come near or into contact with someone or something” (“Access,” 2011, definition II, 3a). The remaining terms are roots that include larger terms. For example, collaborat* would return any relevant entries for collaboration, collaborate, collaborating, etc. The root term free* is defined as “not subject to the control or influence of something...” (“Free,” 2008, definition 1b). Alternates for this term include freedom, freely, freeware, and others.

Open* is defined as “unconcealed or plainly seen condition” and “in public, for all to see or hear, outwardly” (“Open,” 2004, definition 2). Alternates for this term include openness, opening, opened, and others. *Source is defined as “the originating cause or substance of some material thing or physical agency” (“Source,” 1913). Alternates for this term include resource, outsource, or others. Collaborat* is defined as “to work in conjunction with another or others, to cooperate...” (“Collaborate,” 1891, definition 1). Alternates for this term include collaborate, collaborative, collaboration, collaborating, and others. Licens* is defined as “to give a person permission to do something” (“License,” 1902, definition 1a). Alternates for this term include license, licensing, licensed, and others. Participat* is defined as “to take part; to have a part or share with a person...” (“Participate,” 2005, definition 1a). Alternates for this term include participate, participation, participating, and others. Technolog* is defined as the study, application, or product of application of “knowledge relating to the mechanical arts and applied sciences” (“technology,” 2009 definition 4a). Alternates for this term include technology, technologies, technologize, and others.

The keyword list is a condensed version of a prior list containing 42 terms that I developed for the informal pilot of this study. The original list was derived from compiling common terms based on my experience in the literature and from discussions surrounding openness. This list was shared with other researchers and modified before use to include the items that seemed most relevant to the study. I used this list to examine policy documents at Boston College and Duquesne University. These universities were randomly selected from a list of institutions rated as “high” research by the Carnegie Classification system for the purpose of pilot testing the study method. The original list

of search terms produced superfluous search results in the pilot phase, so that the same content was produced by different search terms and examined a number of times. In an effort to produce a shorter list of the most relevant terms, I gathered terms that produced the most relevant and useful results in the pilot phase. What was most relevant and useful was a judgment made based on the amount and content of the results as they were returned. The new list is comprised of eight terms from the larger list of key terms used in the pilot exercise.

Table 4 summarizes the results of a search of academic journals, books, and eBooks (where available) in the Academic Search Complete, Education Research Complete, ERIC, and Teacher Reference Center databases for the key terms. The first 30 results from each key term search were examined for their relationship to openness. While the top 30 results may or may not be indicative of the contents of the larger pool of search results, the purpose here was to establish an idea of the relationship of each key term to the relevant literature in higher education.

It is also important to note that seven of the eight terms are actually partial terms that include roots of other terms that could prove more relevant than the partial term. For example, the term “*source” only showed 10% of the first 30 results as relevant to openness; however, a search for the term “resource,” the larger word captured in “source,” returned 764,021 total results, 26% more than the total for “*source,” where 40% of the first 30 results were directly relevant to openness. The pool of resources used in this search are much broader and less contextualized than the policy documents used in the study; therefore, the actual policy search seems to have returned a smaller degree of irrelevant search results.

Table 4

Results of Keyword Search

Keyword	Total Results	Percent of First 30 Results Related	Relation Status
Access	233,488	40%	Directly
Collaborat*	165,895	86.6%	Indirectly
Free*	706,490	20%	Indirectly
Licens*	35,304	23%	Directly
Open*	300,479	100%	Directly
Participat*	375,665	83.3%	Directly
*Source	563,599	10%	Directly**
Technolog*	1,750,460	93.3%	Directly

Note: Search for academic journals, books, and eBooks in the Academic Search Complete, Education Research Complete, ERIC, and Teacher Reference Center Databases., *Indicates partial word with multiple possible prefixes or suffixes, ** Does not include results for extended term “Resource”

The *a priori* keywords used represent or are related to the areas of openness regarded in this study and were the search terms used in examining the relevant policy documents for each case in the sample. The coder examined each policy statement located from this search. In statements deemed relevant to the topic, the search term was bolded and the statement was copied into a list of other relevant policy statements for each case’s given policy document. The statements were scored according to their directness, and direct

statements were evaluated for their implementation role. I then ranked the institutions by their scores on the rubric.

Instrument

A rubric was used in this study as the guiding instrument for classifying policy statements. The rubric consists of three columns, one for each policy document (Faculty Handbook, Strategic Plan, and Technology Plan), and five rows, one for each major area of openness (see *Appendix C*). Policy statements were scored based on their directness in addressing openness. A scoring system was used where zero = does not address openness/no statements found, one = indirectly addresses openness, and two = directly addresses openness. For policy statements that directly address openness, a score of two, their implementation role as enabler, barrier, or neutral was evaluated. For implementation role, a scoring system where zero = barrier statement, one = neutral statement, and two = enabler statement was used. This means that an institution which directly addresses an area of openness in a policy document, a score of two, scored an additional two points, for a cell total of four, if it consists of an enabler statement. As shown in Figure 5, the direct statement scored one additional point, for a cell total of three, if it uses a neutral statement, and would have scored zero additional points, for a cell total of two, if it used a barrier statement. With three documents and five areas of openness, a perfect score for an institution would be 60 points. The institutions were then ranked according to these scores, and compared both overall and by individual policy documents.

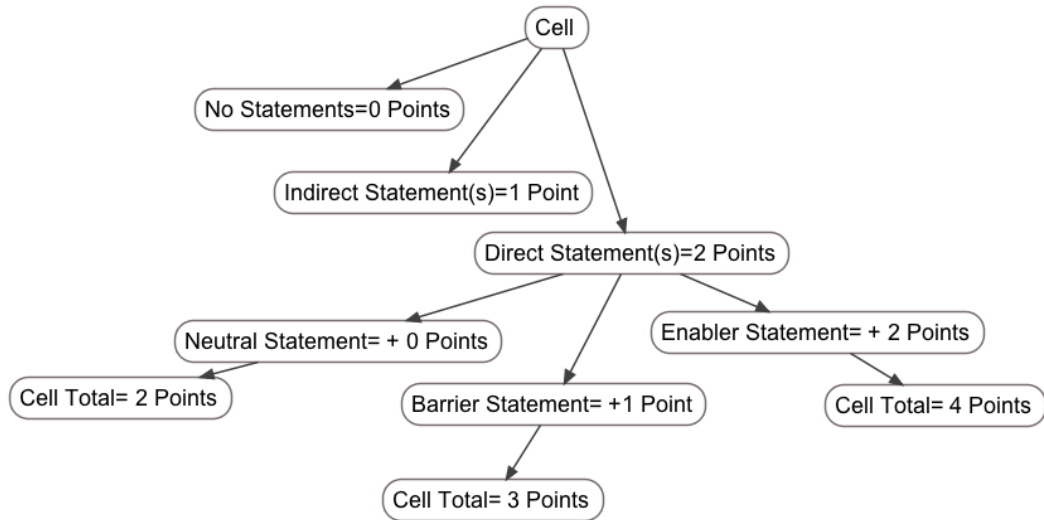


Figure 5. Rubric Cell Value Tree.

In the event that there were multiple statements that fit one cell, the total number of statements fitting each cell were noted for that cell and the score was based on an evaluative judgment of the net direction of the statements. For example, if an institution has seven statements in the Faculty Handbook dealing with OA, and four of them are direct statements, the net direction for the cell would be direct and the cell would gain two points. This is because there are more direct statements in this example than indirect statements. If three of the direct statements were then barrier statements and one as enabler, the net for the cell would be barrier and the cell would gain zero points. This is because there are more barrier statements in this example than enabler statements. Therefore, the cell value represents the majority of cases that fit within that cell. In cases where there was an even number of two different statements (e.g., two direct enabler and two direct neutral statements), the net was granted to the more positive (e.g., the direct enabler over the direct neutral, or the direct neutral over the indirect, etc.). Therefore, ties

were broken with a positive bias toward direct and enabler statements. This provided interesting information from which to describe an institution's policy status.

The decision to use a rubric is based on a number of factors. The rubric instrument evolved through several sessions of extensive discussion, collaborative thinking, and revision efforts with a colleague. These sessions focused on conceptualizing the best way to locate and capture the existence, directness, and role (enabler, barrier, neutral) of policy statements in institutional policy documents. In order to identify and evaluate each of these criteria an observer must review the evidence and make a determination; therefore, a rubric was deemed the most appropriate instrument to guide scoring. An effort to create a survey instrument aimed at observing openness in a classroom (Klein & Eshel, 1980), and the survey instruments utilized in the RIPPLES Model (Jasinski, 2007; Surry et al., 2009; Surry, 2002), informed the thinking surrounding the rubric and its development.

Iterative designs and discussions about the rubric and study design led to a 5x5 model that included the five major areas of openness and five sources for academic policy perceived as most likely to contain relevant content. The five areas of openness used in the rubric are Open Access research, Open Content, Open Source Software, Open Teaching and Learning, and a miscellaneous catchall category for Other Areas of Openness. The five policy sources originally conceived for the rubric included the Faculty Handbook, Technology Plan, Strategic Plan, mission and goals, and a catch-all category which included a site search and web search with the institution name and the search term.

Following the same process as used in obtaining the RU/VH institution population, a colleague and I gathered a list of 99 higher education institutions rated as *RU/H: Research Universities (high research activity)*. Using a random number generator, we then randomly selected one private and one public institution from those rated as “high” research institutions (RU/H). The resultant institutions were Kansas State University for the public selection, and Wake Forest University for the private selection.

In order to test the rubric and research process, we used the rubric to rate and review the materials for these selected institutions. From this testing, several issues became apparent. Among these issues is the discovery that the mission and goals for the institutions as well as the web searches called for by the miscellaneous category of the rubric returned results that related conceptually to the study but were not official policy stances of the institutions. As a result, these categories were removed from the rubric. For this first round of testing, there was no set list of keywords.

I then developed the original list of 42 keywords discussed under the Data Analysis section, and used the modified rubric containing three policy document categories to test the new keywords. I did this by searching the relevant policy documents for Boston College and Duquesne University, two institutions randomly drawn from the population of high research institutions using the same number generator.

The modified rubric was found to function well, and the previously discussed issues with the keywords were discovered. Given the successful functioning of the rubric and the reduction of the keyword list to include the most relevant terms, the instrument seemed to function well for this study.

Recommendations

The best or most appropriate example statements from the study for each policy document were used as recommendations, and ideal statements for each policy document were created wherever a best example statement could not be found. These statements showed best example/ideal statements that served as enablers, barriers, or were neutral toward openness in higher education policy. The determination of a statement as best or most appropriate example was a judgment of the reviewer using the criterion outlined in data analysis. After all relevant policy statements were collected, I reviewed the statements and classified them based on their role as an enabler, barrier, or as neutral. I also made a determination as to the specificity or generality of the statement as an indication of its likely usefulness to a broader audience. No relevant statements found serving enabler, barrier, or neutral roles were general enough to appear useful for a large range of purposes; therefore, notable statements from the content analysis were shared in Chapter Four and idealized statement were created and shared in the appendices.

Because there were five areas of openness and three policy documents being considered, I generated an idealized policy statement for each of these cells. Additionally, because policies can serve as an enabler, a barrier, or neutrally in implementation, an idealized example of each role is provided in the recommendations. In total, there are 45 policy statements provided in the recommendations. These include fifteen policy statements for each policy role: enabler, barrier, or neutral. These are further broken down such that there are five policy statements that serve well in the Faculty Handbook, five for the Technology Plan, and five for the Strategic Plan. Each of the five statements nested under a policy document relate to one area of openness. Therefore, there is one

statement for each of the five areas of openness nested under each of the three policy documents for a total of fifteen policy statements, and there are three sets of these related one set to each policy role as enabler, barrier, or neutral.

Reliability & Validity

Reliability and validity are addressed in several ways in this study. It is essential for content analyses to have a transparent coding scheme and inter/intra-rater reliability where applicable (De Wever, Schellens, Valcke, & Van Keer, 2006). Therefore, I have attempted to provide a replicable coding scheme for this study. I have outlined the sampling procedures and rules for inclusion for the study, and provided definitions of the keywords to be used. I have provided definitional examples of direct and indirect statements in the data analysis section, and explicitly stated the process for classifying a policy statement as direct or indirect. I have also defined the terms enabler, barrier, and neutral (in Chapter One), and provided example statements and explicit procedures for classifying statements into these roles.

The reliability of coding schemes operate on a continuum ranging from intracoder stability through intercoder agreement and ultimately result in replicability of the coding scheme (Rourke, Anderson, Garrison, & Archer, 2001). In this study, reliability is partially guarded by the use of a single coder. This negates concerns related to inter-rater agreement, but leaves the possibility of intra-coder reliability issues such as errors and inconsistency due to fatigue, inattentiveness, etc. Several strategies were used in order to help avoid these issues. To combat fatigue, the coding sessions were kept relatively short with frequent breaks. To help with consistency, several institutions were coded during the

same session. Additionally, the codes were periodically sampled and reviewed by the coder for consistency and accuracy.

I obtained intra-coder reliability scores using the strategy outlined in Fahy, Crawford, & Ally (2001). This strategy involved obtaining proportional agreement scores between the first processing and the second with a lapse of ten days between. In the case of this study, the system was used for locating and categorizing the results rather than coding them. Using a number generator and standard numbering, I randomly selected one school from the public sample strata and one school from the private sample strata for use in the reliability measures. I processed the Faculty Handbook for the selected schools, and after a ten day lapse I reprocessed the same Faculty Handbook for the same school. I then calculated the proportional agreement for the search of the Faculty Handbooks for those schools. To obtain the intra-coder reliability institutions, I numbered the private and public institutions in the sample and used a random number generation website to generate a number for the private and a number for the public list. The University of Tennessee was randomly selected as the public institution, and the University of Miami was generated as the private institution for resampling. For both institutions, the percent agreement between analysis was 100%. There were no relevant statements found in the University of Tennessee Faculty Handbook, and the University of Miami Faculty Handbook produced the same relevant indirect statement on OA in both cases. The number of keywords and relevant keywords were also identical.

In addition to having a transparent coder scheme and obtaining intra-coder reliability scores, the instrument has been tested and modified by using it to examine policy documents of several similar institutions. These institutions were randomly selected from

the *RU/H: Research Universities (high research activity)* category of the Carnegie Classification System. The modifications to the instrument, described in the instrumentation section, enabled a tighter focus for the study that removed irrelevant content from the analysis. This helped focus the results within the study.

The instrument, research design, and study conceptualization was also reviewed by and discussed with fellow researchers in a series of several research studio meetings. These meetings had between three and eight attendees at each meeting, and the ideas within this dissertation were discussed at more than three meetings. The input of the research studio was considered in the design and served as peer review for the instrument and the study concept. It was based on recommendations from this studio that the Carnegie Classification System, rather than U.S. News and World Report, was used to find the population and sample institutions.

Regarding validity in mixed methods studies, it is important for researchers to be forthcoming about their biases through reflexivity for the purposes of increasing validity (Johnson & Christensen, 2012). Therefore I have attempted to express these in the section titled “reflexivity” below. Additionally, Potter and Levine-Donnerstein (1999) discuss representational and ecological validity in regard to how the average person interprets the data. I believe these concepts are also related to the concepts of construct validity. To address this, all direct or indirect policy statements drawn from the data are shared in the appendices for the reader to compare their interpretations with that of the coder’s. I coded these statements using simple codes to facilitate searching the document. The codes use the institution’s initials, the initials of the policy document, and the area of openness to identify the statement. For example, a statement from Arizona State University on Open

Access found in the Technology Plan would be coded as: ASU-TP-OA. The text of the statement follows this code, and the web link to each policy document is located at before the section containing the relevant codes.

Reflexivity

While I have made every attempt to be objective and avoid bias, making value-laden judgments is an inseparable part of being a human being. Therefore, it is important that I share my preferences and values up front. One of the biggest potential biases for this study is that I am generally supportive of, although not always fervent about, openness in regard to education. I tend to believe that, while openness is at its core a good thing, it is often abused and overhyped by researchers and made into a fad by organizations. I believe that its abuse or uncritical use can cause serious harm to learners and the reputation of openness. I think that it is often overhyped, but I also think that it can really provide benefits when it is implemented properly. The concept is often abused and used for self-serving purposes at the expense of these benefits, which can make it appear as if openness is the cause for issues related to poor implementation.

I am very much in favor of social and transformative learning environments, as well as policies that promote freedom and transparency. I think that these help manifest the benefits of openness and they are severely lacking in higher education. I believe that institutions often directly transfer poor classroom instruction methods into poor digital instruction methods. This leads to a more or less direct port of a bad classroom learning experience into a bad online learning experience. It is essential that practitioners critically reflect on what they are doing, and that we question the nature and values of the tools we

use. I don't think this happens enough. This bias could potentially impact identification and evaluation of policies.

My expectation going into the research was that most higher education institutions have probably not addressed openness in their policies to any great degree. These attitudes could have manifested a tendency for over-confirmation of any potential statements found in the policy, and overly harsh judgments about tonality and other areas. This is something that I have tried to maintain awareness of as I evaluated the statements. Are they really relevant? Does the institution intend to support or deny openness here? Do they intentionally address openness here? Being aware of these biases allows the coder to be more aware of their influences while coding.

Chapter Summary

This study used a summative content analysis approach to examine the policy documents of prominent research institutions for statements addressing openness. Researchers drew a stratified random sample of RU/H higher education institutions and used these to pilot test the instrument. The Faculty Handbook, Strategic Plan, and Technology Plan, collectively referred to in this paper as the policy documents, were examined using a set of a priori keywords that represent or are related to the primary areas of openness regarded in the rubric developed for this study. These documents were drawn from a stratified random sample of RU/VH institutions.

The rubric (see *Appendix C*) considers the five areas of openness (Open Access research, Open Content, Open Source Software, Open Teaching and Learning, and Other Areas of Openness) and each of the three policy documents. Any statements found in the

policy documents that were considered related to openness were scored on the rubric based on their directness and implementation role related to openness. The results were then compiled and the institutions from the sample were ranked based on the rubric scores. For each institution, the policy statements were examined and judged as being an enabler, barrier, or neutral statement toward openness. The best example statements from the study are compiled in the text and tables with idealized policy statements are available in the appendices. These serve as policy statement recommendations for other institutions looking to address openness in their policies.

CHAPTER IV

RESULTS

The purposes of this study were to examine higher education policy documents in search of statements related to the implementation of openness, and to provide guidance to institutions for crafting future responses in related situations. I used content analysis methodology to examine policy documents for statements addressing openness. In this chapter, I described the results of the content analysis. I described the results of the study in light of the research questions for the study. The results were primarily descriptive and provided evidence of how higher education institutions in the sample addressed the implementation of openness in their policies. Several interesting findings resulted from this study and these were highlighted in this chapter as well.

Demographics

A total of 44 institutions rated as “very high” research universities (RU/VH) by the Carnegie Classification of Institutions of Higher Education system were included in this study. These 44 institutions represented a stratified random sample of 44 (40%) of the total population of 108 RU/VH institutions in the United States of America. There are 30 (40%) of the 73 public universities, and 14 (40%) of the 35 private universities from the

RU/VH population in this sample. Therefore, 68% of the sample itself consists of public institutions, and 32% were private universities.

As seen in Figure 6, the sample institutions are geographically located throughout the United States. The sample institutions mapped here are the same institutions listed in Tables 1 and 2 in Chapter Three, with the replacements described in that section of Yeshiva University in place of Johns Hopkins University for the private strata, and University of Maryland-College Park in place of University of California-San Diego for the public strata. The map was created using the website www.zeemaps.com, which is a proprietary subscription based web mapping service for mapping lists of locations. The number of institutions in the sample fell into the range for using Zeemaps free of charge.



Figure 6. Geographic Map of Institutions in the Sample.

When I divided the sample institutions using the regional divisions of the United States by the U.S. Census Bureau (U.S. Census Bureau, n.d.), 20 (45%) of the sample institutions were located in the Southern Region, 9 (20%) in the North-East Region, 9 (20%) in the Western Region, 5 (11%) in the Mid-Western Region, and 1 (2%) in the Pacific Region. Only looking at the public institutions in the sample, 15 (50%) were in the Southern Region, 8 (27%) in the Western Region, 3 (10%) in the North-East, 3 (10%) in the Mid-West, and 1 (3%) in the Pacific. Of the private institutions in the sample, 6 (43%) were in the North-East, 5 (36%) in the South, 2 (14%) in the Mid-West, and 1 (7%) in the West, with none in the Pacific Region. This can also be seen in Table 5.

Table 5

Sample Institutions by Region

Region	Public	% Public	Private	% Private	Total	%
North East	3	10%	6	43%	9	20%
South	15	50%	5	36%	20	45%
Mid-West	3	10%	2	14%	5	11%
West	8	27%	1	7%	9	20%
Pacific	1	3%	0	0%	1	2%
Total	30	100%	14	100%	44	100%

As described in Chapter Three, the Carnegie Classification System provides demographic information on the *Level* (4 year or above), *Control* (public, private not-for-profit), and *Student Population* (number of students attending) of an institution. It also provides all-inclusive classifications of *Undergraduate Instructional Program*, *Graduate Instructional Program*, *Enrollment Profile*, *Undergraduate Profile*, *Size & Setting*, and *Basic Classification* (Carnegie Foundation for the Advancement of Teaching, n.d.-a). There is also an elective classification of *Community Engagement*. While these demographic data are not examined in this dissertation, they are collected and reported here for use by future researchers looking to expand, validate, or replicate this study.

Of the institutions in this sample, 100% awarded four-year and above level undergraduate degrees, and held the Basic Classification of RU/VH: Research Universities (very high research activity). Regarding Control, 30 (68%) of the institutions in the sample are public institutions, where 14 (32%) of the institutions in the sample are Private-not-for-profit.

The Undergraduate Instructional Program Classification is based on “the level of undergraduate degrees awarded (Associate’s or Bachelor’s), the proportion of Bachelor’s degree majors in the arts and sciences and in professional fields, and the extent to which an institution awards graduate degrees in the same fields in which it awards undergraduate degrees” (Carnegie Foundation for the Advancement of Teaching, n.d.-d, par 2). In the sample, 43 (97%) of the institutions offered graduate degree programs that corresponded with at least half of their undergraduate programs. In the remaining institution, at least some graduate programs corresponded with the undergraduate programs they offered. Eighteen (41%) institutions in the sample had a balance between

arts and sciences in the degrees offered. Eleven (25%) institutions predominantly offered arts & science degrees (60-79% of programs), where 8 (18%) predominantly offered professional degrees (60-79% of programs). At 7 (16%) institutions in the sample, at least 80% of the bachelor's degrees they offered were in the arts and sciences (Carnegie Foundation for the Advancement of Teaching, n.d.-d).

The Graduate Instructional Program Classification is based on “the level of graduate degrees awarded (master's degrees, and doctoral degrees categorized as either research, professional practice, or other doctorate), the number of fields represented by the degrees awarded, and the mix or concentration of degrees by broad disciplinary domain” (Carnegie Foundation for the Advancement of Teaching, n.d.-e, par. 2). As shown in Figure 7, 24 (55%) institutions in the sample have medical, dental, or veterinarian doctoral programs in addition to their other professional education offerings and doctorate degrees in humanities, social sciences, and Science, Technology, Engineering, or Math (STEM) fields. Seventeen (39%) institutions in the sample did not have medical or veterinarian programs but included doctorate degrees in other professional education offerings and in humanities, social sciences, and STEM fields. In 3 (6%) institutions the largest number of doctoral degrees awarded were related to the fields of STEM fields (Carnegie Foundation for the Advancement of Teaching, n.d.-e).

The Enrollment Profile Classification compares the mix of students at undergraduate and graduate or professional levels (Carnegie Foundation for the Advancement of Teaching, n.d.-a). In the sample, graduates made up at least half of full-time equivalent enrollment at only 9% (4) of sample institutions. As shown in Figure 8, graduates made up 25-49% of full-time equivalent enrollment at 48% (21) of the sample institutions, 10-

24% of full time enrollment at 41% (18) of sample institutions, and less than 10% of full-time equivalent enrollment at 2% (1) of institutions in the sample.

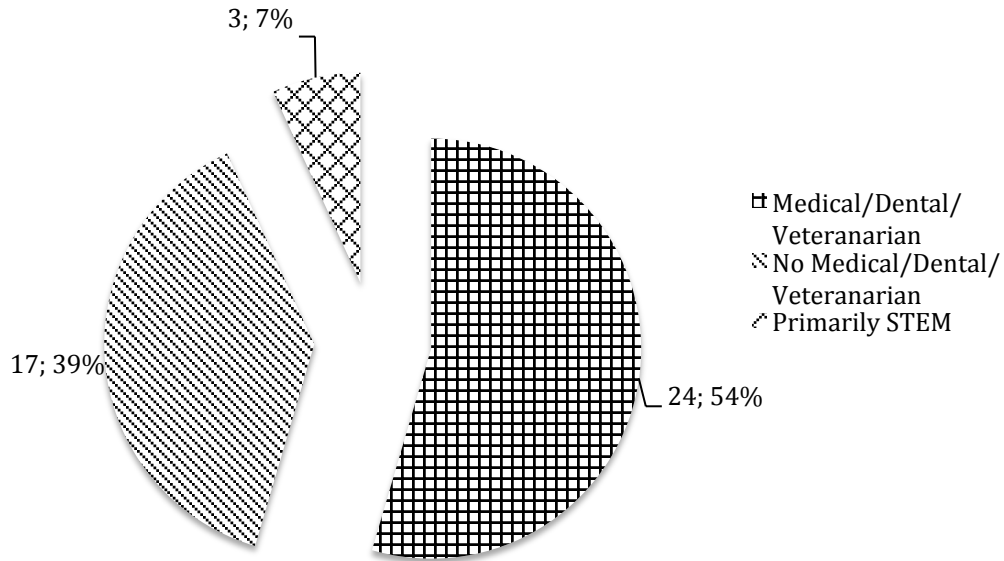


Figure 7. Graduate Instructional Program Classification for Doctoral Programs.

The Undergraduate Profile Classification describes the undergraduate population in consideration of “the proportion of undergraduate students who attend part- or full-time; achievement characteristics of first-year, first-time students; and the proportion of entering students who transfer in from another institution” (Carnegie Foundation for the Advancement of Teaching, n.d.-f, par. 1). At 41 (93%) of the institutions in the sample, the majority of undergraduates (at least 80%) were enrolled full time. At the remaining 3 (7%) institutions, at least 60-79% of undergraduates were enrolled full time in bachelor’s

programs. Thirteen (30%) institutions rated as selective in admissions based on first year test scores, placing them in the middle two-fifths of baccalaureate institutions, and 31 (70%) of sample institutions were rated as more selective in admissions and placed in the top fifth for selectivity in admissions for baccalaureate institutions. In 23 (52%) of the sample institutions, less than 20% of entering undergraduates were transfer students (Carnegie Foundation for the Advancement of Teaching, n.d.-f).

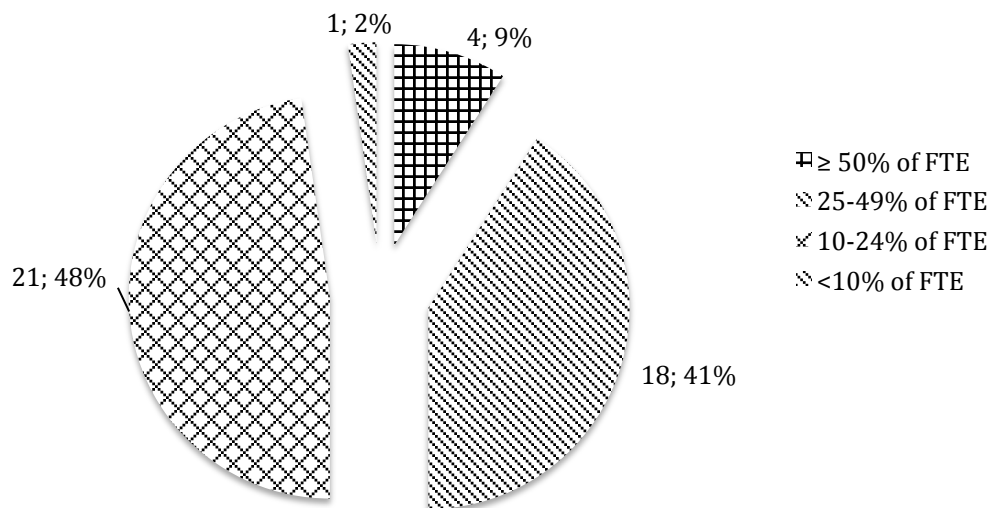


Figure 8. Graduate Students as Percent of Full Time Equivalent Enrollment.

The Size and Setting classification considers the size and residential character (made in consideration of student status as commuting, residing, or distance) of the institution (Carnegie Foundation for the Advancement of Teaching, n.d.-a). Thirty-eight (86%) of the sample institutions have at least 10,000 full-time equivalent degree-seeking students,

and 6 (14%) have at least 3,000-9,999 full-time equivalent degree-seeking students. All of the institutions with fewer than 10,000 students were in the private institution sample strata. The mean number of students attending the universities in the sample was 25,441. For public institutions in the sample, the mean number of students attending was 30,854, and for private institutions the mean student population was 13,839. At 13 (30%) of the sample institutions, “at least half of degree seeking undergraduates live on campus, and at least 80% attend full time” (Carnegie Foundation for the Advancement of Teaching, n.d.-a). At 21 (48%) of the sample institutions, “25-49% of degree-seeking undergraduates live on campus and at least 50% attend full-time” (Carnegie Foundation for the Advancement of Teaching, n.d.-a). At 10 (22%) of the sample institutions, “fewer than 25% of degree-seeking undergraduates live on campus and/or fewer than 50% attend full time” (Carnegie Foundation for the Advancement of Teaching, n.d.-a).

As a voluntary elective measure, the Community Engagement Classification considers collaboration between an institution and the larger communities in which it is involved (Carnegie Foundation for the Advancement of Teaching, n.d.-a). Twenty-two (50%) of the institutions in the sample had *Curricular Engagement and Outreach and Partnerships* as part of their profile.

General Notes On The Policy Documents

In this section, I will briefly note a number of interesting elements that emerged during the course of the study. Regarding the public institutions, the Strategic Plan examined for the University of North Carolina-Chapel Hill was a working draft, and that the Faculty Handbooks for the University of New Mexico and the University of

Kentucky were not used because parts were inaccessible. No relevant statements were found in these plans. The plans examined for the University of Tennessee all belong to the Chattanooga campus, and three relevant statements were identified in the Technology Plan and used in this study. The Faculty Handbook for the University of Maryland-College Park was inaccessible due to some of the links being broken and unable to be followed. Another interesting thing is that the University of Delaware cited an “Open Research Policy” in its Faculty Handbook that seemed to refer to open dissemination or publishing, but was either ambiguous or did not explicitly refer to openness in the sense of this study (University of Delaware, 2012, Section 3.2).

Regarding private institutions, the University of Miami Strategic Plan was not explicitly labeled as a Strategic Plan. No relevant statements were identified in the document. Princeton University had a specific policy on Open Access to research, but it was not located in any of the policy documents so it was not included in the study (Princeton University, 2013). It is also interesting to note that Dartmouth College is partnered with EdX, and Northwestern University is partnered with Coursera. These organizations are discussed in Chapter Two and promote MOOCs under Alternate Education Models OEDs as seen in Figure 4.

Results of Research Questions

The results in this chapter are organized around the research questions. These data are primarily descriptive. I have compared the results for the public and private institutions in the sample on the various elements of the study. I compare institutions based on their rubric scores, number of statements, characteristics of the policy documents relevant to

the study, and their treatment of the areas of openness. I have tried to exhibit the data clearly and to contrast some of the more important points in several ways. In some sections I provide sample statements from the analysis to support the results. The entire set of relevant statements are available to the reader in *Appendices D and E*.

The research questions addressed in this study were:

1. To what extent do RU/VH higher education institutions address openness in their policies?
2. Which of the major areas of openness defined in this study (Open Access research, Open Content, Open Source Software, Open Teaching and Learning, Other Areas of Openness) are addressed in these institutional policies?
3. What is the policy role (enabler, barrier, neutral) of the policy statements related to openness?
4. Is there a relationship in institutional policy documents between the use of keywords related to openness and the types of statements related to the implementation of openness as defined by the rubric?

Research Question One

To what extent do RU/VH higher education institutions address openness in their policies?

As discussed in Chapter Three, I searched the policy documents for 44 institutions using eight keywords. Of the 44 institutions, there were a total of 77 policy documents that fit the criteria of the study. Of these, 20 policy documents (26%) contained statements related to the implementation of openness. As shown in Table 6, there were a

total of 130 relevant statements on openness. One hundred-three of these statements were located in the policy documents of private institutions (79%), and 27 were located in the policy documents for public institutions (21%). One hundred-eleven of the 130 statements directly addressed openness (85%). At private institutions, 88 of the 103 statements directly addressed openness (85%), and 23 of the 27 statements at public institutions directly addressed openness (85%). As shown in Figure 9, there were a total of 21 (16%) relevant statements in Faculty Handbooks, 8 (6%) relevant statements in Strategic Plans, and 101 (78%) relevant statements in Technology Plans.

Table 6

Directness of Relevant Statements by Sample Strata

Institution	# of Relevant Statements	%	# of Direct Statements	%	# of Indirect Statements	%
Private Institutions	103	79%	88	85%	15	15%
Public Institutions	27	21%	23	85%	4	15%
Total	130	100%	111	85%	19	15%

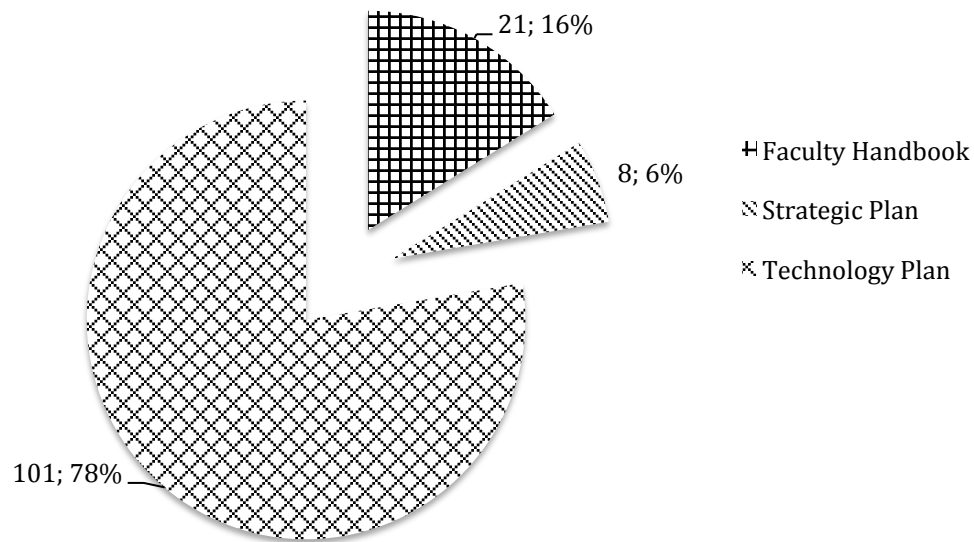


Figure 9. Relevant Statements by Policy Document.

Sixteen (36%) of the 44 sample institutions had statements related to the implementation of openness: eight (62%) of the 13 private institutions, and eight (27%) of the 30 public institutions. The total distribution for the number of relevant statements on openness made by each institution can be seen in Figure 10. Sixty-eight percent (88) of all of the relevant statements found were generated by Brown University, a private institution. Another 8.5% (11) of all relevant statements found were generated by Georgia Institute of Technology, a public institution. Therefore, only two institutions generated 76.5% (99) of all the statements (130) related to the implementation of openness I found in the content analysis. These two institutions make up 4.5% of the total sample, and 12.5% of the institutions with non-zero rubric scores.

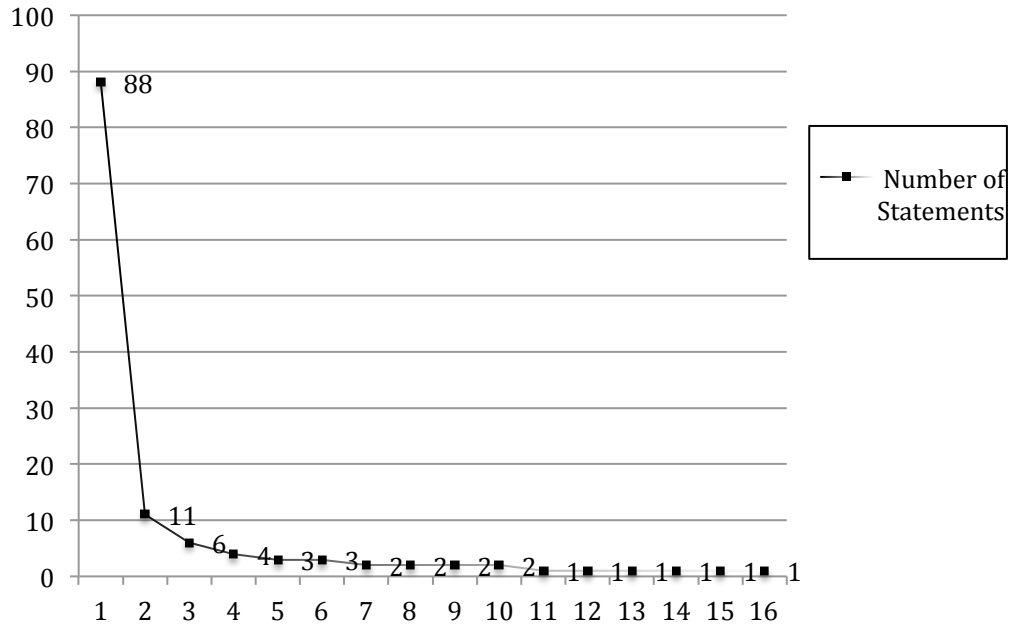


Figure 10. Distribution for the Number of Relevant Statements Made by Each Institution.

Brown University served as an interesting case. Brown University alone accounted for 80 (72%) of the 111 statements that directly addressed openness. Eighty (91%) of Brown Universities’ 88 statements that were related to openness directly dealt with openness. It is also the home of the Decameron Web Project, a project aimed at creating and enabling discourse around a medieval text (the Decameron) in an open way (Brown University, 2010a). John Seely Brown (2006) highlighted the Decameron Web project as an example of an innovative 21st century learning environment. The Technology Plan for Brown University was subtitled “a complement to the Plan for Academic Excellence (PAE),” but was a stand-alone plan intended to support a broader range of considerations (Brown University, 2009, title page). While analyzing the quality of the policy statements related to the implementation of openness is outside of the scope of this study, it may be important to note that 16 (18%) of the 88 relevant statements generated by Brown

University were actually questions. Given that Brown University is such a drastic outlier from the rest of the cases in the sample, I thought it would be important to present the data as both with and without Brown University in order to obtain a better overall picture of the results.

When Brown University is excluded from the data, the numbers change. Without Brown University, Georgia Institute of Technology accounts for 26% (11) of the total statements (42) related to openness. Additionally, 21 (52%) of the total relevant statements come from the Faculty Handbook, 14 (33%) from the Technology Plan, and 7 (15%) from the Strategic Plan. Thirty-one (73%) of the 42 relevant statements were direct, versus 111 (86%) of the 130 if Brown University is included.

Table 7

Number of Policy Documents with Relevant Statements by Strata

Policy Document	Private Institutions	Public Institutions	All Institutions
Faculty Handbook	5	3	8
Strategic Plan	3	2	5
Technology Plan	2	6	8
Total	10	11	21

I found a total of 21 policy documents with relevant statements in the content analysis. As shown in Table 7, there were 8 Faculty Handbooks, 5 Strategic Plans, and 8

Technology Plans with relevant statements. For private institutions, there were 5 Faculty Handbooks, 3 Strategic Plans, and 2 Technology Plans. For public institutions, there were 3 Faculty Handbooks, 2 Strategic Plans, and 6 Technology Plans with relevant statements.

Table 8 shows the mean number of statements found in policy documents with relevant statements for public and private institutions including Brown University. The overall mean was 6.19 statements per policy document with relevant statements. For Faculty Handbooks with relevant statements, the mean was 2.63 statements per document. The mean was 1.4 statements per Strategic Plan with relevant statements, and 12.75 for Technology Plans with relevant statements. For public institutions, the mean was 2.45 statements per policy document. The mean number of statements for public Faculty Handbooks was 3.66, 1 for Strategic Plans, and 2.33 for Technology Plans. For private institutions, the mean number of statements per policy document was 10.3. The mean number of statements for private Faculty Handbooks with relevant statements was 2. The mean for Strategic Plans with relevant statements was 1.66, and 44 for Technology Plans with relevant statements.

Table 9 shows the number of policy documents with relevant statements excluding Brown University's policy documents. In total, there were 19 policy documents with relevant statements excluding Brown University. There were 8 Faculty Handbooks, 4 Strategic Plans, and 7 Technology Plans with relevant statements. For private institutions, there were 5 Faculty Handbooks, 2 Strategic Plans, and 1 Technology Plan. The exclusion of Brown University doesn't impact the count for public institutions.

Table 8

Mean Number of Statements per Policy Document with Relevant Statements by Strata

Policy Document	Private Institutions	Public Institutions	All Institutions
Faculty Handbook	2	3.66	2.63
Strategic Plan	1.66	1	1.4
Technology Plan	44	2.33	12.75
Total	10.3	2.45	6.19

Table 9

Number of Policy Documents with Relevant Statements by Strata Excluding Brown University

Policy Document	Private Institutions	Public Institutions	All Institutions
Faculty Handbook	5	3	8
Strategic Plan	2	2	4
Technology Plan	1	6	7
Total	8	11	19

As shown in Table 10, when Brown University was excluded from the data the mean number of statements became 2.21 per policy document (as opposed to 6.19 above). The mean number of statements became 2.63 for Faculty Handbook with relevant statements, 1.75 for Strategic Plans, and 2 for Technology Plans with relevant statements. For private

institutions excluding Brown University, the mean number of statements became 1.88 statements per policy document (as opposed to 10.3 above), 2 for Faculty Handbooks, 2 for Strategic Plans with relevant statements, and 1 for the only remaining Technology Plan. The public numbers remain the same.

I categorized the statements using the rubric and keywords as described in Chapter Three. Any statements located in the keyword search were evaluated for relevance, sorted by area of openness and the type of policy document in which it was found, and rated by directness and its policy role. A statement rated as a one is an indirect statement, and a statement rated as a two is considered a direct statement on openness. Direct statements were then identified further by policy role. Policy role scores of two mean that the statement is an enabler, and a score of one means that the statement was deemed neutral. There were no barrier statements identified in the analysis. In cases where more than one statement fit into a cell, the net direction of statements was used to score the cell, giving ties to the more positive score (direct over indirect, and enabler over neutral). A cell can have a total score of four if the statement is direct and an enabler, three if the statement is a direct neutral statement, and one if the statement is neutral. The total score on a rubric combines the scores for each policy document. Table 11 depicts the institutional ranking by total rubric score for institutions with non-zero rubric scores, along with the rubric score for each institution.

Table 10

Mean Number of Statements per Policy Document with Relevant Statements by Strata Excluding Brown University

Policy Document	Private Institutions	Public Institutions	All Institutions
Faculty Handbook	2	3.66	2.63
Strategic Plan	2	1	1.75
Technology Plan	1	2.33	2
Total	1.88	2.45	2.21

I found no relevant statements related to the implementation of openness in 28 institutions. Consequently, these institutions received rubric scores of zero. They are excluded from being listed in many of the tables in this chapter due to concerns over table sizes, however these institutions with rubric scores of zero are shown in Tables 12 and 13. Table 12 shows the institutions from the private strata with rubric scores of zero, and Table 13 shows the institutions from the public strata with rubric scores of zero.

Table 11

Combined Institutional Ranking by Rubric Score

Rank	Institution	Rubric Score
1	Brown University	17
2	Georgia Institute of Technology	9
3	Northwestern University	8
4t	Arizona State University	6
4t	University of Maryland- College Park	6
5	Brandeis University	5
6t	Princeton University	4
6t	Purdue University	4
6t	Tulane University	4
7t	Columbia University in New York	4
7t	Georgetown University	3
7t	Oregon State University	3
7t	University of Kentucky	3
7t	University of Tennessee	3
8t	University of Miami	1
8t	University of Virginia	1

Table 12

Private RU/VH Institutions Strata with Rubric Score of Zero

1. Dartmouth College
2. Emory University
3. University of Notre Dame
4. University of Southern California
5. Vanderbilt University
6. Yeshiva University

Table 13

Public RU/VH Institutions Strata with Rubric Score of Zero

Public Institutions	
1. Louisiana State University and Agricultural & Mechanical College	12. University of Florida
2. Mississippi State University	13. University of Hawaii at Manoa
3. Montana State University	14. University of Houston
4. Ohio State University-Main Campus	15. University of Kansas
5. University of Arizona	16. University of Missouri-Columbia
6. University of California-Berkeley	17. University of Nebraska-Lincoln
7. University of California-Irvine	18. University of New Mexico-Main Campus
8. University of California-Riverside	19. University of North Carolina at Chapel Hill
9. University of Cincinnati-Main Campus	20. University of South Carolina-Columbia
10. University of Connecticut	21. University of South Florida-Tampa
11. University of Delaware	22. Washington State University

As seen in Table 14, the mean rubric score for all institutions was 5. The mean rubric score for private institutions was 5.63, while the mean rubric score for public institutions was 4.38. When Brown University is not considered, the rubric score mean is 4.2, and the mean for private schools is 4.

Table 15 shows the institutions with non-zero rubric scores ranked by the number of relevant statements contributed by each. When compared with Table 11, the rankings are somewhat different. Brown University and Georgia Institute of Technology remain in the first two positions, and the University of Miami and the University of Virginia remain in the last two positions; however, each of the other institutions changed positions when ranked by the number of relevant statements.

Table 14

Mean Rubric Score by Strata Excluding Brown University

Strata	Mean Rubric Score	Mean Rubric Score Excluding Brown University
Private Institutions	5.63	4
Public Institutions	4.38	4.38
Total	5	4.2

Table 15

Combined Institutional Ranking by Number of Relevant Statements

Rank	Institution	Number of Statements
1	Brown University	88
2	Georgia Institute of Technology	11
3	University of Maryland- College Park	6
4	Princeton University	4
5t	Arizona State University	3
5t	Northwestern University	3
5t	University of Tennessee	3
6t	Brandeis University	2
6t	Georgetown University	2
6t	Tulane University	2
7t	Columbia University in New York	1
7t	Oregon State University	1
7t	Purdue University	1
7t	University of Kentucky	1
7t	University of Miami	1
7t	University of Virginia	1

Research Question Two

Which of the major areas of openness defined in this study (Open Access research, Open Content, Open Source Software, Open Teaching and Learning, Other Areas of Openness) are addressed in these institutional policies?

There are five major areas of openness that have had an impact on higher education in recent years. These are Open Access Research (OA), Open Content such as OER, Open Source Software (OSS), Open Teaching and Learning, and Other Areas of Openness, which is a more general category for less pronounced influences. I categorized each of the 130 relevant statements on openness into one of these areas of openness. Twenty-seven (21%) dealt with OA, 12 (9%) dealt with Open Content, 17 (13%) dealt with OSS, 14 (11%) dealt with Open Teaching and Learning, and 60 (46%) of them dealt with Other Areas of Openness. This is also shown in Figure 11.

The analysis of the 60 statements on Other Areas of Openness is shown in Figure 12. Two (3%) of these statements dealt with access to information, 4 (7%) were definitional, 1 (2%) dealt with freedom, 1 (2%) dealt with open data, and 52 (86%) dealt with general support for openness. Fifty-nine of the 60 (98%) statements were located in the Technology Plan for Brown University. The one statement categorized as Other not generated by Brown University dealt with Open Data, and was located in the Strategic Plan for Arizona State University. It was the only relevant statement in the Strategic Plan for that institution.

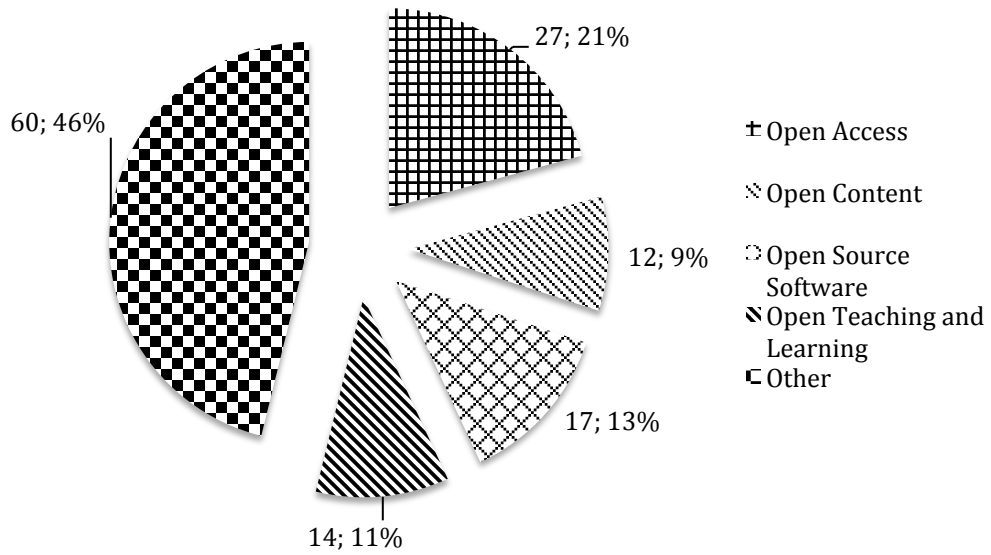


Figure 11. Relevant Statements by Area of Openness.

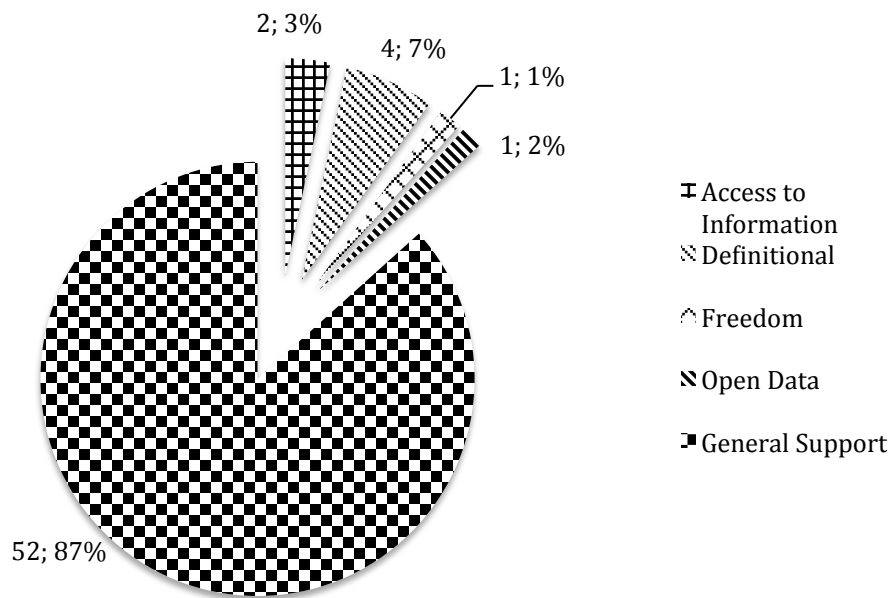


Figure 12. Analysis of Statements Dealing With Other Areas of Openness.

When Brown University was excluded from these data, there were 42 relevant statements. As shown in Figure 13, 15 (36%) of these dealt with OA, 9 (21%) dealt with Open Content, 10 (24%) dealt with OSS, 7 (17%) dealt with Open Teaching and Learning, and one (2%) dealt with Other Areas of Openness (this is the open data statement from above). There are 88 fewer statements considered in Figure 13 than in Figure 11, and the percentages are much different.

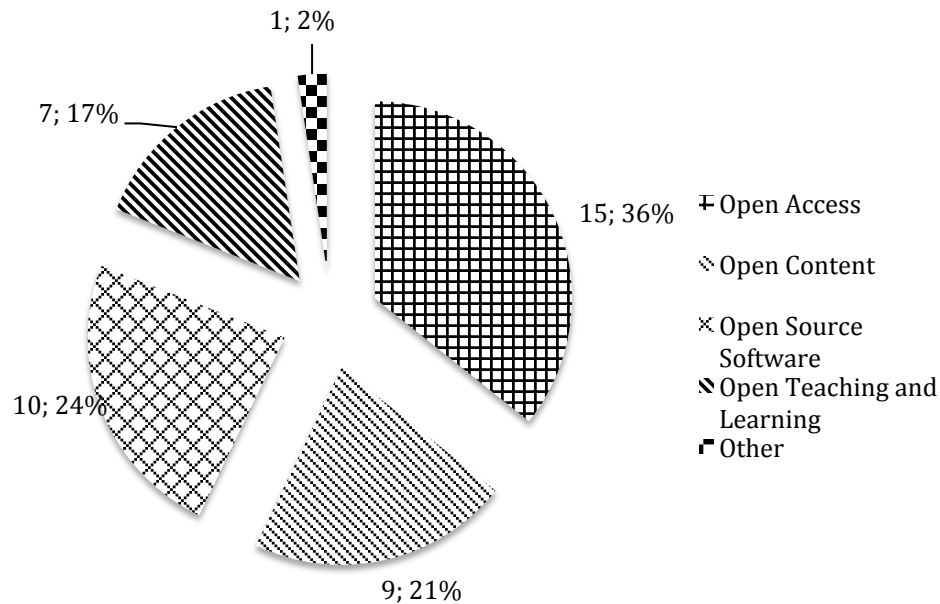


Figure 13. Relevant Statements by Area of Openness Excluding Brown University.

The analysis for public institutions is shown in Figure 14. There were a total of 27 relevant statements related to the implementation of openness at public institutions. Of these, 7 (26%) dealt with OA, 6 (22%) dealt with Open Content, 9 (33%) dealt with OSS, 4 (15%) dealt with Open Teaching and Learning, and 1 (4%) dealt with the Other area of openness (again, the Open Data statement). Of these, 23 (85%) were direct statements.

The analysis for private institutions is shown in Figure 15. There were a total of 103 relevant statements on openness at private institutions. Of these, 20 (19%) dealt with OA, 6 (6%) dealt with Open Content, 8 (8%) dealt with OSS, 10 (10%) dealt with Open Teaching and Learning, and 59 (57%) fell under Other Areas of Openness. Of these, 88 (85%) were direct statements.

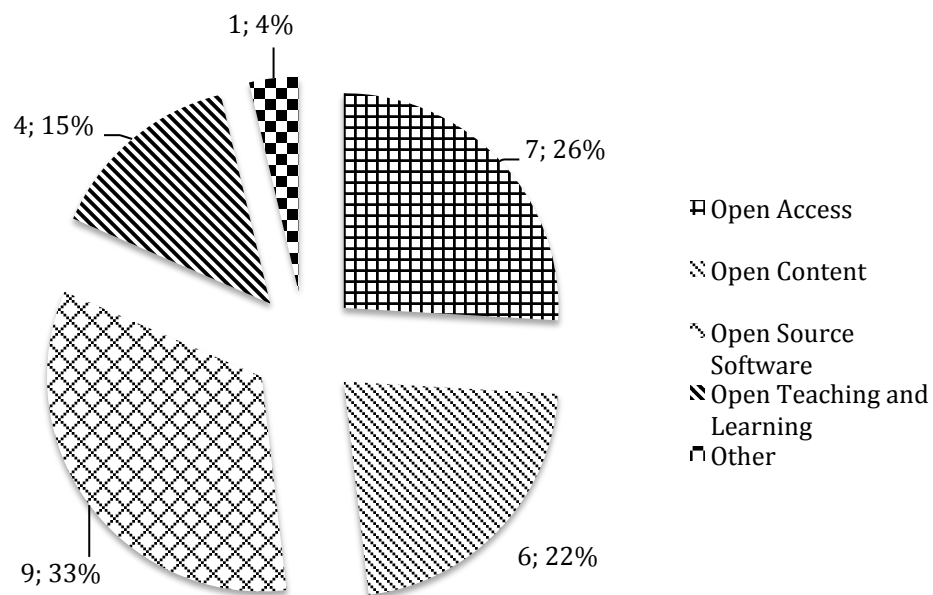


Figure 14. Relevant Statements at Public Institutions by Area of Openness.

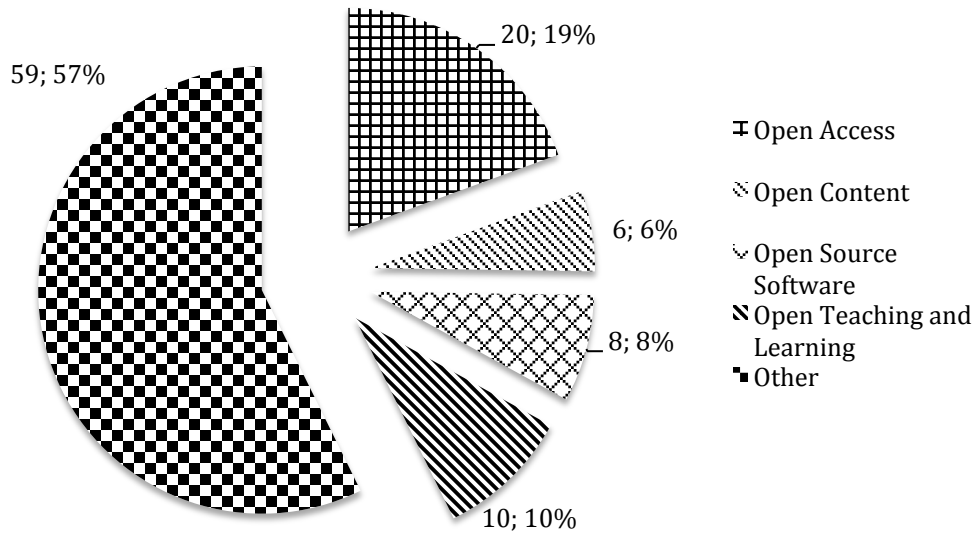


Figure 15. Relevant Statements at Private Institutions by Area of Openness.

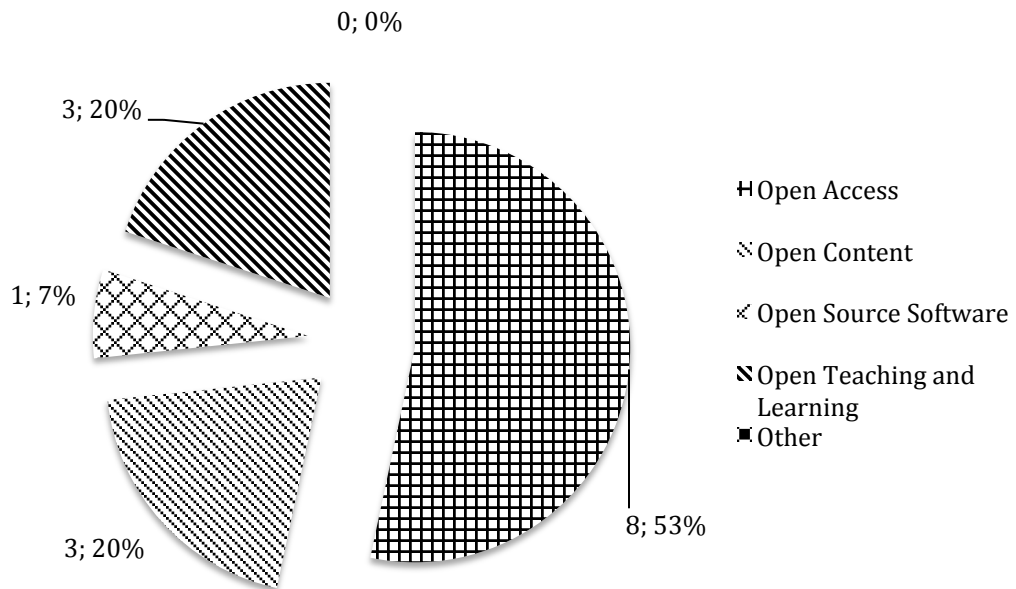


Figure 16. Relevant Statements at Private Institutions by Area of Openness Excluding Brown University.

The analysis of relevant statements at private institutions excluding Brown University is shown in Figure 16. There were a total of 15 statements related to the implementation of openness at private institutions excluding Brown University. Of these, 8 (53%) dealt with OA, 3 (20%) dealt with Open Content, 1 (7%) dealt with OSS, 3 (20%) dealt with Open Teaching and Learning, and there were no statements related to Other Areas of Openness. Of these, 8 (53%) were direct statements.

I will now describe the statements related to the areas of openness sorted by policy document. The breakdown of the total 130 statements is shown in Table 16. There were a total of 21 relevant statements in Faculty Handbooks (16%), 8 relevant statements in Strategic Plans (6%), and 101 relevant statements in Technology Plans (78%). Of the 21 statements found in the Faculty Handbooks, 15 (71%) dealt with OA, 5 (24%) dealt with Open Content, 1 (5%) with Open Teaching and Learning. There were no statements dealing with OSS or Other Areas of Openness in any Faculty Handbooks. Of the 8 statements found in the Strategic Plans, 3 (38%) dealt with Open Content, 3 (38%) dealt with Open Teaching and Learning, and 2 (24%) dealt with Other Areas of Openness. There were no statements related to OA or OSS in any of the Strategic Plans. Of the 101 statements found in Technology Plans, 12 (12%) dealt with OA, 4 (4%) dealt with Open Content, 17 (17%) dealt with OSS, 10 (10%) dealt with Open Teaching and Learning, and 58 (57%) dealt with Other Areas of Openness.

Table 16

Relevant Statements by Area of Openness and Policy Document

Policy Document	OA	OC	OSS	OT&L	Other	Total
Faculty Handbook	15	5	0	1	0	21
Strategic Plan	0	3	0	3	2	8
Technology Plan	12	4	17	10	58	101
Total	27	12	17	14	60	130

As shown in Table 17, when the Brown data are excluded, there are a total of 42 relevant statements, with 21 (50%) in the Faculty Handbook, seven (17%) in the Strategic Plan, and 14 (33%) in the Technology Plan. The Faculty Handbook data remain the same as the totals with Brown University included, while the Strategic Plan loses one statement related to Other Areas of Openness, leaving the statement on Open Data from above. Without Brown University, the 14 statements in Technology Plans consist of 1 (7%) statement on Open Content, 10 (72%) statements on OSS, and 3 (21%) statements on Open Teaching and Learning. There are no statements on OA research or Other Areas of Openness in Technology Plans outside of the one generated by Brown University.

Considering only public institutions, there are a total of 27 relevant statements, where 11 (41%) are found in the Faculty Handbooks, 3 (11%) in the Strategic Plans, and 13 (48%) in the Technology Plans of public institutions in the sample. The summary is shown in Table 18. Of the 11 statements in the Faculty Handbooks at public institutions, seven (64%) dealt with OA, 3 (27%) dealt with Open Content, and one (9%) dealt with

Open Teaching and Learning. There were no statements dealing with OSS or Other Areas of Openness in public Faculty Handbooks. Two (67%) of the three relevant statements found in the Strategic Plans both dealt with Open Content and one (33%) dealt with Other Areas of Openness. There were no other relevant statements dealing with any other area in any of the Strategic Plans. Of the 13 statements found in the Technology Plans for public institutions, one (8%) dealt with Open Content, 9 (69%) dealt with OSS, and 3 (23%) dealt with Open Teaching and Learning. There were no relevant statements dealing with OA or Other Areas of Openness in any public Technology Plans.

Table 17

Relevant Statements by Area of Openness and Policy Document Excluding Brown University

Policy Document	OA	OC	OSS	OT&L	Other	Total
Faculty Handbook	15	5	0	1	0	21
Strategic Plan	0	3	0	3	1	7
Technology Plan	0	1	10	3	0	14
Total	15	9	10	7	1	42

Table 18

Relevant Statements by Area of Openness and Policy Document in Public Institutions

Policy Document	OA	OC	OSS	OT&L	Other	Total
Faculty Handbook	7	3	0	1	0	11
Strategic Plan	0	2	0	0	1	3
Technology Plan	0	1	9	3	0	13
Total	7	6	9	4	1	27

Looking only at private institutions, there were a total of 103 relevant statements related to the implementation of openness. The summary for this is shown in Table 19. Of these, 10 (10%) were in the Faculty Handbooks, 5 (5%) were in the Strategic Plans, and 88 (85%) were in the Technology Plans. Of the 10 statements in the Faculty Handbooks, 8 (80%) dealt with OA, and 2 (20%) dealt with Open Content. There were no statements related to OSS, Open Teaching and Learning, or Other Areas of Openness in Faculty Handbook for private institutions. Of the five statements in Strategic Plans, one (20%) dealt with Open Content, three (60%) dealt with Open Teaching and Learning, and one (20%) dealt with Other Areas of Openness. There were no statements related to OA, or OSS in any of the private Strategic Plans. Of the 88 statements in Technology Plans, 12 (14%) were related to OA, three (3%) to Open Content, eight (9%) to OSS, seven (8%) to Open Teaching and Learning, and 58 (66%) to Other Areas of Openness.

Table 19

Relevant Statements by Area of Openness and Policy Document in Private Institutions

Policy Document	OA	OC	OSS	OT&L	Other	Total
Faculty Handbook	8	2	0	0	0	10
Strategic Plan	0	1	0	3	1	5
Technology Plan	12	3	8	7	58	88
Total	20	6	8	10	59	103

As shown in Table 20, when the Brown University data are removed from these calculations, there are 15 relevant statements in the policy documents for private institutions. Of these there are 10 (67%) in the Faculty Handbooks, four (27%) in the Strategic Plans, and one (6%) in the Technology Plans. The Faculty Handbooks breakdown remains the same as above, while the Strategic Plan loses its only statement on Other Areas of Openness. The Technology Plan is the most drastic difference. There is only one statement relevant to openness in any of the Technology Plans for private institutions when Brown University is excluded. That statement deals with OSS.

Table 20

Relevant Statements by Area of Openness and Policy Document in Private Institutions Excluding Brown University

Policy Document	OA	OC	OSS	OT&L	Other	Total
Faculty Handbook	8	2	0	0	0	10
Strategic Plan	0	1	0	3	0	4
Technology Plan	0	0	1	0	0	1
Total	8	3	1	3	0	15

I will now describe these data by the number of relevant statements per school following the ranking seen in Table 15. These data are shown in Table 21. Of the 88 relevant statements generated by Brown University, 12 (14%) dealt with OA, three (3%) dealt with Open Content, seven (8%) dealt with OSS, seven (8%) dealt with Open Teaching and Learning, and 59 (67%) dealt with Other Areas of Openness. Of the 11 relevant statements generated by Georgia Institute of Technology, seven (64%) dealt with OA and four (36%) dealt with Open Content. Of the six statements made by University of Maryland- College Park, five (83%) dealt with OSS, and one (17%) dealt with Open Teaching and Learning. Of the four statements generated by Princeton, all four (100%) dealt with OA. Of the three statements generated by Arizona State University, 2 (67%) dealt with Open Teaching and Learning, and 1 (33%) dealt with Other Areas of Openness. Northwestern University generated three relevant statements on openness. Of these one (33%) dealt with OSS and two (67%) dealt with Open Teaching and Learning.

Table 21

Relevant Statements per School by Area of Openness

School	OA	OC	OSS	OT&L	Other	Total
Brown University	12	3	7	7	59	88
Georgia Institute of Technology	7	4	0	0	0	11
University of Maryland-College Park	0	0	5	1	0	6
Princeton University	4	0	0	0	0	4
Arizona State University	0	0	0	2	1	3
Northwestern University	0	0	1	2	0	3
University of Tennessee	0	0	3	0	0	3
Brandeis University	0	1	0	1	0	2
Georgetown University	1	1	0	0	0	2
Tulane University	2	0	0	0	0	2
Columbia University in New York	0	1	0	0	0	1
Oregon State University	0	1	0	0	0	1
Purdue University	0	1	0	0	0	1
University of Kentucky	1	0	0	0	0	1
University of Miami	0	0	1	0	0	1
University of Virginia	0	0	0	1	0	1
Total	27	12	17	14	60	130

All three (100%) of the relevant statements from University of Tennessee dealt with OSS. Brandeis University had two relevant statements; one (50%) on Open Content and one (50%) on Open Teaching and Learning. Georgetown University had one (50%) statement on OA and one (50%) statement on Open Content, for a total of two. Tulane University had two statements both (100%) dealing with OA. The remaining universities only generated one relevant statement each. The statements by Columbia University in New York, Oregon State University, and Purdue University dealt with Open Content. The statement generated by University of Miami dealt with OA. The statement by

University of Kentucky dealt with OSS, and the statement by University of Virginia dealt with Open Teaching and Learning.

I will now present some examples of typical statements found in the content analysis related to each area of openness. These are not necessarily representative of “good” or “bad” statements. I tried to select some of the more interesting statements to share. I coded these statements using simple codes to facilitate searching the document. The codes use the institution’s initials, the initials of the policy document, and the area of openness to identify the statement. For example, a statement from Arizona State University on Open Access found in the Technology Plan would be coded as: ASU-TP-OA. I also added the bold font to emphasize the keyword(s) from the search. It was not present in the original statements. The full list of coded statements including these statements are available in Appendices D and E. I retain the coding scheme used in the appendices here for easy location and comparison of the statements between the text and the appendices.

Some typical sample statements from the content analysis that deal with OA are:

BU-TP-OA: Encourage all faculty research funding proposals to include funding for publication/dissemination/data sharing that would support publication in **Open Access** journals.

BU-TP-OA: Should Brown's policies regarding course materials be re-examined to encourage the use of more **Open Access** materials, given the dramatic rise in the costs of textbooks and the lack of choices for students?

PrU-FH-OA: The members of the Faculty of Princeton University strive to make their publications **openly accessible** to the public.

TU-FH-OA: In turn, faculty members are strongly encouraged to make the results of their research **freely** available to students, colleagues, and the public.

GIT-FH-OA: The Provost's Office or designate will make the scholarly article available to the public in an **open-access** institutional repository.

Some typical sample statements from the content analysis that deal with Open Content are:

GIT-FH-OC: This is to ensure that all **licensable** knowledge created or invented will be available for public use. Exclusive **licensing** agreements by GTRC will contain a due diligence provision to require the license to revert to GTRC within a reasonable period of time if the **licensee** does not make the Intellectual Property available to the public.

GIT-SP-OC: Intellectual property policies and practices at Georgia Tech will be as **open** and non-restrictive as possible, and assistance will be provided for companies that wish to engage the Institute and its resources.

BrU-SP-OC: We can leverage the Brandeis approach and play a leadership role in the rapidly changing educational environment through innovations such as sharing courses in consortia arrangements, giving post-doctoral fellows teaching opportunities, leveraging **free** educational resources and new educational practices to focus our efforts where we have the most to offer.

BU-TP-OC: Review existing curricular offerings and identify a small number of world class offerings that would be made **open** in conjunction with the **Open CourseWare** Consortium with a preference for those not duplicative of existing **open** offerings.

BU-TP-OC: Should Brown formally establish digital repositories (e-portfolios) for work done by students while they are at Brown? This greater **openness** might be extended so that students' e- portfolios would remain **open** to them to deposit their creative works even after they leave the university although this would raise issues of security etc. (Doing this might strengthen links between alumni and the university.)

Some typical sample statements from the content analysis that deal with OSS are:

PU-TP-OSS: Consider **Open Source Software** [in reference to cost saving measures]

UK-TP-OSS: Identify a UK-led IT commercialization/**open source** project to support the goals of the university's strategic plan

BU-TP-OSS: Establish a formal mechanism for student (and faculty) **participation** in **Open Source Software** development for educational purposes.

NU-TP-OSS: Based on **open- source** code and using security event notices from security industry consortiums, these applications will improve our auditing and reporting capabilities in support of regulatory and policy compliance.

UMCP-TP-OSS: A number of other disciplines within higher education are being impacted by **open source**/community **source**, including learning technology software.

Some typical sample statements from the content analysis that deal with Open

Teaching and Learning are:

ASU-TP-OT&L: Finally, much discussion and debate is occurring in the community on the topics of MOOCs (massively **open** online courses) and e-textbooks and their impact on the cost and effectiveness of a university education. While ASU's strategy around each of these issues is still evolving, those strategies have clear implications for the **technology** support and service environment.

BU-TP-OT&L: Greater **openness** can, I believe, improve the processes of teaching and learning and would certainly facilitate a greater global contribution by Brown.

BU-TP-OT&L: Require all Brown syllabi to be **open** online all the time to students and faculty

NU-SP-OT&L: The courses will be available **free** via the web and will include Understanding Media by Understanding Google and Every- thing is the Same: Modeling Engineered Systems.

UV-FH-OT&L: The recording may not be reproduced or uploaded to publicly **accessible** web environments. [in reference to preventing unauthorized class recordings by students to be published]

An interesting note about the last sample statement (UV-FH-OT&L) is that it is the only statement found that appeared to be phrased as a barrier statement, but it did not directly deal with openness, and therefore was not formally evaluated for policy role.

Some typical sample statements from the content analysis that deal with Other Areas of Openness are:

ASU-SP-O: Open Data: There is increasing demand for people who are able to **access** and utilize **open** data **sources**, manage large public databases, conduct appropriate analysis on large data sets, and use big data in practice.

BU-SP-O:Freedom: Brown's highly **collaborative** culture in which faculty work across academic boundaries and students are **free** to explore subject areas across the curriculum is facilitated by the physical proximity of classrooms, faculty, and academic support, within an easily walkable distance.

BU-TP-O: Definitional: If an individual, for example, can obtain information without restrictions based on price, status, or **access** to a particular technology, that information is more **open** than if, for example, a subscription is required to obtain **access** or the information is only available using a particular software program.

BU-TP-O: Definitional: This increase in the "**accessibility**" and "responsiveness" of information, processes, and institutions resulting from the rise of the Internet (and the fact that a billion people are now connected to it) has led to new ways of thinking about, and created new possibilities for, higher education.

BU-TP-O: General Support: Greater **openness** facilitates an institution's efforts to discover and remedy weaknesses in itself.

BU-TP-O: General Support: It was greater **openness** at research institutions that underlay the worldwide collaboration that resulted in decoding the human genome with scientists posting research results immediately, **accessible** to anyone interested.

BU-TP-O: General Support: Brown, with its recent history of successful innovation, and its adoption of a student-centered educational model, is better positioned than its principal competitors to examine the possibilities for **openness** and **collaboration** thoughtfully and to adopt them where beneficial.

Research Question Three

What is the policy role (enabler, barrier, neutral) of the policy statements related to openness?

Policies can act as enablers, barriers, or neutrally in the implementation of an innovation (Surry et al., 2009). As discussed in Chapter One, in terms of this study, an enabler statement is one that makes the implementation of openness more possible or provides it with the necessary power or opportunity to occur. A barrier statement acts as an obstruction or other impediment serving to prevent the implementation of openness. A neutral statement then, addresses openness, but serves neither to enable nor block the implementation of openness. For this study, the policy role of a statement is a determination of its function as an enabler, neutral, or barrier statement made by the evaluator. Statements were only evaluated for policy role if they directly addressed

openness. I did not find any barrier statements in the policy documents that directly addressed openness. As mentioned in the last section, the only relevant statement that even resembled barrier type language in the content analysis was UV-FH-OT&L, although it was not formally evaluated for policy role.

There were a total of 130 statements related to the implementation of openness identified in the content analysis. Of these, 111 (85%) directly addressed openness. As shown in Table 22, 46 (41%) of the 111 were enabler statements, and 65 (59%) were neutral statements. There were no barrier statements. Private institutions generated 103 relevant statements. Eighty-eight (85%) of these directly dealt with openness. Of these 88 direct statements, 36 (41%) were enabler statements, and 52 (59%) were neutral. Therefore, private institutions generated 78% of all enabler statements, and 80% of all neutral statements, for a total of 79% of all direct statements. Twenty-three (85%) of the 27 relevant statements generated by public institutions dealt directly with openness. Of these 23, 10 (43%) were enabler statements, and 13 (57%) were neutral statements. Therefore, private institutions generated 22% of all enabler statements and 20% of all neutral statements for a total of 21% of all direct statements.

Table 22

Policy Role of Direct Statements by Strata

Strata	Enabler	%	Neutral	%	Barrier	%	Total	%
Private Institutions	36	78%	52	80%	0	0%	88	79%
Public Institutions	10	22%	13	20%	0	0%	23	21%
Total	46	41%	65	59%	0	0%	111	100%

Excluding Brown University, there were a total of 42 relevant statements, of which 31 (74%) dealt directly with openness. The number of statements for public institutions remains the same as above. As shown in Table 23, of the 15 statements generated by private institutions excluding Brown University, eight (53%) dealt directly with openness. Of these 8, seven (88%) were enabler statements, and one (12%) was a neutral statement. Therefore, private institutions excluding Brown University account for 41% of all enabler statements and 7% of all neutral statements. Excluding all statements from Brown University, private institutions generated 26% (8) of all direct statements, and public institutions generated 74% (23) of all 31 direct statements.

Now I will sort these data by policy document as shown in Table 24. Of the total 111 direct statements, 13 (12%) of them were found in Faculty Handbooks. Of these, 3 (23%) were neutral and 10 (77%) were enabler statements. Strategic Plans contained 5 (4%) of the 111 statements. Of these, 2 (40%) were neutral, and 3 (60%) were enabler statements. Technology Plans contained 93 (84%) of the 111 statements that directly addressed

openness. Of these, 60 (70%) were neutral statements, and 33 (30%) were enabler statements.

Table 23

Policy Role of Direct Statements by Strata Excluding Brown University

Strata	Enabler	%	Neutral	%	Barrier	%	Total	%
Private Institutions	7	41%	1	7%	0	0%	8	26%
Public Institutions	10	59%	13	93%	0	0%	23	74%
Total	17	55%	14	45%	0	0%	31	100%

Table 24

Policy Role of Direct Statements by Policy Document

Policy Document	Enabler	%	Neutral	%	Barrier	%	Total	%
Faculty Handbook	10	21%	3	5%	0	0%	13	12%
Strategic Plan	3	6%	2	3%	0	0%	5	5%
Technology Plan	33	70%	60	92%	0	0%	93	83%
Total	47	41.5%	65	58.5%	0	0%	111	100%

Excluding Brown University, there were 31 total statements directly dealing with openness in the policy documents. The number of statements in the Faculty Handbook and Strategic Plan remain the same as above. As shown in Table 25, there were 13 (42%)

direct statements in the Technology Plan without Brown University. These are made up of 9 (69%) neutral statements and 4 (31%) enabler statements.

Table 25

Policy Role of Direct Statements by Policy Document Excluding Brown University

Policy Document	Enabler	%	Neutral	%	Barrier	%	Total	%
Faculty Handbook	10	59%	3	21.3%	0	0%	13	42%
Strategic Plan	3	18%	2	14.3%	0	0%	5	16%
Technology Plan	4	23%	9	64.3%	0	0%	13	42%
Total	17	55%	14	45%	0	0%	31	100%

As shown in Table 26, there were 23 statements that directly dealt with openness in public institutions: nine (39%) in Faculty Handbooks, two (9%) in Strategic Plans, and 12 (52%) in Technology Plans. Of the nine statements in Faculty Handbooks, two (22%) were neutral, and seven (68%) were enabler statements. Of the two in Strategic Plans, both (100%) were neutral statements. Of the 12 in Technology Plans, nine (75%) were neutral, and three (25%) were enabler statements.

As shown in Table 27, there were 88 total statements dealing directly with openness in private institutions: four (5%) in Faculty Handbooks, three (3%) in Strategic Plans, and 81 (92%) in Technology Plans. For Faculty Handbooks, one (25%) of the statements was neutral, and three (75%) were enablers. In Strategic Plans, the three (100%) statements

were enabler statements. In Technology Plans, 51 (63%) statements were neutral, and 30 (37%) of statements were enabler statements.

Table 26

Policy Role of Direct Statements by Policy Document in Public Institutions

Policy Document	Enabler	%	Neutral	%	Barrier	%	Total	%
Faculty Handbook	7	70%	2	15.5%	0	0%	9	39%
Strategic Plan	0	0%	2	15.5%	0	0%	2	9%
Technology Plan	3	30%	9	69%	0	0%	12	52%
Total	10	43%	14	45%	0	0%	23	100%

Table 27

Policy Role of Direct Statements by Policy Document in Private Institutions

Policy Document	Enabler	%	Neutral	%	Barrier	%	Total	%
Faculty Handbook	3	8.3%	1	2%	0	0%	4	5%
Strategic Plan	3	8.3%	0	0%	0	0%	3	3%
Technology Plan	30	83.3%	51	98%	0	0%	81	92%
Total	36	41%	52	59%	0	0%	88	100%

I will now summarize the data by school. Table 28 shows the directness of the statements for each institution and the percentage each makes of the total statements by

the institution. One hundred-eleven (85%) of all of the relevant statements directly addressed openness. Thirteen (81%) of the 16 institutions had direct statements. Georgetown University, Northwestern University, and University of Miami had only indirect statements on openness.

Table 28

Combined Institutional Ranking by Number of Relevant Statements

Institution	Indirect Statements		Direct Statements		Total
	#	%	#	%	
Arizona State University	1	33%	2	67%	3
Brandeis University	1	50%	1	50%	2
Brown University	8	9%	80	91%	88
Columbia University in New York	0	0%	1	100%	1
Georgia Institute of Technology	2	18%	9	82%	11
Georgetown University	2	100%	0	0%	2
Northwestern University	0	0%	3	100%	3
Oregon State University	0	0%	1	100%	1
Princeton University	2	50%	2	50%	4
Purdue University	0	0%	1	100%	1
Tulane University	1	50%	1	50%	2
University of Kentucky	0	0%	1	100%	1
University of Maryland-College Park	0	0%	6	100%	6
University of Miami	1	100%	0	0%	1
University of Tennessee	0	0%	3	100%	3
University of Virginia	1	100%	0	0%	1
Total	19	15%	111	85%	130

Table 29 shows the policy role for schools with direct statements. Of the 13 schools with direct statements, 5 had only neutral statements. Arizona State University, Columbia

University in New York, Oregon State University, University of Kentucky, and University of Tennessee had no enabler statements.

Table 29

Neutral and Enabler Statements by Combined Institution

Institution	Neutral Statements		Enabler Statements		Total
	#	%	#	%	
Arizona State University	2	100%	0	0%	2
Brandeis University	0	0%	1	100%	1
Brown University	51	%	29	%	80
Columbia University in New York	1	100%	0	0%	1
Georgia Institute of Technology	2	%	7	%	9
Oregon State University	1	100%	0	0%	1
Northwestern University	0	0%	3	100%	3
Princeton University	0	0%	2	100%	2
Purdue University	0	0%	1	100%	1
Tulane University	0	0%	1	100%	1
University of Kentucky	1	0%	0	100%	1
University of Maryland-College Park	4	67%	2	33%	6
University of Tennessee	3	100%	0	100%	3
Total	65	59%	46	41%	111

Table 30 shows the number of enabler statements for each of the eight schools in the sample with enabler statements. Brown University accounts for 63% of all enabler statements in the sample, while Georgia Institute of Technology accounts for 15%. Together, the two schools account for 78% of all enabler statements. The mean number

of statements per school excluding Brown University and Georgia Institute of technology is 1.66 statements per school.

Table 30

Enabler Statements by Institution

Institution	# of Enabler Statements	% of Total Enabler Statements
Brandeis University	1	2%
Brown University	29	63%
Georgia Institute of Technology	7	15%
Northwestern University	3	7%
Princeton University	2	4%
Purdue University	1	2%
Tulane University	1	2%
University of Maryland-College Park	2	4%
Total	46	100%

Table 31 shows the number of enabler statements and percentage of total for each institution excluding Brown University. Here, 59% of all enabler statements are accounted for by Georgia Institute of Technology and Northwestern University, and the distribution between the other institutions appears somewhat more balanced.

Table 31

Enabler Statements by Institution Excluding Brown University

Institution	# of Enabler Statements	% of Total Enabler Statements
Brandeis University	1	6%
Georgia Institute of Technology	7	41%
Northwestern University	3	18%
Princeton University	2	12%
Purdue University	1	6%
Tulane University	1	6%
University of Maryland-College Park	2	12%
Total	17	100%

I will now discuss the data by area of openness. There were 111 statements that dealt directly with openness. As shown in Table 30, Forty-six (41%) of these were enabler statements. As shown in Tables 32 and 33, in the five areas of openness, there were 20 (18%) statements dealing with OA, 9 (8%) statements dealing with Open Content, 17 (15%) statements dealing with OSS, 9 (8%) statements dealing with Open Teaching and Learning, and 56 (51%) statements dealing with Other Areas of Openness. The statements dealing with OA consisted of six (30%) neutral statements, and 14 (70%) enabler statements. There were five (56%) neutral statements and four (44%) enabler statements dealing with Open Content. 11 (65%) neutral and six (35%) enabler

statements made up the statements on OSS. For Open Teaching and Learning, there were five (56%) neutral and four (44%) enabler statements. For Other Areas of Openness, 38 (68%) statements were neutral, and 18 (32%) were enabler statements.

Table 32

Policy Role of Statements by Area of Openness

Policy Role	OA	OC	OSS	OT&L	Other	Total
Enabler	14	4	6	4	18	10
Neutral	6	5	11	5	38	4
Barrier	0	0	0	0	0	1
Total	20	9	17	9	56	15

Table 33

Percent of Policy Role of Statements by Area of Openness

Policy Role	OA %	OC %	OSS %	OT&L%	Other %	Total%
Enabler	70%	44%	35%	44%	32%	41%
Neutral	30%	56%	65%	56%	68%	59%
Barrier	0%	0%	0%	0%	0%	0%
Total	18%	8%	15%	8%	51%	100%

There are 31 total direct statements when Brown University is excluded from the data. Seventeen (55%) of these were enabler statements, and 14 were neutral, with zero barrier statements. As shown in Tables 34 and 35, there were 10 (32%) statements dealing with OA, six (19%) for Open Content, 10 (32%) for OSS, 4 (13%) for Open Teaching and Learning, and 1 (4%) for Other Areas of Openness. There was one (10%) neutral statement and nine (90%) enabler statements for OA. For Open Content there were three (50%) neutral and three (50%) enabler statements. For OSS there were seven (70%) neutral statements and three (30%) enabler statements. For Open Teaching and Learning there were two (50%) neutral and two (50%) enabler statements, and for Other Areas of Openness there was one (100%) neutral statement.

Table 34

Policy Role of Statements by Area of Openness Excluding Brown University

Policy Role	OA	OC	OSS	OT&L	Other	Total
Enabler	9	3	3	2	0	17
Neutral	1	3	7	2	1	14
Barrier	0	0	0	0	0	0
Total	10	6	10	4	1	31

Table 35

Percent Policy Role of Statements by Area of Openness Excluding Brown University

Policy Role	OA %	OC %	OSS %	OT&L %	Other %	Total %
Enabler	90%	50%	70%	50%	0%	55%
Neutral	10%	50%	30%	50%	100%	45%
Barrier	0%	0%	0%	0%	0%	0%
Total	32%	19%	32%	13%	3%	100%

As shown in Tables 36 and 37, for private institutions there were 88 total statements directly dealing with openness. Thirty-six (41%) of these were enabler statements. Of these, there were 13 (15%) dealing with OA, 5 (6%) dealing with Open Content, 8 (9%) dealing with OSS, 7 (8%) dealing with Open Teaching and Learning, and 55 (62%) dealing with Other Areas of Openness. There were 5 (38%) neutral and 8 (62%) enabler statements for OA, 3 (60%) neutral and 2 (40%) enabler statements for Open Content, and 4 (50%) neutral and 4 (50%) enabler statements for OSS. There were also 3 (43%) neutral and 4 (57%) enabler statements for Open Teaching and Learning, and 37 (67%) neutral and 18 (33%) enabler statements for Other Areas of Openness.

Table 36

Policy Role of Statements by Area of Openness for Private Institutions

Policy Role	OA	OC	OSS	OT&L	Other	Total
Enabler	8	2	4	4	18	36
Neutral	5	3	4	3	37	52
Barrier	0	0	0	0	0	0
Total	13	5	8	7	55	88

Table 37

Percent Policy Role of Statements by Area of Openness for Private Institutions

Policy Role	OA %	OC %	OSS %	OT&L %	Other %	Total%
Enabler	62%	40%	50%	57%	33%	41%
Neutral	38%	60%	50%	43%	67%	59%
Barrier	0%	0%	0%	0%	0%	0%
Total	15%	6%	9%	8%	62%	100%

As shown in Tables 38 and 39, for private institutions excluding Brown University, there were a total of eight statements directly dealing with openness. Seven (88%) of these were enabler statements. Of these, there were three (38%) dealing with OA, two (25%) dealing with Open Content, one (12%) dealing with OSS, two (25%) dealing with Open Teaching and Learning, and none dealing with Other Areas of Openness. Three

(100%) of the OA statements were enabler statements. One (50%) of the Open Content Statements were neutral, and one (50%) was an enabler. The one (100%) statement on OSS was an enabler, and both (100%) statements dealing with Open Teaching and Learning were enabler statements.

Table 38

Policy Role of Statements by Area of Openness for Private Institutions Excluding Brown University

Policy Role	OA	OC	OSS	OT&L	Other	Total
Enabler	3	1	1	2	0	7
Neutral	0	1	0	0	0	1
Barrier	0	0	0	0	0	0
Total	3	2	1	2	0	8

As shown in Tables 40 and 41, there were 23 statements directly dealing with openness at public institutions. Of these 10 (44%) were enabler statements. For the areas of openness, seven (30%) of these dealt with OA, four (17%) with Open Content, nine (39%) with OSS, two (10%) with Open Teaching and Learning, and one (4%) with Other Areas of Openness. Of the statements dealing with OA, one (14%) was neutral, and six (86%) were enabler statements. For Open Content, two (50%) were neutral, and two (50%) were enabler. Seven (78%) of the statements dealing with OSS were neutral, and two (22%) enabler. Both (100%) of the statements dealing with Open Teaching and

Learning were neutral statements, as well as the one (100%) statement dealing with Other Areas of Openness.

Table 39

Percent Policy Role of Statements by Area of Openness for Private Institutions Excluding Brown University

Policy Role	OA %	OC %	OSS %	OT&L %	Other %	Total%
Enabler	100%	50%	100%	100%	0%	88%
Neutral	%	50%	0%	0%	0%	12%
Barrier	0%	0%	0%	0%	0%	0%
Total	38%	25%	12%	25%	0%	100%

Table 40

Policy Role of Statements by Area of Openness for Public Institutions

Policy Role	OA	OC	OSS	OT&L	Other	Total
Enabler	6	2	2	0	0	10
Neutral	1	2	7	2	1	13
Barrier	0	0	0	0	0	0
Total	7	4	9	2	1	23

Table 41

Policy Role of Statements by Area of Openness for Public Institutions

Policy Role	OA %	OC %	OSS %	OT&L %	Other %	Total %
Enabler	86%	50%	22%	0%	0%	44%
Neutral	14%	50%	78%	100%	100%	56%
Barrier	0%	0%	0%	0%	0%	0%
Total	30%	17%	39%	10%	4%	100%

I will now provide some typical enabler and neutral statements as found in the content analysis. These are not necessarily representative of “good” or “bad” statements; however, I tried to select some of the more interesting ones to share here in the text. I coded these statements using simple codes to facilitate searching the document. The codes use the institution’s initials, the initials of the policy document, and the area of

openness to identify the statement. For example, a statement from Arizona State University on Open Access found in the Technology Plan would be coded as: ASU-TP-OA. I also added the bold font to emphasize the keyword(s) from the search. It was not present in the original statements. The full list of coded statements including these statements are available in Appendices D and E.

Some typical neutral statement samples from the content analysis are:

ASU-TP-OT&L: Finally, much discussion and debate is occurring in the community on the topics of MOOCs (massively **open** online courses) and e-textbooks and their impact on the cost and effectiveness of a university education. While ASU's strategy around each of these issues is still evolving, those strategies have clear implications for the **technology** support and service environment.

BU-TP-OA: In many cases faculty members are unaware of rights that they can retain to share their research **freely** even if they choose to publish in proprietary journals that limit access to their subscribers.

CUNY-FH-OC: Certain printed materials are considered in the public domain and, therefore, may be **freely** copied.

Some typical enabler statement samples from the content analysis are:

PrU-FH-OA: This authorization is irrevocable, non-assignable, and may be amended by written agreement in the interest of further protecting and promoting the spirit of **Open Access**.

NU-SP-OT&L: Coursera partnership. Northwestern is partnering with Coursera on developing a number of massive online **open** courses (MOOCs).

GIT-FH-OA: The Provost's Office or designate will make the scholarly article available to the public in an **open-access** institutional repository.

Research Question Four

Is there a relationship in institutional policy documents between the use of keywords related to openness and the types of statements related to the implementation of openness as defined by the rubric?

As discussed in Chapter Three, the a priori keyword list consists of eight terms that are commonly found in the literature and discussions associated with the concepts and areas of openness. The terms, also compiled in Table 3, are Access, Collaborat*, Free*, Licens*, Open*, Participat*, *Source, and Technolog*. Each of these keywords were found numerous times in the study; however not every institution used all keywords.

Figure 17 shows a comparison of the total keyword counts for private and public institutions. In public institutions, the term Access appeared 56% more, *Source 54% more, and Technolog* 71% more than in private institutions using raw number of appearances. Bear in mind that there were 30 public institutions compared with only 14 private institutions.

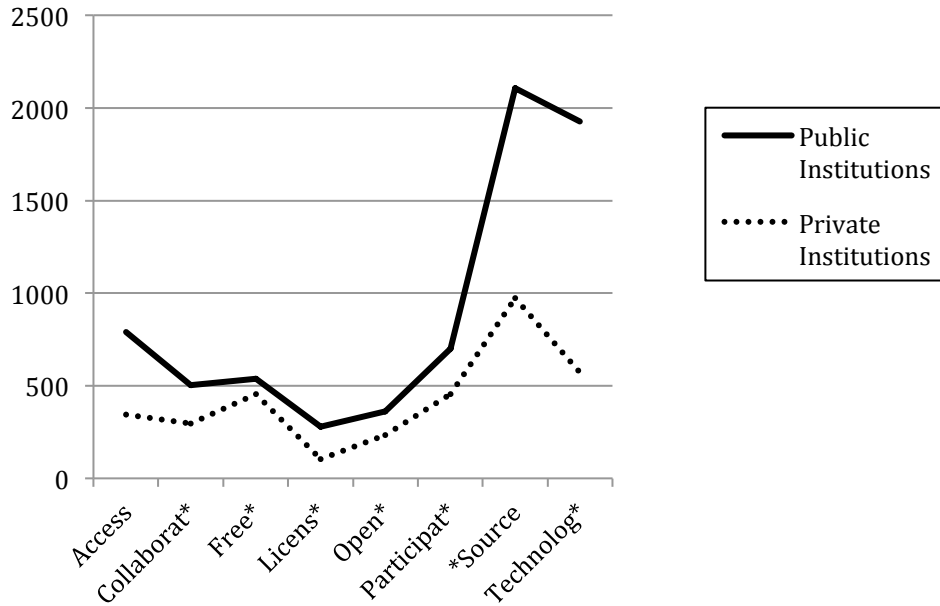


Figure 17. Total Keyword Use by Public and Private Institutions.

Figure 18 shows a comparison of the mean number of keyword uses per institution in private and public institutions. These numbers are more comparable than the raw number of keyword uses because they account for the number of institutions in each strata of the sample. On average, private institutions used the term Free* 45% more than public institutions, and public institutions used the term technolog* 36% more on average than private institutions.

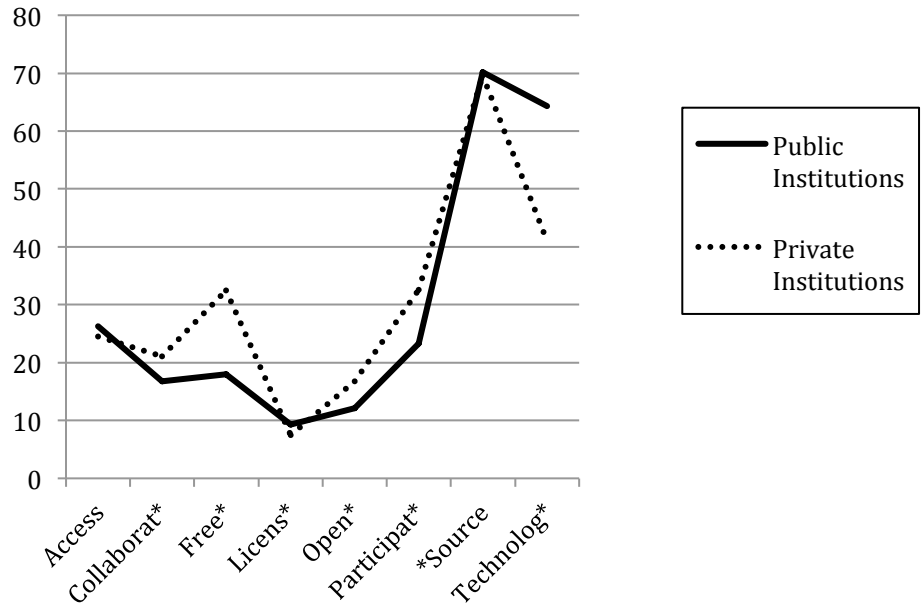


Figure 18. Mean Keyword Use by Public and Private Institution.

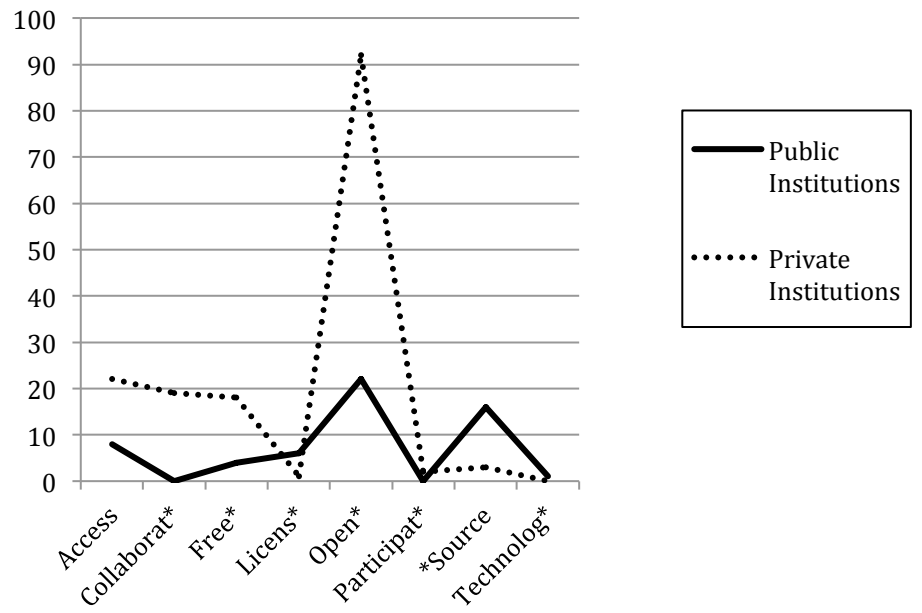


Figure 19. Total Relevant Keyword Use by Public and Private Institutions.

Figure 19 shows the comparison of total use of keywords that were relevant to the study by private and public institutions. There were eight private and eight public institutions in the sample that had relevant statements and therefore produced a rubric score. Private institutions used the term open* in a manner relevant to the study 76% more than public institutions. These data include the outlier Brown University.

Figure 20 shows the same comparison of relevant keywords between private and public institutions excluding Brown University. Without Brown University, free* is the only term used more by private institutions than by public institutions. Free* was used in a relevant manner 71% more in private institutions excluding Brown University than in public institutions. Public institutions used the terms access 75% more, open* 82% more, and *source 94% more than private institutions excluding Brown University.

The correlation between rubric score and the total number of keywords used at public institutions with rubric scores was non-significant. The correlation between rubric score and the total number of keywords used at private institutions with rubric scores was significant and strongly positive, $r(7) = .787$, $p = .021$; however, when the Brown University data are excluded there is no correlation between the keywords and rubric scores.

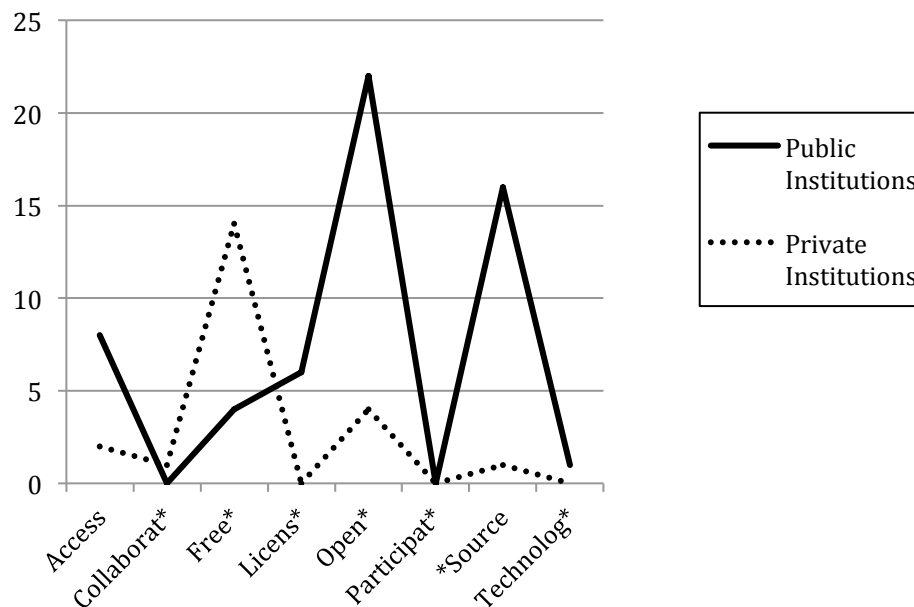


Figure 20. Total Relevant Keyword Use by Public and Private Institutions Excluding Brown University.

The ratios for total keyword by rubric score for private institutions can be seen in Table 42. The ratios for total keyword by rubric score for public institutions can be seen in Table 43. The ratios represent the number of keywords used at the institution for each one point on the rubric. There were 5,112 total keywords used at institutions with non-zero rubric scores, and the combined ratio for number of keywords used altogether by the total points on all non-zero rubrics (79) is 65:1. In other words, considering all institutions with non-zero rubric scores, 65 keywords were used for every one point of rubric score.

Table 42

Total Keyword Count, Rubric Score, and Their Ratio for Private Institutions with Non-Zero Rubric Scores

Institution	Total # of Keywords	Rubric Score	Ratio
Brandeis University	206	5	41:1
Brown University	556	17	33:1
Columbia University in New York	374	3	125:1
Georgetown University	212	2	106:1
Northwestern University	244	8	31:1
Princeton University	143	4	36:1
Tulane University	245	4	61:1
University of Miami	212	1	212:1
Total	2,192	44	50:1

Chi-square tests could not be conducted effectively because the expected values for the cells were too low. Typically, chi square analysis is not recommended when expected values are smaller than five (McDonald, 2009).

Table 43

Total Keyword Count, Rubric Score, and Their Ratio for Public Institutions with Non-Zero Rubric Scores

Institution	Total # of Keywords	Rubric Score	Ratio
University of Maryland-College Park	540	6	90:1
Arizona State University	256	6	43:1
Georgia Institute of Technology	369	9	41:1
Oregon State University	153	3	51:1
Purdue University	379	4	95:1
University of Tennessee	943	3	314:1
University of Kentucky	89	3	30:1
University of Virginia	191	1	191:1
Total	2,920	35	83:1

Policy Statement Recommendations

One of the specific goals for this study was to produce recommendations for other institutions looking to address openness in their policies. The creation of a set of idealized policy statements that address openness as an enabler, as a barrier, and neutrally is intended to satisfy this goal, and is discussed in this section. The actual idealized policy statements are located in Appendices G, H, and I.

The content analysis revealed a number of interesting enabler and neutral statements, but no barrier statements. The original intent for this study was to use the best statements

found in the content analysis as part of the set of idealized policy statement recommendations. I did find 18 statements in the content analysis that resonated as good examples for the idealized set, but these and many other statements did not appear to be phrased generally enough to be broadly useful for an organization looking to implement policies in their own institutions. The determination of a statement as best or most appropriate example was a judgment of the reviewer using the criterion outlined in the data analysis section in Chapter Three. As described in the Recommendations section in Chapter Three, the fallback plan wherever a best-example statement could not be found in the content analysis results was for me to generate an idealized policy statement. The idea behind this was to provide institutions looking to address the implementation of openness in their organizations with example policy statements that address openness from the different policy roles and that fit into the various policy documents. Ideally, these would have all been existing statements from actual institutions; however, because the statements returned in the content analysis were not broadly applicable, I had to resort to the fallback plan of generating the statements.

I decided that providing the existing selection of 18 best-found policy statements, even though they don't quite seem universal, along with generating a full set of 45 idealized policy statements would be the best course of action. Therefore, I have listed the 18 statements in this section and used them to inspire the generation of the entire set of 45 idealized policy statements in the appendices. Using this method, people looking to implement openness in their institutions will now have a total of 63 recommendation statements to draw upon, rather than only 45. While not within the scope of this study, it

is possible that future researchers could analyze these statements and ensure their validity.

Regarding the idealized statements in the Appendices, I generated 45 idealized policy statements altogether. There are 15 policy statements per each of the three policy documents (Faculty Handbook, Strategic Plan, and Technology Plan). Within each policy document, there are five statements per policy role (enabler, barrier, neutral). Within each policy role, there is one statement per area of openness (OA, Open Content, OSS, OT&L, Other Areas of Openness). The idealized policy statements are intended to be broadly applicable and to provide grounding or instruction where appropriate. Institutions seeking to utilize the statements should replace the words “this institution” with the name of their organization and customize the statement to the specific context. People looking to use either the idealized policy statements or the best-found statements for implementation in their own institutions should consider both lists of policy statements and modify them to fit the specific implementation context.

The 18 policy statements that resonated as the most representative or best example statements for each policy role from the content analysis are listed next.

The best-found statements with a neutral policy role are:

ASU-TP-OT&L: Finally, much discussion and debate is occurring in the community on the topics of MOOCs (massively **open** online courses) and e-textbooks and their impact on the cost and effectiveness of a university education. While ASU’s strategy around each of these issues is still evolving, those strategies have clear implications for the **technology** support and service environment.

UK-TP-OSS: Identify a UK-led IT commercialization/**open source** project to support the goals of the university’s strategic plan.

UMCP-TP-OT&L: In 2012, the potentially disruptive force and movement toward some new online learning systems (Massive **Open** Online Courses or MOOCs, e.g., edX,

Coursera, and Udacity) and new learning practices (flipping classes, pervasive uses of multimedia), provides motivation for UMD to explore their benefits and drawbacks and to prepare faculty and students for the most effective uses of online pedagogy.

The best-found statements with an enabler policy role are:

GIT-FH-OA: The Provost will charge an **Open Access** Policy and Implementation Committee with policy interpretation and with developing a plan that renders compliance with the policy as convenient for the faculty as possible.

PU-TP-OSS: Consider **Open Source Software** [in reference to cost saving measures].

BU-TP-OA: Establish a faculty committee to examine whether hiring, tenure, and funding decision processes inhibit **collaboration**, the development of database science, and the use of **Open Access** journals.

BU-TP-OA: Encourage all faculty research funding proposals to include funding for publication/dissemination/data sharing that would support publication in **Open Access** journals.

BU-TP-OA: Establish a small fund to support **Open Access** publication of Brown research deemed to be of greatest interest to developing countries.

BU-TP-OA: Establish a committee to make a recommendation as to whether Brown should require that all faculty research results be deposited in an **open** electronic Brown repository and, if so, under what conditions, as well as what steps Brown should take to ensure the preservation of materials created at Brown.

BU-TP-OSS: We will employ **open** standards and best practices where feasible and define a university technology architecture.

BU-TP-OSS: We will favor technology options that embrace **open** standards and best practices rather than proprietary approaches.

BU-TP-OSS: Establish a formal mechanism for student (and faculty) **participation** in **Open Source Software** development for educational purposes.

BU-TP-OT&L: Require all Brown syllabi to be **open** online all the time to students and faculty.

PrU-FH-OA: The members of the Faculty of Princeton University strive to make their publications **openly accessible** to the public.

TU-FH-OA: In turn, faculty members are strongly encouraged to make the results of their research **freely** available to students, colleagues, and the public.

I rated the following two statements as indirect because the phrasing made them somewhat ambiguous in the context of the policy documents; however, they would be good examples of enabler statements if they used more specific or explicit language around openness.

GIT-SP-OC: Intellectual property policies and practices at Georgia Tech will be as **open** and non-restrictive as possible, and assistance will be provided for companies that wish to engage the Institute and its resources.

BU-TP-OT&L: The opportunities---to provide greater **access** to information and to enable contributions from all the members of the Brown communities- are consistent with Brown's student centered philosophy.

Similarly, I rated the following statement as indirect because the phrasing made it unclear whether they were referring specifically to openness or to something else.

Although it was not evaluated for policy role, it is the only statement from the content analysis that is phrased as a barrier statement. If more specific or explicit language dealing with openness was used, it would be a good example of a barrier statement.

UV-FH-OT&L: The recording may not be reproduced or uploaded to publicly **accessible** web environments. [in reference to preventing unauthorized class recordings by students to be published].

Chapter Summary

In this chapter, I described the results of the content analysis in response to each of the research questions in the study. I also provided demographic data for the sample including institutional rankings in the Carnegie Classification System. While the use of this demographic information was largely outside of the scope of this study, it is now available for future researchers who are interested in replicating or extending the study, or in examining these data in consideration to their demographic profiles. I provided

sample statements and data breakdowns for each of institution in the sample with statements related to the implementation of openness. I described the outlier Brown University, and how it influenced the data in different areas. I also provided best-found policy statements from the content analysis and provided the set of idealized policy statements in the appendices.

Several findings seem especially interesting and important from these data. The first is that the practice of explicitly addressing openness in higher education policy documents does not seem to be widespread. For example, only 16 (36%) of the 44 institutions in the sample even had statements related to the implementation of openness in their institutional policy documents. Additionally, of the 130 relevant statements I found, only 18 were close enough to serve as imperfect best-found example statements. Other statements from the content analysis may have mentioned openness in some manner, but may not have actually been a quality statement or mentioned openness in more than a cursory manner.

The second interesting finding is that there is wide variability in how and how much the institutions that do address openness actually do it. For example, 76.5% (99) of the 130 statements related to the implementation of openness were generated by only 2 (12.5%) of the 16 institutions that had relevant statements, as shown in Figure 10. As shown in table 26, of those 16 institutions that had statements related to the implementation of openness, only 13 actually had statements that dealt directly with openness. Of these, five only had neutral statements. As shown in Table 28, two of the eight schools with enabler statements are responsible for 78% (36) of all 46 enabler

statements. There was a mean number of 1.66 enabler statements per institution for the remaining contributing institutions.

The third interesting finding is that, aside from Brown University, there generally seems to be more attention to Open Access in policies than on Other Areas of Openness. As shown in Figure 11, the areas of Open Source Software, Open Content, and Open Teaching and Learning practices were addressed more equally, but not to the degree of OA. Could this be because one area is more visible, or is closer to the heart of the academic institution than others?

The fourth interesting finding is that it has become apparent throughout the evolution of this study that much of the case for or against openness has to do with the centeredness of the organization looking to implement it. Organizations that are focused on finances or efficiency, for instance, will make different decisions than ones that are focused on more Human-Centered Design approaches. Therefore, I feel it is important to examine the findings of this study from the lens of Human-Centered Design in an effort to better understand what the results may mean.

Finally, it is interesting that content analysis seems to be an effective method for obtaining evidence of institutional policies in higher education. While others have used content analysis methodology to look at policy before (Lemiengre, et al., 2008; Smith, et al., 2008; Hassink, et al., 2007), there are not many content analysis studies looking at policy in higher education. Other content analysis studies have set a precedent for this one (Daugbjerg et al., 2009; Roberge, 2011; Timmerman & Metcalfe, 2009) as discussed in Chapter Three, but there have been no previous studies examining higher education policy documents for statements related to the implementation of openness. Therefore,

this study sets forth a viable example of a method for examining policy documents through content analysis and for producing practical recommendations for use in implementation that has never been done before. Each of these elements were discussed further in Chapter Five.

CHAPTER V

DISCUSSION

In this chapter, I reflected on the findings presented in Chapter Four, provided my conclusions from the study, reflected on my time in graduate school, and provided a chapter summary. In Chapter Four, I described the results of the content analysis and identified five primary findings of the study. The five findings included the discovery that most of the higher education institutions in the sample did not seem to explicitly address openness in their policy statements. I also found that institutions in the sample that did address openness in their policy documents had a lot of variability in how and how much they address it. Additionally, I found that Open Access was addressed in the sample policy documents more than the Other Areas of Openness explored in this study and that there were almost the same amount of statements dealing with the areas of Open Content, Open Source Software, and Open Teaching and Learning in the policy documents. Perhaps most importantly, I found that the common thread of the various areas of openness seemed to be a drive to promote systems that preserve quality and function but were also freely accessible and usable by as many people as possible. This human-centered focus seems to be pervasive throughout the larger openness movement, but was evidenced in this study by the tendency of the more substantive policy statements to emphasize benefits of the policy to the students, faculty, or general public. Therefore, I

discussed each of the previous findings from a Human-Centered Design lens. Finally, I found that the content analysis method used in this study was an effective way to gather data on policies and statements related to the implementation of openness in higher education. In this chapter, I briefly described my thoughts on policies related to openness and the relationship with implementation. I also described the main findings in more detail, attempt to support them in the literature, and explore some responses to them. I provided recommendations for practice and recommendations for future research for each finding. Finally, I shared my experiences with this process and final conclusions, and ended with a chapter summary.

Openness Policies and Implementation

As discussed in Chapters One and Two, policies play a critical in the implementation of an innovation into an organization. Policies serve to guide and direct the behavior of the people within a system (Porter, 2012). They can serve as enablers, barriers, or neutrally toward the acceptance and use of an innovation within an organization (Surry et al., 2009). The policy environment in higher education is also particularly complex (Trowler, 2002a). Openness is an innovation. Therefore, it follows that the principles of implementation found in the literature would very likely apply to the implementation of openness as well. Concepts such as Rogers (2003) adoption model, Tarde's (1903) S-curve, and Ely's (1999) eight conditions for implementation should apply to the implementation of openness as well. These concepts may be useful in obtaining a sense of what stage the implementation process for openness in higher education is at.

Judging from the results of this study, policies related to the implementation of openness are not particularly abundant in higher education. This could be indicative of the implementation of openness being at the beginning of the S-Curve or in the early adopter stages of implementation. It could also mean that the facilitative conditions for implementing openness are not sufficiently in place in higher education. Higher education structures, cultures, and systems may not be encouraging of openness among the faculty and other people within the organization.

The relationship of policies to the implementation of openness is critical. I believe that having policies related to openness in place in higher education institutions is essential for signaling the stance and intentions of the institution about openness to the faculty and staff within the organization. Without this signaling, the people within the organization wishing to explore, experiment with, and implement openness are operating within an unclear and potentially risky situation. They may be fearful of unfavorable changes in their jobs or roles if they take the wrong actions, or feel that their efforts would be wasted or otherwise looked down upon. They may push for changes that do not fit within the culture, or become frustrated with the situation if they feel as if their efforts are not valued.

It is also risky for the institution not to have these policies in place. Regardless of the stance of the organization, there are now resources available to guide institutions in creating policies to address openness. Institutions that address openness in their policies would signal to the people within the organization the stance of the organization in regard to openness. Depending upon their nature and composition, these signals could cast the institution in a favorable light as a place where innovations are considered and

experimentation is welcomed. These types of innovation cultures have the potential to lead to real benefits and competitive advantages for the organizations that foster them.

Without policies that address openness, the people within the organization are left to guess about whether their desires and actions related to openness are acceptable to the institution or not. Without these policies in place, the institution could miss out on innovations or suffer the effects of blind decisions made by faculty in the absence of the policy's guidance, such as the examples discussed in Chapter Two. Institutions that do create policies related to openness will have clear guidance for the people within the organization that would signal more than a stance toward openness, but would also speak to the culture of the organization as a place that values (or does not value) innovation. It would signal faculty that experimentation and exploration of innovation is encouraged. I believe that the value of, and issues with, openness in many given situations will eventually be apparent to most people within higher education. I also believe that whether an organization is able to take advantage of these values and avoid the inevitable issues related to openness is to some degree going to be a factor of whether the institution determines and communicates its views and position toward openness. Policies are most likely the best way that institutions have right now to communicate these views and positions.

Discussion of Primary Findings

In this section, I discussed the main findings in more detail, and provided recommendations for practice and future research related to each finding. First, I addressed the realization that openness is really an effort in Human-Centered Design, and

attempted to provide evidence of this from the study and the literature. I also described the HCD process in this section. I then provided some recommendations for practice and for future research related to the finding. I discussed the remaining findings of the study through the lens of HCD using the same format used for discussing the first finding. I first described the finding and attempt to support it in the study and in the literature. Then I provided recommendations for practice and for future research related to each finding.

There were a variety of interesting findings that could be drawn from the results of this study. The data could be compared in a wide range of ways and be used to inform a variety of different research goals. For example, while it was outside of the scope of this study, it is possible to analyze the study results in light of the demographic information discussed in Chapter Four. The data could also be explored from a number of perspectives with the intent of obtaining more information to support different research questions. While exhaustive interpretation of the data would be interesting to pursue, I have focused on the five findings that I believe are the most interesting and the most relevant to the purposes of this study.

Main Finding: Openness is Human-Centered

In Chapter One, I defined openness as a system or product possessing transparency and freedom. At the beginning of this study, my focus on openness was primarily on the design, affordances, and characteristics of open systems and products. An evolution in my thinking about openness has led to the understanding that the pervasive thread of all openness is a human-centered focus. In hindsight, this evolution in thinking is really the culmination of many small epiphanies occurring over the years as I read through the

related books and literature, became involved in discussions about openness, presented on various aspects of openness, and observed the implementation and use of various approaches to openness. However, the moment of realization occurred as I was reading through the policy statements resulting from the study. Many of the statements were simple bullets, mentions of words, or somewhat abstract in how they dealt with openness, but many of the more substantial policy statements made mention of the benefits to the students, faculty or general public. Other statements focused on enabling collaboration or providing rights or resources to people that otherwise would not be available. I fully expected most, if not all, of the policy statements I found to emphasize the promotion and preservation of institutional finances, reputation, or efficiencies. What I actually found is that in many of the policy statements the concern seemed focused on the people, not the institution.

I have listed some policy statements from the study below that exemplify a human-centered concern. These retain the coding scheme used in the appendices. The first letter set identifies the institution. The second set of letters identifies the policy document, and the third set identifies the area of openness. I added the bold emphasis to highlight the keywords identified in the statements.

BU-TP-O: General Support: Greater **openness** allows an institution to demonstrate its strengths, creating more opportunities for both faculty and students.

BrU-SP-OT&L: Indeed the research informs the teaching, which is characterized by intense **collaboration** between professors and students that is often interdisciplinary in scope and frequently transcends the classroom.

GIT-FH-OA: The Provost's Office or designate will make the scholarly article available to the public in an **open-access** institutional repository.

GU-FH-OC: To this end, copyright assures authors the right in their original expression, but encourages others to build **freely** upon the ideas and information conveyed by a work.

PrU-FH-OA: The members of the Faculty of Princeton University strive to make their publications **openly accessible** to the public.

TU-FH-OA: In turn, faculty members are strongly encouraged to make the results of their research **freely** available to students, colleagues, and the public.

I now view the larger movement behind openness as a human-centered endeavor. I believe that nearly every honest manifestation of openness is at least intended to be for the good of the people. This is not to say that every manifestation of openness honestly embraces the values of the philosophy—people abuse the system, designs are flawed, greed gets in the way of implementation—but, I believe that the core of openness is about supporting and empowering humanity as a whole.

In seemingly every area of openness, there are efforts being made to create systems and products that are inclusive of all people. For example, one principle behind OA research can be summarized as the belief that “a commitment to the value and quality of research carries with it a responsibility to extend the circulation of such work as far as possible and ideally to all who are interested in it and all who might profit by it” (Willinsky, 2006, pp. xii). Brown and Adler (2008) emphasize that open education is as much about “building a community of students and scholars” as it is about making educational content accessible (p.26). The people are the focus and the intent is to connect them to each other and provide them with the benefits of the system or product.

Openness can empower the users of products and systems with the freedom and flexibility necessary to address individual needs in ways unforeseen by the designer. As discussed in Chapter Two, this empowerment is evidenced by the way that open licenses

such as the Creative Commons licenses or the GNU GPL grant affordances to users of open systems and products to revise and remix the content for their own purposes (Stallman, 1998, Wiley 2012b). Creators of a work or designers of a system can choose ahead of time whether and under what circumstances they are willing to share their efforts, and users are automatically granted the ability to use, share, and modify the works to fit their needs under the provisions of the license. This produces or adds to a system of community goods that people can draw upon in their own efforts. At its best, this body of community owned goods enables others to create more complex works than would otherwise be feasible because they are not having to create something from the ground up.

When the open licensing of an original work demands that derivative works be shared as well, the share-alike feature, a series of ripple effects can be generated from one shared product as new derivative products are created. This can potentially multiply the number of people that sharing one work can benefit by a large margin. For example, say George creates an extensive engineering report detailing an original robotics design and shares it online under an open license with a share-alike clause. Then, Charlie finds the report and uses it as the basis for building a workshop at his university that teaches the design process to a student design studio. Charlie would need to build guides and other materials that were derivatives of the original report. These would use a lot of the content from George's report, and as derivative works they would need to be shared under the same or a similar license as the report. Now, let's say that Sam learned the design process in Charlie's design studio and decided to modify the workshop materials in order to carry out teaching the design process in impoverished countries for the purpose of social

innovation. Not only would his materials be derivative of Charlie's, and therefore need to be shared under the same or a similar license, but it was all enabled in part by George sharing his report openly in the first place. This is an example of how one person sharing his or her work could have magnified and unforeseen benefits to the larger community. This process could also be magnified if an open dialogue among all of the parties were encouraged and enabled.

Many open systems and products are intentionally designed to maximize the customizability of any aspect of the product or system. For example, Simpson, Lautenschlager, and Mistree (1998) call for an open engineering approach to systems, hailing them as the path to competitive advantage in the age of information. It is possible that by designing for mass customization, open systems and products are in many ways more ready for use in the long tail economy described by Anderson (2006). From the perspective of a long tail economy, digital infrastructure allows organizations to shift toward selling more products and services that fall outside of the target of the mainstream consumer (Anderson, 2006). The long-tail model has also been applied to open education (Brown & Adler, 2008). This concept means that people are more able to access obscure book titles that would not be available in traditional bookstores because of lower sales, for instance. When combined with the flexibility of openness, it could also mean that other business models potentially thrive. For example, third parties could gain more opportunities for tailoring OSS software to meet the more obscure needs of certain smaller clients. Another possibility could be that a low cost movement for adding subtitles to openly licensed videos could be crowd-sourced and funded as a non-profit project.

People also commonly design open systems and products to avoid lock-in, promote flexibility, and ensure that the system cannot be easily imposed on others as the only option. While customized options can be fixed and used, open systems and products generally allow users to engage or disengage them at will, and often support the right of the people to take a copy of the product or system as their own. Many open products and systems are viewed as community property, belonging to the people. A manifestation of this affordance is the concept of forking an OSS project, where one group of developers takes a copy of the project and branches off into their own version, leaving two or more diverging software applications. This happened when the OSS project group maintaining the Open Office Software Suite forked to create the Libre Office software project. This method is touted as a fundamental mechanism for the sustainability of the OSS project community (Nyman, Mikkonen, Lindman, & Fougere, 2011).

Many of the characteristics of successful organizations are closely related to openness as well. For example, Peters and Waterman (1984) found eight themes that were consistent in successful corporations. These themes include having a bias for action, learning from the customers, providing autonomy and encouraging entrepreneurship, pushing for productivity through people, engaged management guided by values, attending to the core business focus, limiting the number of administrators and staff involved in decisions, and providing autonomy in some areas while staying close to values (Peters & Waterman). Many of these themes involve the communication, action, autonomy, mentoring, feedback, and service that are closely related to openness.

Openly licensing creative works also ensures that the work is freely available to the public, therefore limiting the ability of others to illegitimately monetize the work by

withholding access to it. As the copyright holder, the creator of a work is still free to monetize the work however he or she wishes. However, monetization options based on limiting access to open works are not often viable in this situation. Placing ads into the work, offering services based on the work, or providing special access to supplementary works or other content that is licensed differently are all possibilities for monetizing an openly licensed work.

I believe that these are all attempts to promote adaptable systems and products that are as accessible and beneficial to as many people as possible, while simultaneously preserving the quality and functionality of the traditional system or product. They are attempts to design and create systems, products, and processes that are human-centered. Systems, products, and processes can be designed based on a variety of dominant foci. The dominant focal point is the primary concern that most or all decisions relating to the process are based upon promoting or conserving. The focus of Human-Centered Design (HCD) is often contrasted with technology-centered designs or finance-driven designs, which push people to the periphery as the basis for decisions (Boy, 2013).

HCD, also called Design Thinking (Brown & Katz, 2009), is a design philosophy that puts the end-user first throughout the design and development cycle by attending to their limitations, wants, and needs, and then tailoring the solution to fit those factors (Migliore, 2012). HCD therefore involves basing all relevant decisions on what is thought best for the people involved, rather than basing these decisions on money, efficiency, technology, or other factors. In fact, HCD has made a powerful difference in creating systemic solutions and designing approaches to social innovations that can help eliminate poverty and benefit less-fortunate people (Brown & Wyatt, 2010).

Boy (2013) introduces the Technology, Organizations, and People (TOP) Model as a lens through which to view the elements of various innovations. He calls for the development of leaders who can innovate from the lens of the TOP Model for the sake of humanity; that is, people who can create, promote, or redesign various innovations that are both functional and operate in more human-centered ways. This TOP model is an interesting way to think about HCD. It provides a larger framework that shows the competing focal points of HCD. It is important that designers attempt to strike a balance between the needs and concerns of technology, organization, and people when they create solutions. Awareness of the relationship between these three components is critical for sustained organizational success.

The HCD process starts by having people examine the needs and desires of the people who an innovation is being designed for, the end-users. Human-Centered Designers then evaluate potential solutions for feasibility and viability through a three-phase process of information gathering, creating ideas and brainstorming, and prototyping (IDEO, 2008). The Human-Centered Design process phases are alternatively labeled the Hear, Create, Deliver phases (IDEO, 2008), the Discover, Ideate, Prototype phases (+ Acumen, 2014), or the Inspiration, Ideation, Implementation phases (Brown & Katz, 2009), depending upon the materials. Regardless of the labels, the processes are the same within the design process. I use the terms Discover, Ideate, and Prototype in this dissertation, because I believe they lend themselves more readily to what is involved in each phase than the other labels.

The Discover phase involves getting out into the field and observing, interacting, and talking with users in an effort to obtain a deeper understanding of their needs, barriers,

and constraints (IDEO, 2008; + Acumen, 2014; Brown & Katz, 2009). It is really about building empathy for the users and attempting to discover their needs properly. The point is to obtain as much information as possible about the actual needs of the user, how they will interact with the solution you create, and what context that interaction will take place in.

The Ideate phase involves the two stages of synthesis and brainstorming. Synthesis involves analyzing the data obtained in the Discover phase for sense-making and pattern identification. Brainstorming involves generating as many ideas as possible for potential solutions to the design issue (IDEO, 2008; + Acumen, 2014; Brown & Katz, 2009). Once these ideas have evolved and been narrowed through constraints set by the design team, the prototyping stage begins.

The Prototyping stage involves bringing an idea into the physical world and carrying it through iterative cycles of feedback and refinement. The two stages in this phase are prototyping and feedback. In the prototyping stage, designers build quick, rough, prototype models of the proposed solution so that the idea can be explored in new physical dimensions. The feedback stage involves obtaining input from others on the prototype and creating further iterations of the design until a more refined potential solution is obtained (IDEO, 2008; + Acumen, 2014; Brown & Katz, 2009).

Design can be thought of as a culture with its own framework of core ideas and practices that impact and underlie many other fields (Nelson & Stolterman, 2003). These core ideas include having a focus on the real world, maintaining the unique service relationship of designers to their clients, the use of the systems approach both as a mechanism which allows design to cut across field boundaries and as a framework in

which to build solutions, and a focus on holistic thinking in all areas of design. In systemic fields, the decisions made in the design process have implications for how the solution is implemented (Brown & Katz, 2009). This is because the design phase feeds the other phases in the process. Systemic thinking is an often-overlooked element in organizations that is also critical to creating a learning culture that excels at problem solving and innovation (Senge, 1990).

It may be clearer to consider this systemic feeding system in another design field: Instructional Design (ID). Instructional Design is commonly thought of as operating through the phases of Analysis, Design, Development, Implementation, and Evaluation (ADDIE) (Richey, Klein, & Tracey, 2011). Like HCD, Instructional Design requires practitioners to cultivate a “creative spirit” and innovate in order to avoid falling into routines or forgetting the core purpose of the design (McDonald, 2011). Because ID is a systemic field, the output from any one of these phases serves as input for another phase (Gagne, Briggs, & Wager, 1992; Dick, Carey & Carey, 2009). That is not to say that the phases are linear. They are often iterative, much like the HCD phases.

There are many parallels between HCD and ID, and there have been calls for instructional designers to better integrate human-centered approaches into their practice (Zaharias & Poulymenakou, 2006). HCD design perspectives have been described as important for generating innovative approaches to e-learning (Haslam & Misra, 2011). Additionally, many of the activities within the various phases overlap. For example, the Discover Phase in HCD is similar to the Analysis Phase in ID in that they are both really about obtaining information about the people (users or learners), the context they are seated in, and the nature of their needs. The Ideate Phase in HCD is similar to the

transition from the Analysis Phase into the Design Phase activities of instructional design. The Ideate Phase involves using qualitative data analysis methods to obtain a summary understanding of the data from the Analysis Phase (IDEO, 2008; + Acumen, 2014; Brown & Katz, 2009). In ID, this data is used to feed the Development Phase, but in HCD it feeds the Prototype Phase. The Prototype Phase in HCD involves iterations between prototyping and obtaining feedback. This is very similar to the iterations in the Develop and Evaluate Phases of ID. In ID, an analysis is performed on the learners, context, and performance, similar to the Discover Phase in HCD. This information is carried into the design of the instruction through writing objectives and determining instructional strategies, similar to the Ideate Phase in HCD. These design decisions feed the development of assessments and the actual instructional product, similar to the Prototype Phase in HCD. In ID, formative evaluation occurs throughout the process (Richey, Klein, & Tracey, 2011). The process is systematic because decisions made in each phase impact the next phase (Gagne, Briggs, & Wager, 1992). Design decisions clearly have an impact on other phases of both the ID and HCD processes.

What implications does the idea that design decisions impact implementation have for the various cases of openness? For certain, there is a lot of hype, over-promotion of impossible benefits, false promises, and proselytization of openness as some type of cure-all or ideal standard to which everyone should fully adhere. Naturally, leaning to one extreme of any continuum at the expense of the other perspective is rarely a long-term solution. However, given these considerations, it is interesting that a more balanced approach to openness hasn't come to prominence as a viable path. Does the fault for this lie in the design of open systems, products, and processes? Is there some other phase of

the process that is at fault? The answer likely lies in some combination of issues with phases, designs, and decisions made throughout the generation and implementation of openness.

In my view, there is a lot of missed opportunity for promoters of openness to recommend more balanced and practical approaches for the implementation of openness within various contexts. There are also certainly benefits to sharing and being open, both personal and to the community-at-large, but I do not believe that promoters of openness are often intentional enough about describing these benefits in simple and realistic ways. I imagine that potential adopters of openness are frequently confused and frustrated by the rants of open-extremists who press openness on educators and others as some type of either-or universal solution. Could there be technical issues related to the adoption and use of systems related to openness? I think that many systems with which potential users interact with openness have not yet evolved to the point that they are easy and useful. I think that there has generally been a lack of intentionality about making openness functional, easily usable, and about promoting it realistically and calmly. I think that much of the solution for this lies in being more intentionally aware of the people involved throughout the design processes of openness, and by attending to the functionality and impact that the solutions have on their users. I believe that if this awareness and intentionality were made core elements of more approaches to openness, more people would very likely adopt openness as a general part of their roles in various organizations wherever it was practical.

Related Recommendations for Practice.

The most successful organizations follow a relatively simple framework in order to be successful (Collins, 2001). These organizations strive for greatness, have leaders that are both humble and determined, focus first on having the right employees in the right positions, and face the realities of their organizational situation. They determine what they can be the best in the world at, the hedgehog concept, and focus on that one thing. This focus is at the intersection of the organization's passion, what they can make money at, and the competence that they can be the best in the world at. The most successful organizations promote a culture of discipline to support their focus, use technology to bolster their ability to achieve the focus, and push constantly toward making that focus a reality for the organization while cutting everything else away (Collins). Collins (2005) has also written a follow-up monologue applying this framework to the social sector, which includes higher education. The details of this framework will be different for each higher education institution that looks into them, but there are probably a few general themes that can be speculated about the hedgehog concept, the thing they can be best in the world at. I imagine that these themes involve creating value through knowledge, delivering that knowledge to the world in some way that is economically rewarding, and constantly learning and evolving as knowledge does. I imagine that higher education institutions in some way view themselves as intimately tied with the growth, development, and diffusion of knowledge. This relationship is enabled in large part by the ability of the institution to attract and retain people who are passionate about information, want to develop it, and want to share it with others. These concepts are core to openness.

If openness is ever going to be broadly accepted and widely used, I believe it is vitally important that people involved with the design, implementation, and promotion of openness become acutely aware of the users and potential users of the system. This must go beyond creating a functional product, although that is an essential ingredient. It is important that the designers of openness think holistically about the various users of the system or product. These users will certainly have a range of backgrounds, abilities, desires, and other relevant characteristics that drastically impact what the user will need from using the open product or system. Additionally, these users are embedded within various contexts that add even more layers of complexity to the requirements. For example, if the end-user is attempting to implement an open process or product in an organizational context, there may be concerns over safety and security, the ability of the organization to customize or implement the process, or to obtain support or fix the product when things go wrong. I recommend that designers of open systems, products, and processes be very intentional about the people in every aspect of the process.

There are several ways to go about this. One option is to obtain and follow some type of standard when designing for openness. The International Organization for Standardization's (ISO) standard ISO 9241 is for the "ergonomics of human-system interaction," where part 210 targets "human-centered design for interactive systems" (International Organization for Standardization, n.d., Title). ISO intends for this standard to be used by managers of design processes to enhance human-system interaction through attendance to hardware and software concerns. König, Hofmann, and Bruder (2012) used ISO 9241-210 to guide the application of a user-centered design process to a human-machine interface in an air traffic control setting. One concern for using this standard as a

guide for design is that it could be interpreted in different ways, which could subsequently impact what it targets and how that is measured. For example, Bevan (2009, August) distinguishes usability methods intended to improve performance with those methods intended to improve user satisfaction. Cost and complexity are also cited as possible reasons that ISO 9241-210 is not more widely used (Bevan, 2009). My personal concern and subsequent warning in using a standard for guiding implementation lies in attempting to standardize the implementation process. Focusing on efficiency, money, cost-benefits, or anything other than the people, the point of using the standard in the first place, would ultimately decentralize them as the primary consideration in the process.

Perhaps a better way to be more intentional about the people in every aspect of the design process is for designers of openness to utilize a process that is explicitly concerned with the people in every stage of design. The Human-Centered Design Process fully engages the designer in empathizing with the user's needs and designing custom solutions for those users. I think that most open products, systems, and processes are built flexibly enough to enable this customization, but are not often actually custom fitted for specific users. I think that step is often left up to the users themselves, and I think there is a tremendous opportunity for people and organizations to fill this gap. This is very likely a great opportunity for organizations to enter the market and monetize the customization of open designs to fit specific contexts. This opportunity would operate under the long tail concept discussed earlier.

One recommendation especially suited to higher education institutions would be to create a committee specifically charged with exploring concepts and applications related to the implementation of HCD and openness within the institution and local community

for the purpose of performance improvement. With the understanding that the nature of openness is really human-centered, there is ample opportunity for designers and promoters of openness to benefit from intentionally following HCD processes when designing systems, products, and processes for openness.

Related Recommendations for Future Research.

Given the realization that openness is human-centered at its core, many opportunities emerge for future researchers to explore the nature of this relationship. Future researchers should find ways to explore areas of openness more specifically through an HCD lens. Perhaps someone could intentionally follow the HCD process in creating or adapting an open system, product, or process and examine the differences between that process and the traditional methods. I believe there is also opportunity for future researchers to find ways to use design thinking for extending the goals of openness in a given implementation and to study the results. For example, if an institution already has an initiative for encouraging Open Access research among faculty, perhaps there is opportunity to involve researching faculty in designing a system that directly enables them to create or share work, and promote the shared work of others. Perhaps it would take the form of an interdisciplinary research database where faculty could draw on each others' work and work recommended by their colleagues to create an insightful, collaborative research think-tank. Certainly, if a hard working, motivated, and enthusiastic faculty were provided with a common place to easily peruse plain language summaries of what their peers were researching then numerous new opportunities for collaborative grants, publications, and service projects would emerge.

There is also opportunity for future researchers to replicate this study with the intention of examining statements from an HCD focus, perhaps by including additional keywords intended to seek out HCD related statements. Another option may be to simply do a content analysis on higher education policy strictly looking for an HCD component in their policies. Yet another exciting possibility is for future researchers to create an HCD-Openness research studio where researchers intentionally explore various aspects and implementations of openness through an HCD lens over a long-term time span. This has the potential to generate a wealth of knowledge and innovations that could help openness, the HCD process, and benefit the organizations and people involved tremendously. Generally, I think there is a lot of opportunity to approach the implementation of openness from an HCD lens, and I would be very interested to see the results of future studies on the topic.

Main Finding: Few Institutions Addressing Openness Through Policy

The finding that few institutions in the sample (36%) addressed openness in their policy documents is interesting. At the beginning of this study, I really didn't expect to find any, or at least more than a small few, institutions with statements related to openness. Given this, finding 16 institutions that addressed openness was well above my personal expectations. However, in consideration of the popularity of openness and the impact it has had on higher education especially, this number is much lower than may be expected. In this section, I explored some possible reasons for the low percentage of institutions addressing openness.

First, I explored some possible limitations in the study that could be the reason for these results. The first limitation was that the sample results may not be representative of the actual case for higher education institutions. I randomly drew institutions in a stratified manner from a purposive sample. This means that not only was there some chance that the stratified sample institutions drawn didn't match the larger purposive population pool, but also that the characteristics of the purposive pool may not be disbursed the same way across the larger population of all higher education institutions. While I sampled and analyzed institutions until I felt that saturation of the results had occurred, there is always the possibility that my results do not match the case of the population. In consideration of these concerns, I carefully planned out and documented the sampling procedures in this study. In carrying these out, I followed procedural convention to obtain a representative sample of a subset of the higher education population. As discussed in Chapter Three, I believe this subset of the population is more likely both to have addressed openness and to have created the needed policy documents than the larger population of institutions. This belief is based on the level of resources at these institutions, trends in their practice, and their status as model institutions on the cutting edge of innovation. Given these considerations, I feel strongly that the results of this study provide a representative picture of the common case of addressing openness in higher education policy documents, at least at RU/VH institutions.

Another possible limitation to the study is that higher education institutions may be addressing openness in areas other than the policy documents. It is entirely possible that relevant policies related to the implementation of openness are addressed in other documents, committee meetings, or are addressed on a college or departmental level and

therefore wouldn't be present in an institutional-wide document. As discussed in Chapter Three, guidance in the literature is largely absent regarding which policy documents are most likely to contain the relevant policies. For example, Smith, Smith, Osborn, and Samara (2008) looked at policies on bullying in primary and secondary schools in England, but were not clear about which policy documents the policies they examined were in. Additionally, Timmerman and Metcalfe (2009) examined two specific campus-wide visionary plans for policies on sustainability that are not common to higher education institutions. However, there is a precedent in the literature for considering documents intended to guide employees in decisions, such as used in this study, as policy documents that enable and support implementation. For example, Dodsworth (1998) describes marketing plans as policy documents intended to render marketing activities as second nature to librarians through their guidance. Additionally, Minich and Sipes (1997) identify one of the functions of Faculty Handbook as defining policy, and note that the document should list general policies and procedures for employees. Therefore, it is reasonable to expect that the policy documents examined in this study would contain any relevant policies related to the implementation of openness.

It is also possible that the keywords used in the content analysis failed to catch some of the relevant statements on openness contained in the policy documents used in the study. While this is possible, each of the keywords was well seated within the literature as a term related to openness. This was discussed in Chapter Three and shown in Table 4. Additionally, all of the keywords returned at least one statement that was relevant to the implementation of openness in the sample. This is shown in Figure 18.

What are some possible reasons for the lack of higher education institutions addressing openness in the sample? As discussed in Chapters One and Two, policy implementation is a complex process that occurs and must be considered within a larger framework. In higher education, policy implementation involves negotiating various social processes and systems, and influencing executive decisions made at the various levels of the implementation staircase (Reynolds & Saunders, 1987; Trowler, 2002b). In other words, implementing policy in higher education is not dictated from top-down and must instead be addressed on a number of levels by a number of different actors within the system.

Many higher education institutions operate on shared governance systems where faculty committees address issues and create solutions that relate to the department or institution. It is possible that openness simply has not yet had a legitimate impact on enough individual faculty members for it to become a priority in decision-making. The impact of openness on individuals and organizations thus far has not been so disruptive that it could not be ignored by individuals. Additionally, for many institutions, the effect of being thrown into dealing with openness has served primarily to draw attention to the organization involved, but has not yet had devastating effects on the credibility or financial station of an institution. Until the effects are felt, I do not believe it likely that the majority of institutions will address openness in any serious fashion.

The fact that not many institutions in the system have policies related to openness means the institutions that have addressed openness through their policies can be seen as early adopters on Rogers' (2003) adoption scale. This also supports the concept that the adoption of addressing openness through policy has not yet reached the critical mass

needed for the rapid adoption expected by Tarde's (1903) S-curve model. Both of these concepts are discussed in Chapters One and Two. As discussed in Chapters One and Two, openness has undergone a relatively recent transition from a primarily analog approach occurring in physical spaces over to primarily digital approaches that are enabled by technology and take place over the Internet and through collections of web services. Part of the lack of widespread adoption may simply be the result of the age and maturity of the new approach.

It is also possible that openness has been perceived as a temporary and over-hyped phenomenon that deserves no serious attention. Barber, Donnelly, Rizvi, and Summers (2013) warn that higher education will be crushed under an avalanche of insurmountable challenge if the industry fails to attend to changes and challenges, such as the emergence of MOOCs, brought on by technology. While there may be some merit to the concept that technology brings new challenges to industry, presenting the case as an apocalyptic warning for the end of higher education seems political. As discussed in Chapter Two, Udacity founder Simon Thrun did the same thing in 2012 when he said there would only be ten institutions of higher education left fifty years from now due to the impact of MOOCs (Leckart, 2012, March). It is difficult for me to see where manufacturing and promoting a crisis mentality, such as these efforts do, is beneficial to institutions. If MOOCs pose serious threats as disruptive innovations, then higher education institutions certainly must address these issues. However, it is currently unclear whether the MOOC concept is legitimately a disruptive innovation (Yuan & Powell, 2013), or whether at least certain types of MOOCs have reached the end of their usefulness (Strauss, 2013, December 12). I believe that it is more likely the case that the hype is simply starting to

wear off of MOOCs, and their true usefulness has not even been realistically explored yet. Neal (2013) described this as MOOCs leaving the beta-phase, and identified MOOCs as being seated in the *Trough of Disillusionment* Phase of Gartner's Hype Cycle.

Gartner's Hype Cycle is a technology life-cycle model dealing with human perceptions of the progression of technology from over-enthusiasm through disillusionment and eventually into a period of productivity (Linden & Fenn, 2003). The model compares an innovation's maturity with its visibility and is intended to complement Tarde's (1903) S-curve and Rogers' (2003) adoption life-cycle. According to the model, when a technological innovation, such as a MOOC, is triggered to become popular, it goes through a period of *Positive Hype* until people stop attending to the innovation simply because it is so popular. The period where people stop attending to the innovation is labeled as the *peak of inflated expectations*. After this peak, a period of *Negative Hype* sets in until the innovation reaches a low in the Trough of Disillusionment, where positive attention to the innovation is uncommon. After this period, people attend more realistically to the innovation in the *Slope of Enlightenment* phase. During the enlightenment phase, a more realistic examination of the innovation and its usefulness occurs through real-world experience and focused experimentation. The cycle then moves into a *Plateau of Productivity*, where an innovation starts becoming adopted by the mainstream. *Post-plateau* the hype surrounding the innovation dies down and only a few more specialized groups will continue to talk about the innovation (Linden & Fenn, 2003).

While it would not be surprising, given the way it is often presented, if openness were perceived as an over-hyped concept without real usefulness, it would certainly be

unfortunate. Strategically, it is definitely important for higher education institutions to evaluate and address the possibilities of openness in their systems and processes. In many cases, openness can support the goals of the institution in unique ways. For example, as discussed in Chapter Two, openness can support and improve the teaching, research, and service drives of institutions (Digital Connections Council of the Committee for Economic Development, 2009). As discussed earlier in this chapter, I believe that openness has often been promoted as an extreme option and that proponents have attempted to bully others into adopting openness without providing honest reasons for them to do so. This inhibits realistic exploration of the actual benefits that openness may be able to offer, and I believe that it is at least partially responsible for the lack of institutions addressing openness in their policies.

As discussed in Chapters One and Two, successful policy implementation in higher education requires facilitative conditions (Ely, 1999), and clean diffusion through effective communication structures, negotiations, social processes, localized executive decisions, and the effects of individual power and congruence of identity within a given setting (Rogers, 2003; Trowler, 2002b). Implementing change through policy involves power barter between change agents and actors, pressures from external conditions, and the contexts of structural norms and values (Bleiklie, 2002). To complicate this issue, Kohoutek (2013) points out the impact that isolated sector structures and people's political agendas have had on the development of theories related to policy implementation in higher education. Considering this, a clear process may not even be available for someone to follow if they were interested in implementing openness in higher education. I believe this complexity adds to the difficulty of implementing

openness at institutions, and could be part of the lack of widespread practice in addressing openness. Additionally, while policy is critical for implementing change in higher education, effective implementation requires consideration of a larger framework of concerns (Du Toit & Forlin, 2010).

The RIPPLES Implementation Model is one theoretical framework in which to consider the role of policy in the process of implementation in higher education (Surry, 2002). The RIPPLES Model considers implementation in higher education within seven components: **R**esources, **I**nfrastructure, **P**eople, **P**olicy, **L**earning, **E**valuation, and **S**upport. In this study, I only considered the role of policy in relation to the implementation of openness. However, it is possible that the implementation of openness is being actively addressed in another area of the framework, or that another area of the framework is preventing institutions from addressing openness effectively. For example, searching the literature for evaluation studies of efforts related to the areas of openness identified in this study produced no clearly related results. If this information is not available to institutions, it could be difficult for administrators to determine whether there really are any practical benefits to adopting openness at their institution. Additionally, the flexibility of many open products and services can cause confusion for users and may require additional skills that are not commonly available in support departments. This would impact the People, Learning, and Infrastructure elements of the RIPPLES framework. The implementation of openness must ultimately be considered within the larger framework of the implementation environment. This study has made progress toward understanding the state of the policy element of this environment, but other studies are needed if a better understanding is to be achieved.

Related Recommendations for Practice.

Recommendations for practice related to this finding largely center around the concept of looking calmly, practically, and objectively at the implementation of openness in consideration of different contexts. I think it is important for all higher education institutions to address openness in their policies, regardless of whether they are supportive of the concept, unsure about it, or against it.

Considering the history of institutions responding to openness related hype, I think it is important to have a specific group of people who have the responsibility of managing the implementation of openness in an organization. These people should have, or have access to, the relevant experience necessary to effectively manage the process of implementation and to the expertise related to the area of openness they are examining. The group or committee would be charged with assessing the attitudes among faculty and others in the organization toward specific facets of openness and the desirability of its implementation in certain contexts. The committee would then evaluate the practicality and benefits of implementing the specific facet of openness in the specific context, and make recommendations to the appropriate administrators. The implementation process would then need to be properly designed, managed, and undergo proper formative and summative evaluations. Ideally, this would initially lead to the implementation of openness in the most relevant settings, where the benefits are clear and the drawbacks few. Institutions could observe and manage the processes closely and make any necessary changes on a small scale. Once it is clear that the implementation makes sense in the first context, other contexts can be evaluated for feasibility.

Organizations taking this approach to implementing openness should pay close attention to the needs of the people who will be using the implementation at all times in the process. Once the committee determines that a given implementation makes sense for an organization, I think it is critical that the implementation efforts be driven using the HCD processes discussed earlier. If the practicality of the innovation and the people involved in the process are the driving forces for the implementation process, I believe that it will lead to benefits for the organization.

It is also important for organizations to clarify their policies and where those policies can be found. Institutions should attend to prominent issues through policy, and make the organizational position clear to employees and others, even if that position takes a neutral or undecided stance toward the issue. This recommendation is drawn from my experiences in the content analysis with finding an absence of policies, policies in a different document, or policies that were scarce or inarticulate in dealing with openness. Another important concept related to clarifying policies is for institutions to articulate and clarify implementation practices and procedures. With clearly articulated procedures and example practices, employees interested in introducing an innovation into the organization have a clear and managed process for doing so. A committee can examine the new innovation and determine whether it fits with the goals of the organization or not.

Openness is often presented ideologically as if it should be blindly accepted and widely implemented simply because one considers it the right thing to do. I think that this presentation ignores the actual needs of the users, attempts to promote a blanket solution, and ultimately damages the reputation of openness. I believe it would be much better for proponents of openness and for the organizations wishing to adopt openness if promoting

openness were approached in a much more controlled and practical fashion. I also believe that taking a controlled approach is the only way to observe what the actual benefits are, if any, for a given institution or a given context. I believe this measured approach is a much more realistic application of the concepts, and that this measured, practical, approach needs to be combined with the HCD process if it is to be successful in the long run.

Related Recommendations for Future Research.

In this study, I only considered the implementation of openness from a policy standpoint. The RIPPLES model (Surry, 2002) provides a larger framework from which to consider the implementation of an innovation such as openness. Future researchers could carry out studies related to the implementation of openness from the expanded lens of the RIPPLES framework. For example, someone could examine the implementation of openness in higher education from the standpoint of resources or infrastructure. Perhaps someone could carry out survey research to obtain data on the perceptions of openness held by various institutional administrators. Surry, Lewis, Yohn, and Vance (2012) carried out a study on the perceptions of the presidents of small colleges toward technology integration issues that may provide a precedent. Additionally, the RIPPLES Model has been deployed as a survey that obtains perceptions related to implementation regarding the seven components of the model (Jasinski, 2007; Surry et al., 2009; Surry, 2002). Perhaps the survey could be adapted to gauge the perceptions of openness related to the various aspects of the RIPPLES Model and that data could be used to guide further studies.

Given the realization of openness as human-centered, another option for future research is to consider the implementation of openness in higher education from an HCD standpoint. Studies related to this concept may explore the policy issues found in this study by conducting interviews with various faculty at different institutions, or perhaps by examining various implementation contexts within an institution from the perspectives of the stakeholders surrounding it. Another option is to use HCD to design, implement, and evaluate a procedure for introducing innovations to the organization as discussed in the last section.

Future researchers may also be interested in examining the results of this study more deeply by interviewing the Presidents of the institutions in this sample, or perhaps the Dean's of schools and colleges within the study, to discover more about why their institution does or does not address openness. Ultimately, I believe that the people are the key to the implementation of openness in higher education.

In general, I think researchers should attempt to examine openness from the perspective that it is already on the Slope of Enlightenment in Gartner's Hype-Cycle model. If the focus of openness fixates on examining real-world benefits and practicality, while constantly attending to the people involved, the results will certainly be more applicable than if openness continues to be politicized, sensationalized, and proselytized.

Main Finding: Wide Variance in How Institutions Actually Address Openness

Among the institutions that addressed the implementation of openness through policy, there was a wide variance in how they did it. The fact that only two institutions generated 76.5% (99) of the 130 relevant statements that I found provides a very positively skewed

distribution, as seen in Figure 10. Without these two institutions, I would have found much less in the content analysis than I actually did. Not only do the amount of statements generated by these two institutions stand out, but there also appear to be major qualitative differences between the statements of different institutions in some cases.

While comparing the qualitative content of these statements in more detail is outside of the scope of this study, there are a couple of examples that stand out plainly. For example, of the 16 institutions that had direct statements on openness, 6 (38%) had only one statement. Of these six institutions with only one statement, 4 (67%) dealt directly with openness. The four institutions whose only statements dealt directly with openness were Oregon State University (OSU), Purdue University, University of Kentucky, and Columbia University in New York (CUNY). The statements for three of the four institutions consisted of simple bullet points that held the right keywords. The remaining statement, the one from CUNY, references the public domain and freely available materials, but doesn't seem to represent the existence of a larger approach to implementing openness at the institution. Purdue's statement is counted as an enabler because it was in a context of cost-saving options, where OSU's statement was contained in a list of possible initiatives the institution could consider. University of Kentucky's statement is a bit more robust, calling for researching an OSS project to support the goals of the institution.

The sample statements for these institutions are listed here using the same coding scheme as found in the appendices. As discussed in Chapter Three, the first set of letters in the code are the initials for the institution, the second set represents the policy document where the statement was found, and the third set represents the area of

openness the statement deals with. I added the bold font to highlight the keyword in the statement. The statements are:

OSU-TP-OC: [Progressive initiatives] **Open** Education Content: an institutional approach

PU-TP-OSS: Consider **Open Source Software** [in reference to cost saving measures]

UK-TP-OSS: Identify a UK-led IT commercialization/**open source** project to support the goals of the university's strategic plan.

CUNY-FH-OC: Certain printed materials are considered in the public domain and, therefore, may be **freely** copied.

These institutions represent 4 (31%) of the 13 institutions in the sample that had statements directly addressing openness. Of the 16 institutions that addressed openness, three only addressed openness indirectly. The three institutions that only addressed the implementation of openness indirectly were Georgetown University with only two statements, and the University of Miami and the University of Virginia with only one statement each. Therefore, seven (44%) of the 16 institutions that addressed openness had only one to two statements that may or may not represent a larger interest in openness within the institution.

While examining the institutions at the bottom of the rankings in the study showed institutions with a questionable interest in openness, at the other extreme of the rankings the institutions seemed much more committed to openness. The top six institutions in the sample with the most relevant statements had specific efforts related to openness in place at their institutions. As discussed in Chapter Four, Brown University has the Decameron Web Project, an open project based on a medieval text (Brown University, 2010a). Brown University also has a library resource guide describing OA (Brown University,

2010b), which is likely very common in higher education institutions. Brown University also partnered with Coursera to provide several MOOCs (Brown University, 2013) and even used the MOOC concept in an attempt to draw high school students into STEM fields (Wilner, 2013, April 17).

Georgia Institute of Technology has adopted a specific policy on OA that took effect on January 1, 2013 (Georgia Institute of Technology, n.d.). Although I found statements related to this OA policy in the content analysis, the policy itself was not outlined in the policy documents searched in this study. The statement is housed instead in a policy library for the institution (Georgia Institute of Technology, 2014). Additionally, Georgia Tech partnered with Udacity and AT&T to provide a unique MOOC based accredited Master's Degree program for Computer Science (Georgia Institute of Technology, College of Computing, 2013a), which President Obama has praised as a future model of college affordability (Georgia Institute of Technology, College of Computing, 2013b; The White House, 2013). This Master's Degree is expected to cost students less than \$7,000 to complete (White, 2013, May 21). The two highest ranked institutions in the sample have both partnered with organizations to provide MOOCs and have some other explicit effort related to openness.

As seen in Table 15, University of Maryland-College Park ranked third highest in number of relevant statements. Interestingly, University of Maryland offered a joint MOOC through Coursera with another institution in this sample, Vanderbilt University, which had no relevant statements related to openness (University of Maryland, 2013a). University of Maryland also has a library resource guide on OA (University of Maryland, 2014) and an OA publishing fund (University of Maryland, 2013b).

Princeton University, the fourth highest ranked institution based on the number of statements, has an institutional policy on OA (Princeton University, 2013). Similar to the case of Georgia Tech, I found statements related to the policy, but the actual policy itself was located outside of the policy documents I searched. Princeton also partnered with Coursera to provide MOOCs (Kolowich, 2012, April 18).

As shown in Table 15, Arizona State University is the fifth highest ranked institution in the sample by number of statements. I was unable to find information as to whether Arizona State University actually followed through with it, but at one point they were developing a MOOC (Mendoza, 2012, November 13) that was supposed to highlight aspects of the institution and what it does (Verbrigghe, 2012, November 19). ASU also has a library guide on OA (Arizona State University, 2014).

Northwestern University, ranked sixth highest in the sample by number of statements, has a library resource guide on OA (Northwestern University, 2014) and partnered with Coursera to create MOOCs (Northwestern University, 2013).

Five of the six highest ranked institutions in the sample partnered with Coursera or Udacity to create MOOCs. The only institution not partnered with another organization to develop MOOCs still worked independently to offer a MOOC of its own. Examining the remaining institutions, I found that the University of Tennessee, Oregon State University, and Brandeis University are the only institutions of the 16 that had statements related to the implementation of openness that did not provide MOOCs. University of Tennessee waited to evaluate the results of MOOCs before implementing them (University of Tennessee, n.d.). Oregon State University created instruction for the faculty in order to educate them on MOOCs (Oregon State University, 2013), and created a policy draft

intended to foster an intentional discussion about the issues surrounding implementing MOOCs (Oregon State University, n.d.). Brandeis University partnered with a consortium of other institutions to provide access to classes at top universities for profit (Glader, 2012, November 15). This is an interesting area for potential future research.

Tulane University (n.d.), The University of Miami (2012), and Purdue University (2012) each created and offered their own MOOCs. University of Virginia (2014) and University of Kentucky (n.d.) both partnered with Coursera to provide MOOCs. Columbia University in the City of New York (2014) and Georgetown University (Anderson, 2012, December 9) both partnered with edX. It would be interesting to consider these partnerships in light of the OED taxonomy shown in Figure 4.

What do these similarities and differences mean in regards to the way that they address the implementation of openness? I personally believe that there are likely fundamental differences between the extremes in the sample regarding their commitment to the concept of openness. Most of the six highest ranked institutions in the sample have some evidence of a commitment to openness besides their foray into MOOCs. Brown University has the Decameron Web Project, Georgia Tech and Princeton University have OA policies, and University of Maryland-College Park has an OA publishing fund set up. As seen in Appendix E, the three statements by Arizona State University related to openness explain the institutions undecided stance and strategies on openness. While this does not show a commitment to openness, between these statements and their consideration of developing a MOOC, it is clear that the institution is aware of openness and considering if and how it fits with the university. I think that many of the other instances of sample institutions providing MOOCs or partnering with OED provider

organizations could fall into the categories of either reacting impulsively to the positive hype section of Gartner's Hype-Cycle or as attempts to be involved in the initial phases of a profit boom or industry shift. There was a lot of hype surrounding MOOCs in 2012; so much so that I was seriously concerned that the negative attention would crush interest in openness as a viable option once it wore off.

Naturally, there are differences in how organizations address issues within and outside of their control. I believe that the majority of institutions that had statements related to the implementation of openness in this sample were legitimately trying to consider whether or not openness could be beneficial to their organization. Unfortunately, this examination took place during what I believe was the peak of inflated expectations for MOOCs and the popular consideration of Other Areas of Openness. I believe that there are a few institutions in this sample that are truly committed to openness. I think these institutions would likely have been the only institutions with statements related to openness had I performed the content analysis before the phenomena of MOOC-hyping. I believe that the wide disparity in how and how much institutions address openness in their policy documents is at least partially due to institutions that would not normally have addressed openness at all attempting to work through their stances and properly respond to chaotic events in the industry. Ultimately, I think it is good that institutions become aware of openness and explore their own stances on the issue. I hope that the recommendation statements and other resources in this study help support institutional efforts to address openness in policy documents.

Related Recommendations for Practice.

There are several recommendations for practice that result from reflecting on this finding. The first is that all institutions should take an active role in determining how they wish to address openness in each of the different areas of openness. This is important because, as discussed in Chapter Two, openness has had an impact on a number of higher education institutions in a variety of areas. I believe that this study can help in this effort by providing a framework from which to think about the major divisions of openness and what types of effects they could potentially have on an institution.

After determining a stance toward each area of openness, the next step is for the institution to begin crafting policy statements to guide faculty and others in the issues related to these stances. This is important for several reasons. The first is because of the impact openness has had in higher education. The second is because it is important to have policies available to guide faculty decisions and clarify the position of the institution. The third is that there are options for institutions to address openness no matter what their position is or whether a position has even been decided. I believe this study can help in crafting these statements by providing institutions with guidance and recommendations in the form of the idealized and best-found policy statements. Institutions should take these statements into consideration when crafting their own policies on each area of openness.

Statement recommendations are available for each area of openness regardless of whether the institution is supportive, undecided, or against openness. Institutions who support openness should draw from the enabler statements available. Institutions who are undecided should use the neutral statements to guide their efforts, and institutions that are

against openness in a given area should draw from the barrier statements for guidance. The statement recommendations are available for each area of openness and each policy document type considered in this study. They are available in Appendices G, H, and I, and the best-found statements are listed in Chapter Four.

Aside from the importance of organizational leadership being reflective in understanding the position of the organization toward openness, it is also important for organizations to approach new innovations calmly and intentionally. The approaches of institutions that took a more measured approach to offering MOOCs, and the response of Oregon State University in particular, is to be commended. OSU researched the phenomena of MOOCs, attempted to consolidate an understanding of it, created instruction to inform their faculty and staff on the nature of the issue and the organizational stances toward them, and even drafted resources to engage in a reasoned and intentional discussion of the merits and flaws of the innovation. In comparing OSU's response to the responses of other sample institutions I have examined, I don't believe that the OSU faculty was being reactionary or frantically posturing in an attempt to somehow rise above the market. Instead, I think they took a calm, reasoned approach to the situation, and in hindsight look that much better for it.

Another issue that emerged during reflection is the realization that organizations are not always consistent about where they keep their policies. A recommendation that springs from this is for institutions to strive for consistency in how they manage and store their documentation, and to be sure to be explicit in how they link to the relevant resources from various documents. A related discovery that arose during the actual analysis is that I had a number of issues with finding PDFs or even single web-pages of

the policy documents. I believe this was often done in an attempt to create a system that was easier for the organization to keep up-to-date. I am unsure if it is commonly understood that a cost related to this practice is that it limits the searchability of the documents. In several cases, there were even numerous broken links or too many links to reasonably follow all of them. A recommendation for practice related to this is that institutions should attempt to either maintain a single file for the policy document or at least to create documents with as few links and external divisions as possible.

Related Recommendations for Future Research.

Several recommendations for future research emerged related to this finding. Given the number of institutions with statements related to openness in the sample that had created MOOCs, one recommendation is for future researchers to explore which institutions in this sample actually created MOOCs. The study could also be designed to consider which organizations that offered MOOCs created the course alone or were partnered with outside organizations. Details of which organizations the institutions partnered with could be interesting to compare with the nature of the type of Open Educational Design the MOOC provider offered. A researcher could accomplish this by performing a further content analysis that intentionally searched for MOOC related content using the sample considered in this study.

Another option for future research that would be good is for someone to compare the quality and content of the statements found in this study. The comparisons could be made between the institutions, between the strata, or between the areas of openness. Perhaps a subsequent study related to that one would be for researchers to use the data that emerged to compare the results against other aspects of the institution related to openness. For

example, the researcher could examine the content of the statements found in this study in more detail, find patterns that emerge, and look for evidence of those patterns in the institution. If an institution seemed to emphasize Open Content for example, the researcher could look for evidence of an OER repository or efforts to adopt open textbooks in classes.

One more interesting opportunity for future research is to compare the policy documents that are specific to the different colleges within institutions in order to see if openness is more or less prevalent in certain colleges over others. Given the different cultures and characteristics of the various fields and disciplines that make up the different colleges in a university, it could be that some colleges are more or less prone to adopt openness and other technological innovations. It would be interesting to learn, for example, whether colleges of education are on the forefront of adopting openness given their general awareness of technology and interest in building and sharing knowledge with others.

Perhaps someone could do an in-depth examination of openness on the highest ranked institutions in the sample to see whether my speculation about commitment to openness is realistic or not. Someone could perform interviews, carry out surveys, focus groups, and so forth to try gather data about the attitudes of general faculty and administration toward openness. I really think that there is a lot of opportunity for research to be carried out on this topic. I would love to see some long-term projects where researchers really got engaged in the topic and carried out extensive and original examinations. I think that this study is a good start at finding some descriptive information on the implementation of openness in higher education.

Main Finding: More Attention to Open Access Than Other Areas of Openness

Excluding the data from Brown University, Open Access is addressed most often in the policy statements in our sample. As shown in Figure 11, there were 60 statements addressing Other Areas of Openness, putting the category as the most addressed area in the sample. However, 59 of these statements were made by Brown University. As shown in Figure 11, 52 of the statements dealing with Other Areas of Openness consisted of general support for openness. The one statement in the Other area of openness not made by Brown University dealt with Open Data. As shown in Figure 13, OA is the most addressed area of openness when excluding the statements from Brown University. As shown in Figure 21, there were 15 statements related to OA, 10 related to OSS, 9 related to Open Content, and 7 related to OT&L when the data from Brown University are excluded. While the relative differences here do not seem so drastic, the dispersion between the number of statements for each area is interesting. Excluding Brown University, there are 33% more statements dealing with OA than with the second most addressed area, OSS. There are more than twice as many statements dealing with OA than with OT&L, the fourth most addressed area of openness. The second and third most addressed areas, OSS and Open Content, have close to the same number of statements, and Open Teaching and Learning is relatively close to these in how much it is addressed. Without Brown University, the Other area of openness is relatively unaddressed.

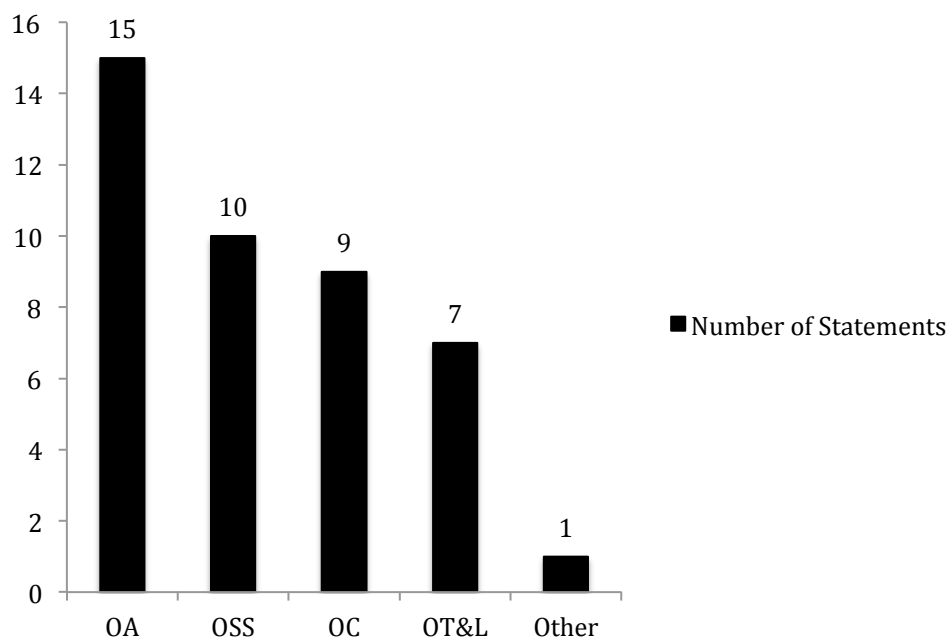


Figure 21. Number of Relevant Statements by Area of Openness Excluding Brown University.

The first question is whether this difference is even meaningful. There are a total of 42 statements considered here. Although I believe this is an accurate representation of what is present in the sample data, it is probably not enough data to be able to safely or reliably assume that this configuration is an actual trend in the way that higher education institutions generally address openness. One possible explanation is that this reflection is simply not accurate. As discussed in the section for the last finding, the quality of the statements in this study was not evaluated, and so it is possible that some or all of the statements related to each of these areas is simply incidental. If this is the case, the counts could be due simply to the popularity or commonality of certain concepts over others. When the authors of the policy documents were brainstorming for ideas, these concepts may have simply come up more often than other terms. With this in mind, I do have some

ideas as to why it seems that OA is addressed more commonly than the remaining areas of openness. I also try to speculate on why there seems to be a similar level of attention to OSS, Open Content, and Open Teaching and Learning.

I believe that it is very possible that OA is addressed more commonly than Other Areas of Openness in large part because research is at the heart of what many higher education institutions do. As an alternative research concept, OA is very likely more immediately relevant to the mission and goals of higher education institutions. Many institutions promote the idea of contributing to the body of knowledge through research, and the idea of sharing this knowledge freely with other researchers and people who are interested fits well with this idea. Another element to this is that research costs can be prohibitive for institutions (Jump, 2012, April 26), and that site licenses to academic journals do not always make financial sense for the institution (Bergstrom & Bergstrom, 2004). For these reasons, it makes business sense for institutions to explore options for easing the financial burden of journal subscriptions.

Another consideration is simply the attention that OA has received over the years. I believe that there are likely more studies dealing with OA than with the Other Areas of Openness. Given the debates, boycotts, government mandates, citation differences, and general calls for action dealing with OA that were discussed in Chapter Two, there is probably more general awareness for this area of openness than for the other areas. If more people are talking about OA than are talking about Other Areas of Openness, it would make sense that there would be more institutions including it as a consideration relative to the Other Areas of Openness.

OSS, Open Content, and Open Teaching and Learning are areas of openness that are very likely slightly more specialized than OA. There are a broad number of fields that use research, and the OA concept seems more universal and readily adaptable than some of the other, more specialized areas of openness. OSS, Open Content, and OT&L are more specialized areas with smaller groups of interested consumers. For example, OSS makes sense for organizations to consider as part of their infrastructure, and has even grown in popularity largely because of its ability to provide business solutions (Wang & Wang, 2001), but the average citizen or even the average computer user probably does not really need to concern themselves with Open Source Software. Open Content has largely risen into popularity around the ideas of Open Educational Resources and Open Textbooks (Wiley, et al., 2012), both educationally based products. The pedagogical and scholarship concepts behind Open Teaching and Learning are interesting, but are very probably only of interest to a small subset of educators who are looking for innovative teaching practices for digitally enhanced learning environments. Additionally, some of this group very likely became confused or turned away from the concepts due to the chaos and obscurity set in by the hyped attention to MOOCs and openness in general.

Overall, I think that there are some interesting possibilities for the seeming focus on OA over Other Areas of Openness. While I am still not completely sure that these data represent an actual trend in higher education, the differences in the degree to which each area is addressed makes sense when viewed within the framework of likely popularity and relevance of each topic to the institutions writing the policies.

Related Recommendations for Practice.

There is only one recommendation for practice that I have related to this finding. This recommendation is for institutions to study and become aware of how the different areas of openness fit with the mission, values, and goals of the institution. The recommendation stems from my belief that institutions are likely addressing OA more because they are more aware of it. The fact that these areas are relatively unaddressed as a whole means that there are likely many unexplored opportunities for innovation related to these areas. I believe that exploring these areas could provide important opportunities for competitive advantage for organizations. Given this, organizations may do well to implement a committee and charge them specifically with exploring options related to the lesser-addressed areas of openness.

Related Recommendations for Future Research.

There are several possibilities for future research related to this finding. One of these is for researchers to carry out a study with the specific intention of determining whether OA is actually considered more than the Other Areas of Openness or if the finding just seems this way based on these data. Another example is for researchers to follow through with some in-depth interviews of institutions in the sample in order to provide support for the results of this study. A survey approach similar to the one discussed for the research recommendations of other findings could be utilized to learn more about the perceptions and attitudes of the people at the institutions.

Another possibility includes carrying out a study to explore some of the specific ways that the different areas of openness are actually implemented in higher education. For example, someone could do a content analysis to determine which higher education

institutions have implemented efforts specific to each area of openness. This is derived from the understanding that the various areas of openness are not addressed to the same degree in policy.

Yet another possible opportunity for future research is for someone to replicate this study on another sample from the same population as this study, or even from research intensive institutions rated as high research (RU/H) by the Carnegie Classification System. This would serve to provide additional perspectives on the state of institutions addressing the implementation of openness in higher education and to supplement the validity of this study.

Main Finding: Content Analysis as a Viable Method

This study serves as an example of the effectiveness of the content analysis methodology. As described in Chapter Three, the specific methodology used in this study was a summative content analysis (Hsieh & Shannon, 2005) with a deductive approach to theory use. I identified keywords before the study and then searched policy documents using the a priori keywords to locate and identify statements with specific content. This study serves as a successful use of content methodology in the examination of higher education policy documents for statements related to the implementation of openness. This example supports the feasibility of using content analysis methodology for looking at policies, looking at the parts of the implementation of openness, and for examining specific documents in higher education. The specific methods used in this study were described and are able to be followed by future researchers.

As discussed in Chapter Three, content analysis methodology has been used to look at policy several times in the literature. Content Analysis has also been used to look at some aspects of openness. Surry, et al., (2014) used content analysis methodology to examine similarities and differences between Open Access and traditional access journals in the educational technology field. Baker III (in press) used content analysis methodology to search the Twitter hashtag related to open education (#openeducation) to discover the common themes being shared and discussed. Gallivan (2001) used content analysis methodology to make a case for certain types of control in virtual organizations. De Liddo, Buckingham Shum, McAndrew, and Farrow (2012) created a taxonomy of themes related to Open Educational Resources from a content analysis of grantee reports from the William and Flora Hewlett Foundation. Content analysis methodology is an effective method for examining policies, and for examining aspects of openness.

I think that the methodology outlined in this study exceeded my own expectations at locating and generating relevant data. Several aspects of the process in this study seemed to be of special importance. I believe that the design and relevance of the keywords for the study proved to be critical for the success of the search. The keywords being partial words was important because it enabled me to effectively search for several related words at once. For instance, typing the keyword Free* (entered in the search bar as “free”) searched for results of the words “free,” “freedom,” “freely,” and so forth. This enabled the eight keywords in the study to actually function as a much larger list without adding to the effort of searching. Additionally, I think it was essential that the words were strongly related to the literature and the common terminology for the content I was searching for.

As discussed in Chapter Three, I tested my final list of keywords against the search results in a general search of the literature database. These searches allowed me an opportunity to field test the types of results I may have been able to expect in the actual setting and provided speculative data on the relationship of the keyword to the search results. Another important element is to have started from a much larger list of words and pared them down based on the results of some pilot testing. As discussed in Chapter Three, I initially had a list of 42 keywords. Searching so many keywords proved to be more time consuming than I expected and also provided many redundant results. After using the keywords, I was able to determine which ones returned the most relevant search results and reduce the list based upon these data. Having eight keywords turned out to be a boon during the search sessions, as they returned effective results while helping the workload remain manageable.

During the content analysis I experienced some slight issues with accessing certain elements of some policy documents. If a document was spread across many links or pages it made the search difficult, but having a clear backup plan for what to do if a document is inaccessible is important. I believe that those types of issues are probably common to any study, and I don't believe that they are the result of the content analysis design.

Overall, I believe that content analysis is a viable methodology for obtaining descriptive data on various topics. I think that it has been shown to be effective in a wide variety of settings and for a wide variety of purposes. I think that it is important that researchers continue to obtain exploratory data on different elements of openness, policies, and higher education in general. I think that content analysis methodology has

been shown in this study to be important to implementation research, and as a realistic way to examine certain elements of the RIPPLES Implementation Framework in practical settings. I believe that content analysis methodology is incredibly useful for providing informative results that are beneficial for obtaining a better understanding of a situation or for building more in-depth studies from. I would encourage anyone interested in learning more about a context or topic to consider content analysis methodology as an option.

Related Recommendations for Practice.

There are a few things that higher education institutions should consider doing that I believe would accommodate content analysis research in the future. These include attempting to create documents that are easily searchable, such as PDFs and single page websites. Other recommendations for institutions are to clearly label documents, consider adding related keywords for documents or sections, and to ensure that each document is easy to locate by providing active links to each document in a central location, such as a web page that serves as a documentation hub.

Some important things for institutions to avoid, and to consider correcting in their own documents, include creating documents with a large number of links that take the user to a different web page, and placing or referencing documents that are critical to the topic in an entirely different location. I think it could be beneficial to some organizations, especially larger organizations, to perform occasional content analyses on their own documentation to obtain information about the themes, consistency, and general makeup of their documents.

Related Recommendations for Future Research.

Content analysis provides seemingly endless opportunities for future research. I think that it is important for researchers to continue the precedent of using content analysis methodology to better understand issues related to the implementation of openness. Researchers could carry out content analyses on the literature to better define the state of the areas of openness defined in this study. Content analysis methodology could prove useful in examining institutions for documentation related to the areas of openness, such as searching for and comparing the library resource guides on Open Access. Some applicable questions here may involve the quality of the guides, whether the institution has a specific policy on OA, and whether there are other measures of support, such as OA publication funds, available for the users.

Content analysis methodology could also prove to be useful in generating data for the Discover phase of the HCD process. It is possible that a content analysis could be performed in a perceived area of need, and a subsequent Human-Centered Design process could be undertaken to create solutions based specifically on the results of the analysis. I think it is also important for researchers to examine the content of research journals more closely. The study carried out by Surry, Baker III, Morgan, Leblanc, and Beck (2014) comparing traditional access and Open Access journals in educational technology provides a solid model for examining journal content and classifying the results into relevant themes. The data generated by such studies is important in understanding the state of research in a given field. Using content analysis to search Twitter hashtags related to areas of openness, as seen in Baker III (in press), is also an important area for future researchers to consider. Twitter is an active platform where many researchers

frequently discuss research and share relevant resources with each other. Granted, the user has to intentionally set up and manage their network on the platform in order to be connected to these types of activities. However, I think in this day and age, any researcher who is not active in some type of social media is living in a modern silo.

Reflection

The graduate school process has been a long and interesting effort. In this section, I tried to describe some of my motivations and experiences, provide some advice, and outline some of the bigger lessons I have learned. Some things to think about as you read this section are that people are never alone in grief or accomplishment, that change results from a multitude of causes, that victory without sacrifice is questionable at best, and that individual purpose should expand beyond individual gain.

Coming into the Instructional Design program, I knew that I wanted to work in academia. I wanted to do it because I felt, and still feel, that higher education can be a great place to really help people learn to grow, overcome their limitations, and reach their goals. I feel that I can help people have a better life through my efforts, and that this is magnified in the context of higher education. These feelings are very personal to me, and have driven me for a long time, but I never fully realized the power that they held until I went through the graduate school process. The value of graduate school is not in the content that people learn, or in the classes they take. It isn't in a GPA or the number of books someone reads. It doesn't lie in an improved ability to write, skim books, present papers, or communicate ideas. The real value of graduate school is that it is a time

dedicated to helping people search out personal values, helping them grow as people, and allowing them to translate these results into living a meaningful life.

I would like to offer some practical advice related to the dissertation. For one thing, it has an impressive way of expanding. For example, this is a relatively straightforward study that did not seem to have a lot of complexity and moving parts, but it quickly turned into a 300+ page dissertation. This expansion happens quickly and is not easy to recognize at first. This is where the value of a good committee chairperson really shines. If they are closely involved in the process, they can warn you when the work is expanding in the wrong direction and give practical editing advice to get the content in the right direction. The committee themselves are also great at helping steer you in the right direction and keep you focused, but at more distant intervals.

Additionally, the dissertation doesn't have to be eloquent or sophisticated, but it does have to get finished. It is hard to fight the idea that the dissertation is supposed to be this beautifully complex thing that shows the culmination of everything a person has ever experienced. I was surprised at how essential it is to use plain language. Even when I was trying to write things as plainly and simply as possible, sections still easily became confusing for the reader. I think this happens because the researcher is so invested in the topic that the base expectation of what the average person knows about a topic is well above what they actually know about that topic. This seems to be a common characteristic of human interaction, as I have witnessed the same thing happen to people in teaching, communicating, relationships, and so on. My advice here is to write everything as simply and clearly as possible, and attempt to explain everything as if it were for the first time.

Something I would have loved to have done differently throughout this process is to have had more faith in my own ability. I spent an excessive amount of time worrying about things that didn't matter in the end. I worried about my ability to do well on the comprehensive exams. I worried about my understanding of the material. I worried about whether I understood research well enough to carry out an effective study. I worried that I would say the wrong thing and look like a fool. In the end, I realized that I learn best when I am exposed to concepts and then have an opportunity to use them in an authentic situation. My advice to worriers like myself is to stop worrying, and to instead spend that energy getting your hands dirty with the concepts. At the time, I realized that the worrying made me want to work harder to be sure that my fears didn't come to pass. I now realize that most of the things that I was worried about wouldn't have even been concerns if I had only understood at the time that I simply needed to approach learning more directly than I was. I kept expecting someone to teach me—that my role was to be a passive receptacle to be filled with knowledge—when I should have been focused on actively engaging the material and translating the concepts into real life examples. Once I learned this lesson, my educational life was much better.

This process was a time of tremendous personal and professional growth for me. During my time in the program, I learned several important truths:

First, I learned that there is no magic secret to success. Success is the result of hard work, and things like talent and luck are tertiary to effort.

Second, I learned that nothing happens without other people. People are part of a social system, and people would do well to embrace that fact. I recommend that people

take advantage of opportunities for feedback, seek advice and support, constantly seek to improve, and find ways to engage with others through dialogue and shared efforts.

Third, I solidified my understanding that, more than anything else, mistakes are opportunities to obtain feedback. Even if someone is yelling, they are only bothering to do so because they care enough to try to help. If they didn't care, they wouldn't bother. Whether the feedback is well-structured or belligerent, people can either use it to grow or to seek pity for themselves.

Fourth, I learned that it is never the crisis, but the reaction to the crisis, that defines a situation.

Fifth, I learned that things are iterative. Great designs come from lots of prototypes and refinements. Competency comes from many chances for practice and feedback. Great articles and books don't magically pour out of the hands of inspired writers. It isn't reasonable for anyone to expect to be good at something the first time. However, just because the first performance isn't great, doesn't mean that excellence is unattainable. People grow and get better as they repeatedly try to do things and obtain feedback on their efforts. It is possible, with practice, for people to learn how to obtain their own real-time feedback through metacognitively monitoring their efforts and making adjustments as they go along.

Sixth, I learned that my beliefs are inseparable from who I am, that no one else can define who I am unless I allow it, and that I must act in accordance with who I am and what I believe. I assume this translates to others as well. There is no need to allow things outside of oneself to define the person. I think people should embrace those things that make them unique...the things they feel strongly are part of their core. Effort spent trying

to reshape an individual's nature to conform to some external standard is futile effort. I think people do much better by focusing on growing as people and embracing humanity with all of its flaws and features. This is not to say to cut loose and live as though decisions in life are unimportant. Instead, work toward the good of others and think with a long-term strategy about how to help others attain happiness and learn to be fulfilled people. I think this is one key to happiness.

In some respects, this entire graduate school process has been a long and concerted period of effort and sacrifice. In other respects it has been an irreplaceable time of growth and evolution of thought. I have not had a boring, uneventful life with proper planning and support throughout. I have made many mistakes, faced many challenges, and overcome many hurdles to get where I am. There is a big part of me that wants to fiercely defend the idea that I am where I am in spite of the world and those in it who seemed at times to have conspired against me. However, as I mature and my station in life improves, I settle more and more into the understanding that people, all people, seem to do the best that they can given their own unique situation and circumstances. Everyone makes mistakes. No one is perfect save God. Everyone has room to grow. People can help each other though, and it doesn't have to cost much. Be the kind of person who smiles, opens the door for others, and shares what they are entrusted with. Life is better that way.

Conclusion

In this study, I used content analysis methodology to examine higher education policy documents for statements related to the implementation of openness.

As discussed in Chapter One, openness has a long history with education. Openness is growing again in popularity and is having an impact on higher education institutions. Some institutions are implementing different areas of openness, and there is reason to expect that other institutions are addressing openness even if they are not actively implementing it. This study examines the policy aspect of the larger RIPPLES Model of the implementation framework. The purposes of the study were to generate descriptive data on policies related to the implementation of openness in higher education and to provide guidance to institutions looking to address openness through their policies.

The significance of this study lies primarily in five areas. First, it expands the literature on policy and organizational change in higher education through providing relevant data on the topic. Second, it provides a snapshot of the existing state of policies addressing openness in research-intensive higher education institutions in the United States. Third, it provides a model and a method for using content analysis methodology for examining higher education policy documents. Fourth, it extends the literature on the RIPPLES Implementation Model by being the first study to look exclusively at the policy aspect of the model. Fifth, it provides idealized and best-found policy statements to serve as guides for institutions looking to address openness in their own policies. These statements are designed to be useful to institutions regardless of the institution's stance toward openness.

The literature related to this study was discussed in Chapter Two. The nature of the Philosophy of Openness was discussed and shown to have had a long history with education. The relationship of technology and openness was explored, resulting in the understanding that technology enables new methods of openness. More detail of the nature of openness in education was examined, as well as the transitioning role of higher education in the digital age. Finally, the impact of openness in higher education was explored, leading to the five major areas of openness explored in this study: Open Access, Open Content, Open Source Software, Open Teaching and Learning, and Other Areas of Openness. As this is really a study about implementation, the literature related to organizational change and development was examined. This led to looking at the role of policy in addressing change in higher education, and finally at examining the RIPPLES Implementation Model as a framework for this study.

As discussed in Chapter Three, I used a summative content analysis approach based on descriptions by Hsieh and Shannon (2005). I searched the Faculty Handbook, Strategic Plans, and Technology Plans of higher education institutions in the United States rated as very high research institutions (RU/VH) by the Carnegie Classification System. Because of their leadership and level of innovation I obtained the population of 108 RU/VH institutions and used them as an intensity sample of higher education. I drew a stratified random sample of institutions in this intensity sample based on the strata of public and private institutions. I drew 40% of each strata, leading to 30 public institutions and 14 private institutions being in the original sample. I had to replace two institutions, one from each strata, because they failed to meet the criteria to be involved in the study.

I located the relevant policy documents for the sample and searched them for statements related to the implementation of openness using eight *a priori* keywords to locate them. The keywords were strongly related to the areas of openness and were pared down from a larger list based on the results of pilot testing. Relevant statements returned in the search were classified as directly or indirectly addressing openness, and classified according to which area of openness they were related to. Direct statements were also evaluated for their policy role as enablers, barriers, or neutral to implementation.

As discussed in Chapter Four, 16 of the 44 institutions in the sample had statements related to the implementation of openness. There were a total of 130 statements related to different areas of openness. Only two institutions generated most of the relevant statements (76.5%, 99 of 130): Brown University and Georgia Institute of Technology. Brown University generated the majority of these statements (89%, 88 of 99). The most commonly addressed area of openness excluding statements from Brown University was Open Access.

I generated 45 idealized policy statements to serve as recommendations for higher education institutions looking to address the implementation of openness in their institutions. These consist of one statement from each policy role (enabler, barrier, neutral) for each area of openness (Open Access, Open Content, Open Teaching and Learning, and Other Areas of Openness) for each of the policy documents (Faculty Handbook, Strategic Plan, Technology Plan). I also noted the best-found statements from the analysis in the text. These statements should aid institutions in addressing the major areas of openness in their policies, regardless of the stance toward openness that the institution may take.

I selected the five most important and interesting findings from the results and reflected on them in Chapter Five. Perhaps the most important of these findings was that, at its core, openness is really human-centered. Therefore, all of the areas and approaches to openness are really just attempts to redesign systems so they will benefit as many people as possible. Another finding was that the practice of addressing openness through policy is not common in higher education. Some possible reasons for this were explored, including the ideas that openness has not made sufficient impact to be legitimately recognized, and that the policy environment is so complex that addressing openness is confusing at best. Another finding is that institutions that actually do address openness vary widely in the degrees and ways that they do it. Some possible reasons for this include the idea that openness is often over-hyped, and that only a few institutions in the sample are actually committed to the concept of openness. Another finding is that Open Access was addressed more than the Other Areas of Openness, and that the other areas were addressed to similar degrees. One possible reason for this is that Open Access is more commonly addressed in public, and that it applies more broadly to the institution, where Other Areas of Openness are more specialized and therefore less broadly known. Finally, I found that content analysis methodology is a viable method for examining policies in higher education, and should be used more for implementation research, efforts related to examining openness, and to examine higher education documents for policy. I provided related recommendations for practice and for future research with each finding. Finally, I reflected on my growth and experience throughout graduate school and the dissertation process.

There are several things that can be concluded from this study. The first, and I believe the most important, of these is that openness is really a human-centered concept. Ultimately, any legitimate implementation of openness is at least an attempt to benefit people and meet their needs in important ways. The takeaways from this conclusion are that designers and proponents of openness should be much more intentional about using Design Thinking and Human-Centered Design processes in relation to openness. I believe that if the design process for openness is managed in a way where the people are always at the center, the results will be more beneficial for everyone involved.

The second conclusion is evidenced by the findings that openness is not commonly addressed in higher education, and that institutions that do address openness have wide variance in how they actually do address openness. The conclusion, then, is that while openness is not commonly addressed in higher education, there are definitely large efforts by some institutions to explore and incorporate the concept into their organizations. There are also other organizations that are at least considering how openness fits into their organization. However, their efforts may be hindered by the chaos of the environment related to openness and the general lack of guidance for institutions looking to address openness. I think that it is important for organizations to take a measured, exploratory, approach to examining openness for the practical benefits it can have in their organization.

The third conclusion that can be drawn is that organizations seem to address issues that commonly affect them and that they are commonly aware of. Out of the areas of openness, Open Access seems to be addressed more commonly in higher education because it is more central to the organizational mission and goals than the Other Areas of

Openness. It is also more broadly addressed and likely more commonly understood. The Other Areas of Openness seem to be more specialized and therefore have smaller groups who are aware of them.

The fourth conclusion that can be drawn from this study is that content analysis is effective for obtaining descriptive information on policies in higher education, and should be considered more often as a legitimate approach to descriptive research. I believe that descriptive research and content analysis methodology are often shunned in the larger research community as being somehow less important than other methods or types of research, but I argue that they are foundational approaches to research. Without basic descriptive data, it is impossible to understand the nature of the situation under study well enough to draw legitimate conclusions or to make inferences to a larger population; both essential aspects of research. I think it is important for researchers to consider both descriptive studies and content analyses as primary approaches to research. I think these approaches should likely precede many inferential and experimental studies, and should be given more consideration in the literature and in texts that address research methods. I believe these approaches have been shown to be legitimate methods, both in this study and in many others.

Ultimately, I think this study provides an interesting look into implementation, openness, and the use of specific methods in relation to higher education. I think that it has proven to be a fruitful endeavor and will provide practical guidance for institutions both in seeing what other institutions have done to address openness and for crafting their own policies addressing openness. I also think that it has provided a powerful understanding of openness as a human-centered topic, and that this finding has real

implications for the way that openness should be approached, especially in relation to its implementation. I am thankful to have been able to carry out the study, and I hope that it proves beneficial to people in a broad variety of applications.

Chapter Summary

In this chapter, I reflected on the five main study findings identified in Chapter Four. These findings include the revelation that openness is human-centered, that the practice of addressing openness through policy is uncommon in higher education, and that there is a wide variance in how institutions that do address openness through policy actually do it. Other findings include that Open Access is addressed more than the Other Areas of Openness, and that content analysis is a viable method for obtaining data on policies in higher education.

I described each finding in more detail and supported it with related literature. I also provided thoughts on some reasons for the findings being what they are. Additionally, I provided some recommendations for practice and for future research related to each finding. I also reflected on my own experiences throughout graduate school and the dissertation process, and provided a summary of the study and some conclusions from the study.

REFERENCES

REFERENCES

- + Acumen. (2014). *An introduction to human-centered design: The design process*. Retrieved from http://plusacumen.org/wpcontent/uploads/2014/04/Class_1_readings.pdf
- Abel, R. J. (2006). *Best practices in open source in higher education study: The state of Open Source Software*. Lake Mary, FL: The Alliance for Higher Education Competitiveness, Inc. Retrieved from http://www.methodist.edu/csc/ossresearch/applications_vendors/OSS_Report.pdf
- Access. (2011). *Oxford English Online Dictionary*. Retrieved October 17, 2013, from <http://www.oed.com.libproxy2.usouthal.edu/view/Entry/1028?rskey=llnCdU&result=1&isAdvanced=false#eid>
- Anderson, C. (2006). *The long tail: Why the future of business is selling less of more*. New York: Hyperion.
- Anderson, M. (2011). Crowdsourcing higher education: A design proposal for distributed learning. *MERLOT Journal of Online Learning and Teaching*, 7(4), 1–17. Retrieved from http://jolt.merlot.org/vol7no4/anderson_1211.htm

- Anderson, N. (2012, December 9). Georgetown to offer free online courses. *The Washington Post*. Retrived 4-18-2014 from http://www.washingtonpost.com/local/education/georgetown-to-offer-free-online-courses/2012/12/09/365c4612-3fd3-11e2-bca3-aadc9b7e29c5_story.html
- Antelman, K. (2004). Do open-access articles have a greater research impact? *College & research libraries*, 65(5), 372–382. Retrieved from http://eprints.rclis.org/5463/1/do_open_access_CRL.pdf
- Arizona State University. (2014). Scholarly Communication: Open Access. Retrieved 4-18-2014 from <http://libguides.asu.edu/content.php?pid=29995&sid=783323>
- Association for Supervision and Curriculum Development 1974 Yearbook Committee. (1974). *Education for an Open Society*. D. Della-Dora & J. E. House, (Eds.). Washington: Association for Supervision and Curriculum Development.
- Attwell, G. (2007). Personal Learning Environments - the future of eLearning ? *eLearning Papers*, 2(January), 1–8. Retrieved from <http://elearningeuropa.info/files/media/media11561.pdf>
- Baker III, F.W. (in press). Open dialogue: A content analysis of the #openeducation Twitter hashtag. Submitted to the Association of Educational Communication Technology Annual Conference, Jacksonville, FL, 2014.
- Baker III, F. W. (2014a). Open Participatory Engagement Network (OPEN): An instructional design meta-framework for creating participatory networked learning environments. In *Society for Information Technology & Teacher Education International Conference* (Vol. 2014, No. 1, pp. 227-233). Retrieved from http://www.editlib.org/p/130745/proceeding_130745.pdf

- Baker III, F. W. (2014b). Developing the Open Factors Instrument: An Implementation Questionnaire for Gauging Openness. In *Society for Information Technology & Teacher Education International Conference* (Vol. 2014, No. 1, pp. 1378-1385). Retrieved from http://www.editlib.org/p/130959/proceeding_130959.pdf
- Baker III, F. W. (2012). Unshackling future minds: How including openness in teacher education can avoid insurrection and usher in a new era of collaboration. In P. Resta (Ed.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 1488–1493). Chesapeake, VA: AACE. Retrieved from <http://www.editlib.org/p/39793>.
- Baker III, F. W., & Surry, D. W. (2013a). Open Education Designs: A taxonomy for differentiating and classifying open learning environments. In R. McBride & M. Searson (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2013* (pp. 189–194). Chesapeake, VA: AACE. Retrieved from <http://www.editlib.org/pv/48090>
- Baker III, F. W., & Surry, D. W. (2013b). Faculty enthusiasm toward compulsory participation in an institutional open educational resources repository. In R. McBride & M. Searson (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 1831–1836). Chesapeake, VA: AACE. Retrieved from <http://www.editlib.org/p/48366>
- Barber, M., Donnelly, K., Rizvi, S., & Summers, L. (2013). *An avalanche is coming: Higher education and the revolution ahead*. London: Institute for Public Policy Research. Retrieved from: <http://www.ippr.org/publication/55/10432/an-avalanche-iscoming-higher-education-and-the-revolution-ahead>.

- Barrier. (1885). *Oxford English Online Dictionary*. Retrieved October 15, 2013, from <http://www.oed.com.libproxy2.usouthal.edu/view/Entry/15765?rskey=KxJ5an&result=1#eid>
- Beck, B. C. (2012). *The perceived presence and effect of incentives on community college faculty members' enthusiasm to teach online* (Doctoral Dissertation, University of South Alabama). Retrieved from <http://libproxy2.usouthal.edu/login?url=http://search.proquest.com.libproxy2.usouthal.edu/docview/1010996302?accountid=14672>
- Benson, R., & Palaskas, T. (2006). Introducing a new learning management system: An institutional case study. *Australasian Journal of Educational Technology*, 22(4), 548–567. Retrieved from <http://ascilite.org.au/ajet/ajet22/benson.html>
- Bergstrom, C. T., & Bergstrom, T. C. (2004). The costs and benefits of library site licenses to academic journals. *Proceedings of the National Academy of Sciences of the United States of America*, 101 (3), 897–902.
doi:10.1073/pnas.0305628101
- Bevan, N. (2009). International standards for usability should be more widely used. *Journal of Usability Studies*, 4(3), 106-113. Retrieved from http://usabilityprofessionals.org/upa_publications/jus/2009may/JUS_Bevan_May_2009.pdf
- Bevan, N. (2009, August). What is the difference between the purpose of usability and user experience evaluation methods. In *EXAM 09 Workshop, INTERACT*. Retrieved from http://nigelbevan.com/papers/What_is_the_difference_between_usability_and_user_experience_evaluation_methods.pdf

- Björk, B-C., & Solomon, D. (2012). Open Access versus subscription journals: a comparison of scientific impact. *BMC medicine*, *10*(73). doi:10.1186/1741-7015-10-73
- Bleiklie, I. (2002). Explaining change in higher education policy. In P. Trowler (Ed.), *Higher Education Policy and Institutional Change*. Philadelphia: Open University Press/SHRE.
- Bliss, T. J., Robinson, T. J., Hilton, J., & Wiley, D. A. (2013). An OER COUP: College teacher and student perceptions of open educational resources. *Journal of Interactive Media in Education (JIME)*, (February), 1–25. Retrieved from <http://jime.open.ac.uk/2013/04>
- Bonaccorsi, A., & Rossi, C. (2003). Why Open Source Software can succeed. *Research Policy*, *32*(7), 1243–1258. doi:10.1016/S0048-7333(03)00051-9
- Bonk, C. J. (2009). *The world is open*. San Francisco: Jossey-Bass.
- Boy, G.A. (2013). Orchestrating human-centered design. doi 10.1007/978-1-4471-4339-0
- Brannan, L., & Baker III, F. W. (2013). Media in learning: A debate and a transition. In R. McBride & M. Searson (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 3055–3060). Chesapeake, VA: AACE. Retrieved from <http://www.editlib.org/d/48563>
- Broudy, H. S., & Palmer, J. R. (1965). *Exemplars of teaching method*. Chicago: Rand McNally.
- Brown, J. S. (2006). New learning environments for the 21st century: Exploring the edge. *Change: The Magazine of Higher Learning*, *38*(5), 18–24. Retrieved from [http://johnseelybrown.com/Change article.pdf](http://johnseelybrown.com/Change%20article.pdf)

- Brown, J. S., & Adler, R. P. (2008). Minds on Fire: Open Education, the Long Tail, and Learning 2.0 *EDUCAUSE Review*, 43(1), 16-20. Retrieved from <http://reed.cs.depaul.edu/peterh/class/hci450/Papers/MindsonFire.pdf>
- Brown, T. & Katz, B. (2009). Change by design: How design thinking transforms organizations and inspires innovation. New York, New York: Harper Collins
- Brown, T., & Wyatt, J. (2010). Design thinking for social innovation. *Development Outreach*, 12(1), 29-43. Retrieved from http://www.ideo.com/images/uploads/thoughts/2010_SSIR_DesignThinking.pdf
- Brown University. (2009). *Brown University IT Strategic Plan 2008-2013*. Retrieved 3-9-2014 from <http://brown.edu/information-technology/sites/brown.edu.information-technology/files/uploads/brown-university-it-strategic-plan-v2.pdf>
- Brown University. (2010a). *Decameron Web*. Brown University. Retrieved 3-9-14 from http://www.brown.edu/Departments/Italian_Studies/dweb/index.php
- Brown University. (2010b). Library Resource Guide for: Scholarly Communications Information, Open Access. Retrieved 4-18-2014 from <http://library.brown.edu/gateway/lrg.php?id=509&task=custom&contentid=910>
- Brown University. (2013). *Brown launches two free online courses*. Brown University. Retrieved 4-18-2014 from <http://news.brown.edu/pressreleases/2013/06/coursera>
- Bryan-Low, C., & Gorman, S. (2011, June 23). Inside the anonymous army of “Hacktivist” attackers. *The Wall Street Journal*. Retrieved from <http://online.wsj.com/news/articles/SB10001424052702304887904576399871831156018>
- Buchan, J. F., & Swann, M. (2008). A Bridge too far or a bridge to the future? A case study in online assessment at Charles Sturt University. *Australasian Journal of*

Educational Technology, 23(3), 408–434. Retrieved from <http://ascilite.org.au/ajet/ajet23/buchan.html>

Carnegie Foundation for the Advancement of Teaching. (n.d.-a). Classification descriptions. Retrieved November 08, 2013, from <http://classifications.carnegiefoundation.org/descriptions/basic.php>

Carnegie Foundation for the Advancement of Teaching. (n.d.-b). The carnegie classification of institutions of higher education. Retrieved July 17, 2013, from <http://classifications.carnegiefoundation.org/>

Carnegie Foundation for the Advancement of Teaching. (n.d.-c). Methodology. Retrieved July 17, 2013, from <http://classifications.carnegiefoundation.org/methodology/>

Carnegie Foundation for the Advancement of Teaching. (n.d.-d). Classification description: Undergraduate instructional program classification. Retrieved December 17, 2013, from http://classifications.carnegiefoundation.org/descriptions/ugrad_program.php

Carnegie Foundation for the Advancement of Teaching. (n.d.-e). Classification description: Graduate instructional program classification. Retrieved December 17, 2013, from http://classifications.carnegiefoundation.org/descriptions/grad_program.php

Carnegie Foundation for the Advancement of Teaching. (n.d.-f). Classification description: Undergraduate profile classification. Retrieved December 17, 2013, from http://classifications.carnegiefoundation.org/descriptions/undergraduate_profile.php

- Caswell, T., Henson, S., Jensen, M., & Wiley, D. A. (2008). Open educational resources: Enabling universal education. *International Review of Research in Open and Distance Learning*, 9(1). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/469/1001>
- Chafkin, M. (2013, November). Udacity's Sebastian Thrun, godfather of free online education, changes course. *Fast Company Tech Forecast*. Retrieved from <http://www.fastcompany.com/3021473/udacity-sebastian-thrun-uphill-climb>
- Chatti, M. A., Jarke, M., & Specht, M. (2010). The 3P Learning Model. *Educational Technology & Society*, 13(4), 74–85. Retrieved from http://dspace.learningnetworks.org/bitstream/1820/3180/1/Chatti_ETS.pdf
- Cheliotis, G. (2009). From open source to Open Content: Organization, licensing and decision processes in open cultural production. *Decision Support Systems*, 47(3), 229–244. doi:10.1016/j.dss.2009.02.006
- Chesbrough, H. W. (2004). Managing open innovation. *Research-Technology Management*, 47(1), 23-26. Retrieved from http://cms.sem.tsinghua.edu.cn/semcms/res_base/semcms_com_www/upload/home/store/2008/7/3/2979.pdf
- Chesbrough, H. W. (2006). Open innovation: A paradigm for understanding industrial innovation. In H. Chesbrough, W. Vanhaverbeke, & J. West, (Eds.), *Open innovation: Researching a new paradigm*. Oxford University Press. Retrieved from http://openinnovation.berkeley.edu/ranp_chapters/01.pdf

- Christensen, J. (2005). *An introduction to openness and access to information*. Danish Institute for Human Rights. Retrieved from [http://www.humanrights.dk/files/pdf/Publikationer/An Introduction to Openness and Access to Information.pdf](http://www.humanrights.dk/files/pdf/Publikationer/An%20Introduction%20to%20Openness%20and%20Access%20to%20Information.pdf)
- Clow, D. (2013). MOOCs and the funnel of participation. In *Proceedings of the Third International Conference on Learning Analytics and Knowledge (LAK)*. Leuven, Belgium. doi:10.1145/2460296.2460332
- Collaborate. (1891). Oxford English Online Dictionary. Retrieved October 15, 2013, from <http://www.oed.com.libproxy2.usouthal.edu/view/Entry/36195?redirectedFrom=collaborate#eid>
- Collins, J. (2001). *Good to great*. HarperCollins.
- Collins, J. (2005). *Good to great and the social sectors*. HarperCollins.
- Collins, K. M., Onwuegbuzie, A. J., & Jiao, Q. G. (2007). A Mixed methods investigation of mixed methods sampling designs in social and health science research. *Journal of Mixed Methods Research, 1*(3), 267–294. doi:10.1177/1558689807299526
- Columbia University in the City of New York. (2014). Columbia partnership with edX to begin with online course on civil war from Eric Foner. Retrieved 4-18-2014 from <http://news.columbia.edu/oncampus/3373>
- Cortese, A. (2003). The critical role of higher education in creating a sustainable future: Higher education can serve as a model of sustainability by fully integrating all aspects of campus life. *Planning for Higher Education*, (March-May), 15–22. Retrieved from <http://www.scup.org/asset/48483/cortese.pdf>

- Couros, A. (2004). The open source movement: Implications for education comprehensive essays. Retrieved from http://www.educationaltechnology.ca/couros/publication_files/unpublishedpapers/Couros-OpenSource-Comprehensives-June30-04.pdf.
- Couros, A. (2006). *Examining the open movement: possibilities and implications for education* (Doctoral Dissertation, University of Regina, Saskatchewan, Canada). Retrieved from http://www.educationaltechnology.ca/couros/publication_files/research/Dissertation-Couros-FINAL-06-WebVersion.pdf
- Couros, A. (2009). Open, connected, social—implications for educational design. *Campus-Wide Information Systems*26(3), 232-239. Doi:10.1108/10650740910967393
- Creative Commons. (n.d.-a). About the licenses. Retrieved October 11, 2013, from <http://creativecommons.org/licenses/>
- Creative Commons. (n.d.-b). History. Retrieved October 11, 2013, from <http://creativecommons.org/about/history>
- Creative Commons. (2013). Metrics. Retrieved October 11, 2013, from <http://wiki.creativecommons.org/Metrics>
- Cummings, T. G., & Worley, C. G. (2009). *Organizational development & change*. Mason, OH: South-Western Cengage Learning.
- Curriki. (2013). About Curriki. Retrieved October 17, 2013, from <http://www.curriki.org/welcome/about-curriki/>

- Daugbjerg, S. B., Kahlmeier, S., Racioppi, F., Martin-Diener, E., Martin, B., Oja, P., & Bull, F. (2009). Promotion of physical activity in the European region: content analysis of 27 national policy documents. *Journal of Physical Activity & Health*, 6(6), 805–17. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/20101924>
- Davidson, A. (2013, June). America through the N.S.A.'s PRISM. *The New Yorker*. Retrieved from <http://www.newyorker.com/online/blogs/closeread/2013/06/america-through-the-nsas-prism.html>
- De Liddo, A.; Buckingham Shum, S.; McAndrew, P. & Farrow, R. (2012). The open education evidence hub: a collective intelligence tool for evidence based policy. In: Cambridge 2012: Joint OER12 and OpenCourseWare Consortium Global 2012 Conference, 16 - 18 April 2012, Cambridge, UK. Retrieved 4-19-2014 from http://oro.open.ac.uk/33253/1/OpenEdEvidence_Hub_Camb2012.pdf
- De Wever, B., Schellens, T., Valcke, M., & Van Keer, H. (2006). Content analysis schemes to analyze transcripts of online asynchronous discussion groups: A review. *Computers & Education*, 46(1), 6–28. doi:10.1016/j.compedu.2005.04.005
- Dewey, J. (1938). *Experience and education*. New York: Touchstone.
- Dewey, J. (2012). *Democracy and education*. Simon & Brown.
- DiBona, C. Ockman, S. & Stone, M. (Eds.). (1998). *Open sources: Voices from the open source revolution*. Sebastopol, CA: O'Reilly & Associates. Retrieved from <http://www.smaldone.com.ar/documentos/libros/opensources.pdf>
- Dick, W., Carey, L., & Carey, J.O. (2009). *The systematic design of instruction* (7th ed.). Upper Saddle River, New Jersey: Merrill/Pearson

Digital Connections Council of the Committee for Economic Development. (2006). *Open standards, open source, and open innovation: Harnessing the benefits of openness. Innovations: Technology, Governance, Globalization*. Committee for Economic Development. Retrieved from <http://www.oss-institute.org/storage/documents/Resources/studies/open-standards-open-source-harnessing-benefits-of-openness.pdf>

Digital Connections Council of the Committee for Economic Development. (2009). *Harnessing Openness to Improve Research, Teaching and Learning in Higher Education. Innovations: Technology, Governance, Globalization*. Washington, DC: Committee for Economic Development. Retrieved from <http://www.ced.org/pdf/Harnessing-Openness-to-Improve-Research-Teaching-and-Learning-in-Higher-Education.pdf>

Directory of Open Access Journals. (2013). DOAJ Homepage. Retrieved October 11, 2013, from <http://www.doaj.org/>

Dodsworth, E. (1998). Information policy: Marketing academic libraries: A necessary plan. *The Journal of Academic Librarianship*, 24(4), 320-322. Retrieved from http://ac.els-cdn.com/S0099133398901100/1-s2.0-S0099133398901100-main.pdf?_tid=15931cfa-c644-11e3-a6ff-00000aacb35f&acdnat=1397748327_d9dce557da29f782d5955cfed9a987e4

Downes, S. (2012). Massively open online courses are “here to stay” [Web Log Post]. Stephen’s Web. Retrieved November 14, 2013, from <http://www.downes.ca/post/58676>

- Drucker, P. F. (1999). *Management challenges for the 21st century*. New York, NY: Harper Collins Publishers, Inc.
- Du Toit, P., & Forlin, C. (2010). Cultural Transformation for Inclusion, What is Needed?: A South African Perspective. *School Psychology International*, 30(6), 644–666. doi: 10.1177/0143034309107081
- Duderstadt, J. J., Atkins, D. E., & Van Houweling, D. (2002). *Higher education in the digital age: Technology issues and strategies for American colleges and universities*. United States of America: American Council on Education and Praeger Publishers.
- Elmore, R. F. (1979). Backward mapping: Implementation research and policy decisions. *Political Science Quarterly*, 94(4), 601–616. Retrieved from [http://rds.epi-ucsf.org/ticr/syllabus/courses/68/2012/03/08/Lecture/readings/Week 9 Elmore 1979 Backward mapping.pdf](http://rds.epi-ucsf.org/ticr/syllabus/courses/68/2012/03/08/Lecture/readings/Week%209%20Elmore%201979%20Backward%20mapping.pdf)
- Ely, D. (1999). New perspectives on the implementation of educational technology innovations. *Educational Technology*, 39(6), 23–27. Retrieved from <http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:New+perspectives+on+the+implementation+of+educational+technology+innovations#0>
- Enable. (1891). Oxford English Online Dictionary. Retrieved October 18, 2013, from <http://www.oed.com.libproxy2.usouthal.edu/view/Entry/61507?redirectedFrom=enable&>
- Ensminger, D. C. (2008). Facilitating technology integration. In L. A. Tomei (Ed.), *Encyclopedia of Information Technology Curriculum Integration* (pp. 332–339). Hershey, PA: Idea Group Publishing.

- Ensminger, D. C., & Lewis, J. (2011). Technology in higher education: Understanding student issues. In D. W. Surry, J. T. Stefurak, & R. Gray (Eds.), *Technology integration in higher education* (pp. 30–41). Hershey, PA: Information Science Reference (IGI Global).
- Evans, G. W., & Lovell, B. (1979). Design modification in an open-plan school. *Journal of Educational Psychology*, *71*(1), 41–49. doi:10.1037//0022-0663.71.1.41
- Eysenbach, G. (2006). Citation advantage of Open Access articles. *PLoS biology*, *4*(5), e157. doi:10.1371/journal.pbio.0040157
- Eysenbach, G. (2011). Can tweets predict citations? Metrics of social impact based on Twitter and correlation with traditional metrics of scientific impact. *Journal of Medical Internet Research*, *13*(4), e123. doi:10.2196/jmir.2012
- Fahy, P., Crawford, G., & Ally, M. (2001). Patterns of interaction in a computer conference transcript. *International Review of Research in Open and Distance Learning*, *2*(1), 1–24. Retrieved from <http://www.irrodl.org/index.php/irrodl/article/viewFile/36/74>.Garrison
- Filbeck, R. (1974). *Systems in teaching and learning*. United States of America: Professional Educators Publications, Inc.
- Finch, J. (2012). Accessibility, sustainability, excellence: How to expand access to research publications. Report of the Working Group on Expanding Access to Published Research Findings. Retrieved from <http://www.researchinfonet.org/wp-content/uploads/2012/06/Finch-Group-report-FINAL-VERSION.pdf>

- Free. (2008). Oxford English Online Dictionary. Retrieved October 15, 2013, from <http://www.oed.com.libproxy2.usouthal.edu/view/Entry/74375?rskey=u7pLEl&result=1&isAdvanced=false#eid>
- Free Software Foundation. (n.d.-a). GNU general public license. Retrieved October 12, 2013, from <http://www.gnu.org/licenses/gpl.html>
- Free Software Foundation. (n.d.-b). Licenses. Retrieved October 12, 2013, from <http://www.gnu.org/licenses/licenses.html#FDL>
- Freedom. (2008). Oxford English Online Dictionary. Retrieved October 15, 2013, from <http://www.oed.com.libproxy2.usouthal.edu/view/Entry/74395?rskey=cRNx8h&result=1&isAdvanced=false#eid>
- Freire, P. (1986). *Pedagogy of the oppressed*. New York: Continuum Publishing Corporation.
- Friesen, N., & Wihak, C. (2013). From OER to PLAR: Credentialing for open education. *Open Praxis*, 5(1), 49–58. doi:10.5944/openpraxis.5.1.22
- Fullan, M., & Pomfret, A. (1977). Research on Curriculum and Instruction Implementation. *Review of Educational Research*, 47(2), 335–397. doi:10.3102/00346543047002335
- Gagne, R.M., Briggs, L.J., & Wager, W.W. (1992). *Principles of instructional design (4th ed.)*. Fort Worth: Harcourt Brace Jovanovich College Publishers.
- Gallivan, M. J. (2001). Striking a balance between trust and control in a virtual organization: a content analysis of Open Source Software case studies. *Information Systems Journal*, 11(4), 277-304. Retrieved from <http://heim.ifi.uio.no/~jensj/INF5700/TrustControlVirtualorganization.pdf>

- Georgia Institute of Technology. (2014). 5.5 Policy on Open Access to faculty publications. Retrieved 4-18-2014 from <http://www.policylibrary.gatech.edu/5.5-policy-open-access-faculty-publications>
- Georgia Institute of Technology, College of Computing. (2013a). Online master of science in computer science. Retrieved 4-18-2014 from <http://www.omscs.gatech.edu/>
- Georgia Institute of Technology, College of Computing. (2013b). Obama cites Georgia Tech's OMS CS as future model of college affordability. Retrieved 4-18-2014 from <http://www.cc.gatech.edu/news/obama-cites-georgia-tech%E2%80%99s-oms-cs-future-model-college-affordability>
- Georgia Institute of Technology. (n.d.). Open Access policy at Georgia Tech. Retrieved 4-18-2014 from http://www.library.gatech.edu/scdc/open_access?destination=node/15
- Ghosh, R. A., Krieger, B., Glott, R., & Robles, G. (2002). Free / Libre and Open Source Software: Survey and Study Deliverable D18 : FINAL REPORT Part IV: Survey of Developers. Retrieved from http://flossproject.org/report/FLOSS_Final0.pdf
- Giaconia, R. M., & Hedges, L. V. (1982). Identifying Features of Effective Open Education. *Review of Educational Research*, 52(4), 579–602. Retrieved from <http://files.eric.ed.gov/fulltext/ED208513.pdf>
- Gidda, M. (2013, July 25). Edward Snowden and the NSA files: Timeline. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2013/jun/23/edward-snowden-nsa-files-timeline>

- GitHub. (n.d.). White House / Petitions. Retrieved October 10, 2013, from <https://github.com/WhiteHouse/petitions>
- Glader, P. (2012, November 15). 2U launches semesteronline consortium with Duke, Emory, & others. *WiredAcademic*. Retrieved 4-18-2014 from <http://www.wiredacademic.com/2012/11/2u-launches-semesteronline-consortium-with-duke-emory-others/>
- Green, C. L., & Hoover-Dempsey, K. V. (2007). Why do parents homeschool? A systematic examination of parental involvement. *Education and Urban Society*, 39(2), 264–285. doi:10.1177/0013124506294862
- Groom, J. (2011). DS106: Stories in our digital age [Web Log Post]. Retrieved October 12, 2013, from <http://bavatusdays.com/ds106-stories-in-our-digital-age/>
- Groom, J. (2012). DS106: The open online community of digital storytellers. Kickstarter. Retrieved October 31, 2013, from <http://www.kickstarter.com/projects/jimgroom/ds106-the-open-online-community-of-digital-storyte>
- Guédon, J. (2004). The “green” and “gold” roads to Open Access: The case for mixing and matching. *Serials Review*, 30(4), 315–328. doi:10.1016/j.serrev.2004.09.005
- Guédon, J. (2008). Mixing and matching the green and gold roads to Open Access—Take 2. *Serials Review*, 34(1), 41–51. doi:10.1016/j.serrev.2007.12.008
- Guthrie, D. (2013, August 15). The coming big data education revolution: Big data, not MOOCs, will give institutions the predictive tools they need to improve outcomes for individual students. *US News*. Retrieved from <http://www.usnews.com/opinion/articles/2013/08/15/why-big-data-not-moocs-will-revolutionize-education>

- Hall, G., & Hord, S. (1987). *Change in schools: Facilitating the process*. Albany, NY: SUNY Press.
- Hanna, D. E. (2000). Emerging approaches to learning in collegiate classrooms. In Donald E. Hanna and Associates (Ed.), *Higher education in an era of digital competition: Choices and challenges* (pp. 45–70). Madison, WI: Atwood Publishing.
- Harnad, S. (2005). Fast-forward on the green road to Open Access: the case against mixing up green and gold. *Ariadne*, 42. Retrieved from <http://arxiv.org/abs/cs/0503021>
- Harnad, S., & Brody, T. (2004). Comparing the impact of Open Access (OA) vs. non-OA articles in the same journals. *D-lib Magazine*, 10(6). Retrieved from <http://eprints.soton.ac.uk/260207/1/06harnad.html>
- Harnad, S., Brody, T., Vallières, F., Carr, L., Hitchcock, S., Gingras, Y., Oppenheim, C. Stamerjohanns, H., & Hilf, E. (2004). The access/impact problem and the green and gold roads to Open Access. *Serials Review*, 30. Retrieved from <http://eprints.soton.ac.uk/259939/1/impact.html>
- Hars, A., & Ou, S. (2002). Working for free? Motivations of participating in open-source projects. *International Journal of Electronic Commerce*, 6(3), 25-39. doi:10.1109/HICSS.2001.927045
- Haslam, E., & Misra, R. (2011, October). The Role of Experience in E-Learning: A Holistic Design Framework. In *World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education*. 2011(1), pp. 1942-1946. Retrieved from http://www.editlib.org/p/39012/proceeding_39012.pdf

- Hassink, H., Vries, M. De, & Bollen, L. (2007). A content analysis of whistleblowing policies of leading European companies. *Journal of Business Ethics*, 75(1), 25–44. Retrieved from <http://www.jstor.org/stable/25123973?origin=JSTOR-pdf>
- Hays, L. (1991). *Open education: Its development in America and its influence on current educational themes* (Thesis, University of North Florida). Retrieved from <http://digitalcommons.unf.edu/etd/129/>
- Henn, S. (2012). Stanford takes online schooling to the next academic level [Web Log Post]. *All Tech Considered, National Public Radio*. Retrieved from <http://www.npr.org/blogs/alltechconsidered/2012/01/23/145645472/stanford-takes-online-schooling-to-the-next-academic-level>
- Holdren, J. (2013). Memorandum for the heads of executive departments and agencies. Memorandum: Executive Office of the President, Office of Science and Technology. Retrieved October 21, 2013, from http://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf
- Horwitz, R. A. (1979). Psychological effects of the “open classroom.” *Review of Educational Research*, 49(1), 71–85. doi:10.3102/00346543049001071
- Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative health research*, 15(9), 1277–88. doi:10.1177/1049732305276687
- Hyman, S. (2013). Open Access and scholarly publishing. Harvard Law School. Retrieved November, 14, 2013, from <https://osc.hul.harvard.edu/policies>
- IDEO. (2008). Human-centered design (HCD) toolkit. Retrieved from <http://www.hcdconnect.org/toolkit/en/download>

- Illich, I. (1971). *Deschooling society*. (R. N. Anshen, Ed.) (World Perspectives, Vol. 44). New York: Harper & Row.
- Innovation. (1900). Oxford English Online Dictionary. Retrieved November 01, 2013, from <http://www.oed.com/view/Entry/96311?redirectedFrom=innovation#eid>
- International Organization for Standardization. (n.d.). *ISO 9241-210:2010*. Retrieved 4-15-2014 from http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=52075
- Isaacson, W. (2011). *Steve Jobs*. New York: Simon & Schuster.
- Jasinski, M. (2007). *Innovate and integrate: Embedding innovative practices*. Brisbane, Queensland: Australian Flexible Learning Network. Retrieved from http://www.innovateandintegrate.flexiblelearning.net.au/docs/Innovate_and_Integrate_Final_26Jun07.pdf
- Johnson, R. B., & Christensen, L. (2012). *Educational Research* (4th ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational researcher*, 33(7), 14–26.
doi:10.3102/0013189X033007014
- Jones, B. B., & Brazzel, M. (Eds.). (2006). *The NTL Handbook for organization development and change: Principles, practices, and perspectives*. San Francisco: Pfeiffer.
- Jump, P. (2012, April 26). Harvard backs Open Access in face of ‘prohibitive’ journal costs. *Times Higher Education*. Retrieved 4-18-2014 from <http://www.timeshighereducation.co.uk/419779.article>

- Kelty, C. (2008). *Two bits: The cultural significance of free software*. United States of America: Duke University Press. Retrieved from <http://evols.library.manoa.hawaii.edu/bitstream/handle/10524/1624/Kelty-TwoBits.pdf>
- Kemper, E. A., Stringfield, S., & Teddlie, C. (2003). Mixed methods sampling strategies in social science research. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social & behavioral research*, (pp. 273-296). Thousand Oaks, CA: Sage Publications, Inc.
- Khan Academy. (2012, March). Thousands of researchers boycott Elsevier, demand Open Access Journals. *International Business Times*. Retrieved November 7, 2013, from <http://www.ibtimes.com/thousands-researchers-boycott-elsevier-demand-open-access-journals-427106>
- Khan Academy. (n.d.). How did Khan Academy get started? Retrieved November 13, 2013, from <http://khanacademy.desk.com/customer/portal/articles/329316-how-did-khan-academy-get-started->
- Khan Academy. (2013). Knowledge Map. Retrieved November 13, 2013, from <https://www.khanacademy.org/exercisedashboard>
- Klein, Z., & Eshel, Y. (1980). The open classroom in cross-cultural perspective: A research note. *Sociology of Education*, 53(April), 114–121. Retrieved from <http://www.jstor.org/stable/10.2307/2112493>
- Knutson, D. (2013). California Open Access legislation clears latest hurdle [Web Log Post]. PLOS Blogs. Retrieved October 11, 2013, from <http://blogs.plos.org/plos/2013/05/california-open-access-legislation-clears-latest-hurdle/>

- Kohl, H. (1969). *The open classroom: A practical guide to a new way of teaching*. Random House Inc.
- Kohoutek, J. (2013). Three Decades of Implementation Research in Higher Education: Limitations and Prospects of Theory Development. *Higher Education Quarterly*, 67(1), 56-79. doi:10.1111/j.1468-2273.2012.00531.x
- Kolowich, S. (2012, April 18). Elite universities' online play. *Inside Higher Ed*. Retrieved 4-18-2014 from <http://www.insidehighered.com/news/2012/04/18/princeton-penn-and-michigan-join-mooc-party#sthash.aeaANOjO.dpbs>
- König, C., Hofmann, T., & Bruder, R. (2012). Application of the user-centred design process according ISO 9241-210 in air traffic control. *Work: A Journal of Prevention, Assessment and Rehabilitation*, 41, 167-174. doi: 10.3233/WOR-2012-1005-167
- Kop, R. (2011). The challenges to connectivist learning on open online networks: Learning experiences during a massive open online course. *International Review of Research in Open and Distance Learning*, 12(3), 19–38. Retrieved from <http://nparc.cisti-icist.nrc-cnrc.gc.ca/npsi/ctrl?action=rtdoc&an=18150443>.
- Kop, R., Fournier, H., & Mak, J. (2011). A pedagogy of abundance or a pedagogy to support human beings? Participant support on massive open online courses. *International Review of Research in Open and Distance Learning*, 12(7), 75–93. Retrieved from <http://nparc.cisti-icist.nrc-cnrc.gc.ca/npsi/ctrl?action=rtdoc&an=19040607>
- Kotter, J. P. (1996). *Leading change*. United States of America: Harvard Business School Press.

- Krikorian, G. (2010). *Access to knowledge in the age of intellectual property*. (Edited by Gaëlle Krikorian and Amy Kapczynski, Ed.). New York, New York, USA: MIT Press, E-BOOK (OPEN ACCESS). Retrieved from <http://mitpress.mit.edu/catalog/item/default.asp?ttype=2&tid=12589>
- Kuppuswamy, V., & Bayus, B. (2013). Crowdfunding Creative Ideas: the Dynamics of Projects Backers in Kickstarter. SSRN Working Paper. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2234765
- Laakso, M., & Björk, B. (2012). Anatomy of Open Access publishing: a study of longitudinal development and internal structure. *BMC Medicine*, *10*(124). doi:10.1186/1741-7015-10-124
- Laakso, M., Welling, P., Bukvova, H., & Nyman, L. (2011). The development of Open Access journal publishing from 1993 to 2009. *PLoS One*, *6*(6). doi:10.1371/journal.pone.0020961
- Laidlaw, B., & Layard, R. (1974). Traditional versus open university teaching methods: A cost comparison. *Higher Education*, *3*(4), 439–468. Retrieved from http://www.c3l.uni-oldenburg.de/cde/econ/readings/ou_ev.pdf
- Lakhani, K. R., & Von Hippel, E. (2003). How Open Source Software works: “free” user-to-user assistance. *Research Policy*, *32*(6), 923–943. Retrieved from http://www.ee.oulu.fi/~vassilis/courses/socialweb10F/reading_material/2/lakhani00-HowOpenSourceSoftwareWorks.pdf
- Lam, C.M. (2013). A Popperian Approach to Education for Open Society. *Educational Philosophy and Theory*, *45*(8), 845–859. doi:10.1111/j.1469-5812.2011.00829.x

- Lane, A. (2009). The impact of openness on bridging educational digital divides. *International Review of Research in Open and Distance Learning*, 10(5). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/637/1408>
- Leckart, S. (2012, March). The Stanford education experiment could change higher learning forever. *Wired Magazine*. Retrieved from http://www.wired.com/wiredscience/2012/03/ff_aiclass/all/
- Lemiengre, J., Dierckx de Casterlé, B., Denier, Y., Schotsmans, P., & Gastmans, C. (2008). How do hospitals deal with euthanasia requests in Flanders (Belgium)? A content analysis of policy documents. *Patient Education and Counseling*, 71(2), 293–301. doi:10.1016/j.pec.2007.12.010
- Lessig, L. (2004). *Free Culture*. New York: The Penguin Press. Retrieved from <http://www.free-culture.cc/freeculture.pdf>.
- Lessig, L. (2008). *Remix: Making art and commerce thrive in the hybrid economy*. Great Britain: Penguin Press. Retrieved from <http://www.scribd.com/doc/47089238/Remix>.
- Lewis, D. W. (2012). The Inevitability of Open Access. *College and Research Libraries*, 73(5), 493–506.
- License. (1902). Oxford English Online Dictionary. Retrieved October 11, 2013, from <http://www.oed.com.libproxy2.usouthal.edu/view/Entry/107946?redirectedFrom=license#eid>
- Linden, A., & Fenn, J. (2003). Understanding Gartner's hype cycles. *Strategic Analysis Report N° R-20-1971*. Gartner, Inc. Retrieved from <http://www.ask-force.org/web/Discourse/Linden-HypeCycle-2003.pdf>

- Liyanagunawardena, T. R., Adams, A. A., & Williams, S. A. (2013). MOOCs : A systematic study of the published literature 2008-2012. *International Review of Research in Open and Distance Learning*, 14(3). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/1455/2531>
- Liyoshi, T. & Kumar, M.V. (Eds.). (2008). *Opening up education: The collective advancement of education through open technology, Open Content, and open knowledge*. Cambridge, Mass: The MIT Press.
- Mackey, J., & Sisodia, R. (2013). *Conscious capitalism: Liberating the heroic spirit of business*. Boston, MA: Harvard Business Review Press.
- Magee, B. (1973). *Karl Popper*. New York: The Viking Press.
- Malloy, D. C., & Fennell, D. A. (1998). Codes of ethics and tourism: An exploratory content analysis. *Tourism Management*, 19(5), 453–461. doi:10.1016/S0261-5177(98)00042-9
- Martinez, L., & Saenz, A. (2013, August 21). Bradley Manning sentenced to 35 years for leaking secrets. *ABC News*. Retrieved from <http://abcnews.go.com/Politics/Bradley-manning-sentenced-35-years-leaking-secrets/story?id=20021288>
- Masseachusetts Institute of Technology. (n.d.). Our history. Retrieved October 27, 2013, from <http://ocw.mit.edu/about/our-history/>
- Materu, P. N. (2004). Open source courseware: A baseline study. World Bank. Retrieved from http://siteresources.worldbank.org/INTAFRREGTOPTEIA/Resources/open_source_courseware.pdf

- Matkin, G. (2009). Open learning: What do open textbooks tell us about the revolution in education?. UC Berkeley: Center for Studies in Higher Education. Retrieved from <http://escholarship.org/uc/item/1b20t36z>
- McAndrew, P. (2010). Defining openness: updating the concept of “open” for a connected world. *Journal of Interactive Media in Education* 2010(02). Retrieved from <http://jime.open.ac.uk/jime/article/viewArticle/2010-10/html>
- McDonald, J.H. (2009). *Handbook of Biological Statistics* (2nd ed.). Sparky House Publishing, Baltimore, Maryland.
- McDonald, J.K. (2011). The creative spirit of design. *TechTrends* 55(5), pp. 53-57. Retrieved from http://download.springer.com/static/pdf/871/art%253A10.1007%252Fs11528-011-05282.pdf?auth66=1401997808_2a9cfb860bda3436189f169dbd018818&ext=.pdf.
- Meister, J. (2013, August 13). How MOOCs will revolutionize corporate learning and development. *Forbes*. Retrieved from <http://www.forbes.com/sites/jeannemeister/2013/08/13/how-moocs-will-revolutionize-corporate-learning-development/>
- Meiszner, A. (2011). *The Why and How of Open Education* (1.5 ed.). The Netherlands: United Nations University, UNU-MERIT, Collaborative Creativity Group. Retrieved from <http://www.scribd.com/doc/53332611/The-Why-and-How-of-Open-Education-v1-0-Read-also-the-new-version-1-5#fullscreen:on>
- Mendoza, N.P. (2012, November 13). ASU technology officials developing massive open online courses. *The State Press*. Retrieved 4-18-2014 from <http://www.statepress.com/2012/11/13/asu-technology-officials-developing-massive-open-online-courses/>

- Migliore, M. (2012). Designed for Use. *Flow Control*, 18(1), 34-36. *Business Source Complete*, EBSCOhost.
- Milhollan, F., & Forsiha, B. E. (1972). *From Skinner to Rogers: Contrasting approaches to education*. (Professional Education Series) Lincoln: Professional Educators Publications, Inc.
- Miller, W. D. (2010). A descriptive study of the process post-secondary military institutions use to adopt, implement and train for use of new instructional technologies. (Doctoral Dissertation, Virginia Polytechnic Institute and State University). Retrieved from http://scholar.lib.vt.edu/theses/available/etd-04192010-161738/unrestricted/Miller_WD_2010_F1_Title_Dissertation_Appendices.pdf
- Minich, E. L., & Sipes, J. (1997). *Collaboration & Cooperation: Using Technology plan To Define Faculty and Staff Responsibilities in Distance Learning Programs*. [Abstract] Retrieved from <http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=ED414964>
- Minister of State for the Cabinet Office and Paymaster General. (2012). *Open data white paper: Unleashing the potential*. United Kingdom: The Stationary Office Limited. Retrieved from <https://www.gov.uk/government/publications/open-data-white-paper-unleashing-the-potential>
- Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study. *Journal of Business Venturing*, 29(1), 1–16. doi:10.1016/j.jbusvent.2013.06.005

- Montessori, M. (1912). *The Montessori method*. New York: Frederick A. Stokes Company. Retrieved from <http://digital.library.upenn.edu/women/montessori/method/method.html>
- Morgan, T., & Carey, S. (2009). From Open Content to open course models: Increasing access and enabling global participation in higher education. *International Review of Research in Open and Distance Learning*, 10(5). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/632>
- Morrow, S. L. (2005). Quality and Trustworthiness in Qualitative Research in Counseling Psychology. *Journal of Counseling Psychology*, 52(2), 250–260. doi:10.1037/0022-0167.52.2.250
- Mozilla Foundation. (n.d.). Open badges. Retrieved October 15, 2013, from <http://openbadges.org/>
- Mukherjee, B. (2009). Do open-access journals in library and information science have any Scholarly Impact? A bibliometric study of selected open-access journals using google scholar. *Journal of the American Society for Information Science and technology* 60(3), 581–594. doi: 10.1002/asi.21003
- Muldoon, N., Tennent, B., & Tickle, K. (2013). Moodle implementation and the RIPPLES model: Reflections on a sustainable approach to technology integration and renewal of educational practice. In *Proceedings of World Conference on Educational Multimedia, Hypermedia, and Telecommunications* (pp. 345–354). Chesapeake, VA: AACE. Retrieved from <http://www.editlib.org/p/34661>

- Neal, M. (2013, December 19). MOOCs are a total bust—according to the hype cycle. *Motherboard*. Retrieved from <http://motherboard.vice.com/blog/moocs-are-a-total-bustaccording-to-the-hype-cycle>
- Nelson, H.G., & Stolterman, E. (2003). *The design way: Intentional change in an unpredictable world*. Englewood Cliffs, New Jersey: Educational Technology Publications
- Neutral. (2003). Oxford English Online Dictionary. Retrieved October 15, 2013, from <http://www.oed.com/view/Entry/126457?redirectedFrom=neutral&>
- NIH. (2013). National Institutes of Health public access. Retrieved November 6, 2013, from <http://publicaccess.nih.gov/>
- Northwestern University. (2013). Northwestern partners with Coursera on MOOCs. Retrieved 4-18-2014 from <http://www.northwestern.edu/newscenter/stories/2013/02/northwestern-partners-with-coursera-on-moocs.html>
- Northwestern University. (2014). Scholarly Communication. Retrieved 4-18-2014 from <http://libguides.northwestern.edu/openaccess>
- Nyberg, D. (Ed.). (1975). *The philosophy of open education*. Routledge and Kegan Paul.
- Nyman, L., Mikkonen, T., Lindman, J., & Fougere, M. (2011). Forking: The invisible hand of sustainability on Open Source Software. In I. Hammouda & B. Lundell (eds.), *Proceedings of SOS 2011: Towards Sustainable Open Source*. Retrieved from http://tutopen.cs.tut.fi/sos11/papers/SOS11_proceedings.pdf#page=9

- Office of Science and Technology Policy. (2013). Expanding public access to the results of federally funded research. Retrieved October 13, 2013, from <http://www.whitehouse.gov/blog/2013/02/22/expanding-public-access-results-federally-funded-research>
- Office of the Press Secretary. (2013). Fact sheet on the president's plan to make college more affordable: A better bargain for the middle class. Retrieved October 13, 2013, from <http://www.whitehouse.gov/the-press-office/2013/08/22/fact-sheet-president-s-plan-make-college-more-affordable-better-bargain>
- OLCOS. (2007). *Open educational practices and resources-OLCOS roadmap 2012*. (G. Geser, Ed.) Austria: Open eLearning Content Observatory Services (OLCOS). Retrieved from <http://www.olcos.org/english/roadmap/>
- Open. (2004). Oxford English Online Dictionary. Retrieved October 11, 2013, from <http://www.oed.com.libproxy2.usouthal.edu/view/Entry/131698?rskey=NOpYMs&result=1#eid>
- Open Connections. (n.d.). The OC process. Retrieved November 12, 2013, from <http://www.openconnections.org/oc-process>
- Open Content. (2011). Intro open ed syllabus. Retrieved November 17, 2012, from http://www.opencontent.org/wiki/index.php?title=Intro_Open_Ed_Syllabus.
- Open Educational Quality Initiative. (2011). *Beyond OER: Shifting Focus to Open Educational Practices*. Germany: University Duisburg-Essen. Retrieved from <http://www.oerasia.org/OERResources/8.pdf>
- Oregon State University. (2013). MOOCs-Massive Open Online Courses. Retrieved 4-18-2014 from <http://oregonstate.edu/senate/webcast/mooc/>

- Oregon State University. (n.d.). MOOCs at Oregon State. Retrieved 4-18-2014 from http://oregonstate.edu/senate/webcast/mooc/MOOC_OSU.pdf
- Organisation for Economic Co-Operation and Development. (2007). *Giving knowledge for free: The emergence of open educational resources*. Paris: Organisation for Economic Co-Operation and Development. Retrieved from <http://www.oecd.org/edu/ceri/38654317.pdf>
- Papert, S. (1980). *Mindstorms: Children, computers, and powerful ideas*. New York: Basic Books, Inc.
- Participate. (2005). Oxford English Online Dictionary. Retrieved October 11, 2013, from <http://www.oed.com.libproxy2.usouthal.edu/view/Entry/138243?rskey=UzKQJj&result=1#eid>
- Patton, M. Q. (2002). *Qualitative research & evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Peter, S., & Deimann, M. (2013). On the role of openness in education: A historical reconstruction. *Open Praxis*, 5(1), 7–14. doi:10.5944/openpraxis.5.1.23
- Peters, M. A. (2010). The idea of openness: Open education and education for openness. In M. A. Peters, P. Ghiraldelli, B. Žarnić, & A. Gibbons, (Eds.) *Encyclopedia of Educational Philosophy and Theory*. Retrieved from http://www.ffst.hr/ENCYCLOPAEDIA/doku.php?id=open_education_and_education_for_openness

- Peters, M. A. (2012). Openness and open education in the global digital economy: an emerging paradigm of social production. In M. A. Peters, P. Ghiraldelli, B. Žarnić, & A. Gibbons, (Eds.) *Encyclopedia of Educational Philosophy and Theory*. Retrieved from http://www.ffst.hr/ENCYCLOPAEDIA/doku.php?id=openess_and_open_education
- Peters, M. A., & Britez, R. G. (Eds.). (2008). *Open education and education for openness*. Rotterdam: Sense Publishers.
- Peters, M. A., & Roberts, P. (2012). *The virtues of openness: Education, science, and scholarship in the digital age*. Boulder, CO: Paradigm Publisher.
- Peters, T. J., & Waterman, R. H. (1982). *In search of excellence: Lessons from America's best-run companies*. New York: Harper & Row.
- Piedra, N., & Chicaiza, J. (2009). Open educational practices and resources based on social software, UTPL experience. In *Proceedings of the 2009 Euro American conference on Telematics and Information Systems: New Opportunities to Increase Digital Citizenship, EATIS 2009, Prague, Czech Republic, June 3-5, 2009*. doi:10.1109/ICALT.2009.224
- Plumb, D. (2011). The right to technology in education. In D. W. Surry, J. T. Stefurak, & R. Gray (Eds.), *Technology integration in higher education* (pp. 267–278). Hershey, PA: Information Science Reference (IGI Global).
- Policy. (n.d.). Merriam-Webster Online Dictionary. Retrieved October 08, 2013, from <http://www.britannica.com.libproxy2.usouthal.edu/bps/dictionary?query=policy>
- Popper, K. R. (1966). *The open society and its enemies* (5th ed., Vol. 1 & 2). Retrieved from <http://www.inf.fu-berlin.de/lehre/WS06/pmo/eng/Popper-OpenSociety.pdf>

- Porter, B. E. (2012). *Examination of the differences among innovation styles on implementation readiness components with k-12 educators*. (Doctoral dissertation, University of South Alabama). Retrieved from <http://search.proquest.com.libproxy2.usouthal.edu/docview/1266388645/fulltextPDF/14286349D5C7416F10D/1?accountid=14672>
- Potter, W. J., & Levine-Donnerstein, D. (1999). Rethinking validity and reliability in content analysis. *Journal of Applied Communication Research*, 27(August), 258–284. Retrieved from <http://ejournals.ebsco.com.libproxy2.usouthal.edu/Direct.asp?AccessToken=2911S9A8SB1XMH2WFLWMBLLHBZXH89919F&Show=Object&ErrorURL=http%3A%2F%2Flinksources%2Eebsco%2Ecom%2Ferror%2Easpx>
- Princeton University. (2013). Open Access Policy. Retrieved March 15, 2014 from <http://www.princeton.edu/dof/policies/publ/fac/open-access-policy/>
- Purdue University. (2012). Tag Archives: MOOC. [Web Log Post]. *Instructional Development Center Blog*. Retrieved 4-18-2014 from <https://www.purdue.edu/learning/blog/?tag=mooc>
- Rajani, N., Rekola, J., & Mielonen, T. (2003). *Free as in education: significance of the free/libre and Open Source Software for developing countries*. Helsinki, Finland: OneWorld Finland and KEPA. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.201.2274&rep=rep1&type=pdf>
- Raymond, E. S. (1999). The cathedral and the bazaar. *Knowledge, Technology & Policy*, 12(3), 23–49. doi:10.1007/s12130-999-1026-0

- Reclaim Open Initiative. (n.d.). Reclaim open: People and universities for better online learning. Retrieved October 14, 2013, from <http://open.media.mit.edu/>
- Research Councils UK. (2013). RCUK Policy on Open Access. Retrieved October 13, 2013, from <http://www.rcuk.ac.uk/research/Pages/outputs.aspx>
- Reynolds, J., & Saunders, M. (1987). Teacher responses to curriculum policy: Beyond the “delivery” metaphor. In J. Calderhead (Ed.), *Exploring teachers' thinking*. London: Cassell Education Limited.
- Richey, R. C., Klein, J. D., & Tracey, M. W. (2011). *The instructional design knowledge base: theory, research, and practice*. New York: Routledge.
- Richmond Public Schools. (n.d.). Summary of Open High School mission, vision, and beliefs. Retrieved November 05, 2013, from <http://web.richmond.k12.va.us/ohs/About/MissionVision.aspx>
- Roberge, G. D. (2011). Countering School Bullying: An Analysis of Policy Content in Ontario and Saskatchewan. *International Journal of Education Policy and Leadership*, 6(5), 1–15. Retrieved from <http://www.eric.ed.gov/ERICWebPortal/recordDetail?accno=EJ963736>
- Roberts, P. (2011). Openness as an educational virtue. *Geopolitics, History, and International Relations*, 3(1). Retrieved from http://ic.galegroup.com/ic/ovic/AcademicJournalsDetailsPage/AcademicJournalsDetailsWindow?failOverType=&query=&prodId=OVIC&windowstate=normal&contentModules=&mode=view&displayGroupName=Journals&limiter=&currPage=&disableHighlighting=false&displayGroups=&sortBy=&source=&search_within_results=&action=e&catId=&activityType=&scanId=&documentId=GALE%7CA267134559

- Rodriguez, O. (2012). MOOCs and the AI-Stanford like Courses: Two Successful and Distinct Course Formats for Massive Open Online Courses. *European Journal of Open, Distance, and e-Learning Transition*, (May). Retrieved from <http://www.eurodl.org/index.php?p=current&sp=full&article=516>
- Rodriguez, O. (2013). The concept of openness behind c and x-MOOCs (Massive Open Online Courses). *Open Praxis*, 5(1), 67–73. Retrieved from <https://www.openpraxis.org/index.php/OpenPraxis/article/view/42>
- Rogers, C. R. (1969). *Freedom to learn: Studies of the person*. C. R. Rogers & W. R. Coulson, (Eds.). Columbus: Charles Merrill Publishing Company.
- Rogers, E. M. (2003). *Diffusion of innovations*. New York: Free Press.
- Romero, J. L., & Sorden, S. D. (2008). Implementing an online learning management system : An experience of international collaboration. In J. Luca & E. Weippl (Eds.), *Proceedings of ED-MEDIA 2008 World Conference on Educational Multimedia, Hypermedia, & Telecommunications* (pp. 840–847). Chesapeake, VA: Association for the Advancement of Computing.
- Rourke, L., Anderson, T., Garrison, D., & Archer, W. (2001). Methodological issues in the content analysis of computer conference transcripts. *International Journal of Artificial Intelligence in Education*, 12(1). Retrieved from <http://hal.archives-ouvertes.fr/hal-00197319/>
- Sample, I. (2012, April 24). Harvard University says it can't afford journal publisher's prices. *The Guardian*. Retrieved from <http://www.theguardian.com/science/2012/apr/24/harvard-university-journal-publishers-prices>

- Sandelowski, M. (2000). Focus on Research Methods Combining Qualitative and Quantitative Sampling , Data Collection , and Analysis Techniques in Mixed-Method Studies. *Research in Nursing & Health*, 23(3), 246–255.
- Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization*. New York: Doubleday
- Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 3-10. Retrieved from http://www.ingedewaard.net/papers/connectivism/2005_siemens_ALearningTheoryForTheDigitalAge.pdf
- Siemens, G. (2012a). MOOCs are really a platform [Web Log Post]. eLearnSpace. Retrieved December 05, 2013, from <http://www.elearnspace.org/blog/2012/07/25/moocs-are-really-a-platform/>
- Siemens, G. (2012b). What is the theory that underpins our moocs? [Web Log Post]. eLearnSpace. Retrieved November 06, 2013, from <http://www.elearnspace.org/blog/2012/06/03/what-is-the-theory-that-underpins-our-moocs/>
- Silberman, M. L., Allender, J. S., & Yanoff, J. M. (Eds.). (1972). *The psychology of Open Teaching and Learning: An inquiry approach*. Boston: Little, Brown and Company. Retrieved from <http://library.wur.nl/WebQuery/clc/349187>
- Smith, P. K., Smith, C., Osborn, R., & Samara, M. (2008). A content analysis of school anti-bullying policies: progress and limitations. *Educational Psychology in Practice*, 24(1), 1–12. doi:10.1080/02667360701661165
- Simpson, T.W., Lautenschlager, U., and Mistree, F. (1998). Mass customization in the age of information: The case for open engineering systems. In W. Read, & A.

Porter, (eds.), *The Information Revolution: Current and Future Consequences* (pp.49-71). Retrieved from http://www.srl.gatech.edu/library/corepapers/SIMPSON_INFOREV_BOOK.pdf

Source. (1913). Oxford English Online Dictionary. Retrieved October 11, 2013, from <http://www.oed.com.libproxy2.usouthal.edu/view/Entry/185182?rskey=0F5fJ5&result=1#eid>

SPARC. (2012, March). A look inside the boycott of Elsevier: A Q&A with Tim Gowers and Tyler Neylon. Retrieved November 13, 2013, from <http://www.sparc.arl.org/news/look-inside-boycott-elsevier-qa-tim-gowers-and-tyler-neylon>

SPARC. (2013). FAQ for the Fair Access to Science and Technology Research Act (FASTR). Retrieved November 13, from <http://www.sparc.arl.org/advocacy/national/fastr/faq>

Stallman, R. (1998). The GNU operating system and the free software movement. In C. DiBona, S. Ockman, & M. Stone (Eds.), *Open sources: Voices from the open source revolution*. (pp. 31-38). Sebastopol, CA: O'Reilly & Associates.

State of California. (2013). AB-609 State-funded research. Retrieved October 13, 2013, from http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140AB609

State of Illinois. (2013). SB1900. Retrieved October 13, 2013, from <http://www.ilga.gov/legislation/98/SB/09800SB1900.htm>

State of New York. (2013). A180. Retrieved October 13, 2013, from <http://open.nystate.gov/legislation/bill/A180-2013>

- Sternberg, R. J., Pretz, J. E., & Kaufman, J. C. (2003). Types of innovation. In L. V Shavinina (Ed.), *The international handbook of innovation* (pp. 158–169). Kidlington, Oxford, UK: Elsevier Ltd.
- Stewart, K., & Gosain, S. (2006). The impact of ideology on effectiveness in Open Source Software development teams. *Mis Quarterly*, 291-314. Retrieved from <http://www.jstor.org/stable/10.2307/25148732>
- Strauss, V. (2013, December 12). Are MOOCs already over? *The Washington Post*. Retrieved from <http://www.washingtonpost.com/blogs/answer-sheet/wp/2013/12/12/are-moocs-already-over/>
- Surry, D. W. (2002). A model for integrating instructional technology into higher education. In *Validity and Value in Education Research, 2002 Annual Meeting: American Educational Research Association*, New Orleans, LA. Retrieved from <http://sites.google.com/site/ripplesmodel/ripples-files/area021.pdf>
- Surry, D. W., Baker III, F. W., (in press). The codependent relationship of technology and communities. In Rushby, N. & Surry, D.W. (Eds.) *Handbook of Learning Technologies*, Wiley Publishing.
- Surry, D.W., Baker III, F.W., Morgan, R.E, LeBlanc, E. J., & Beck, B. (2014). Content analysis of articles published in open access and traditional access educational technology journals. In *Society for Information Technology & Teacher Education International Conference* (Vol. 2014, No. 1, pp. 1462-1477). Retrieved from http://www.editlib.org/p/130972/proceeding_130972.pdf
- Surry, D. W., & Ely, D. P. (2007). Adoption, diffusion, implementation, and institutionalization of instructional innovations. In R. Reiser & J. V Dempsey

(Eds.), *Trends and Issues in Instructional Design* (2nd ed.), (pp. 104-111). Upper Saddle River, NJ: Merrill Prentice Hall.

- Surry, D. W., Ensminger, D. C., & Haab, M. (2005). A model for integrating instructional technology into higher education. *British Journal of Educational Technology*, 36(2), 327-329. Retrieved from <http://ejournals.ebsco.com.libproxy2.usouthal.edu/Direct.asp?AccessToken=9IQQ4IJ8XIJ5DDKJ9UMRIJURRP5Q8IIQIM&Show=Object&ErrorURL=http%3A%2F%2Flinksource%2Eebsco%2Ecom%2Ferror%2Easpx>
- Surry, D. W., & Farquhar, J. (1997). Diffusion theory and instructional technology. *Journal of Instructional Science and Technology*, 2(1), 24-36. Retrieved from <http://www.southalabama.edu/coe/bset/surry/papers/dtit/dtit.htm>
- Surry, D. W., Grubb, A. G., Ensminger, D. C., & Ouimette, J. (2009). Implementation of web-based learning in colleges of education: Barriers and enablers. *Canadian Journal of Learning and Technology*, 35(3), 1-15. Retrieved from <http://cjlt.csj.ualberta.ca/index.php/cjlt/article/view/543/266>
- Surry, D. W., Stefurak, J. T., & Kowch, E. G. (2011). Technology in higher education: Asking the right questions. In D. W. Surry, J. T. Stefurak, & R. Gray (Eds.), *Technology integration in higher education* (pp. 1-12). Hershey, PA: Information Science Reference (IGI Global).
- Surry, D. W., Lewis, J., Yohn, A., & Vance, B. (2012, March). Exploration of attitudes of small college presidents toward technology integration issues. In *Proceedings of the Annual Conference of the Society of Information Technology in Education (SITE)*. Austin, TX: AACE.

- Tarde, G. (1903). *The laws of imitation*. New York, NY: Henry Holt. Retrieved from <https://ia700502.us.archive.org/4/items/lawsofimitation00tard/lawsofimitation00tard.pdf>
- Technology. (2009). Oxford English Online Dictionary. Retrieved October 11, 2013, from <http://www.oed.com.libproxy2.usouthal.edu/view/Entry/198469?redirectedFrom=technology&>
- Teddle, C., & Yu, F. (2007). Mixed Methods Sampling: A Typology With Examples. *Journal of Mixed Methods Research*, 1(1), 77–100. doi:10.1177/2345678906292430
- The Right to Research Coalition. (2010). The Problem. Retrieved November 8, 2013, from <http://www.righttoresearch.org/learn/problem/index.shtml>
- The White House. (2013). Remarks by the President on college affordability – Buffalo, NY. Retrieved 4-18-2014 from <http://www.whitehouse.gov/photos-and-video/video/2013/08/22/president-obama-speaks-college-affordability#transcript>
- The White House. (n.d.). We the people. Retrieved October 10, 2013, from <https://petitions.whitehouse.gov/>
- The Wiley Wiki. (n.d.). The MOOC Guide. Retrieved October 11, 2013, from <https://sites.google.com/site/themoocguide/cck08---mooc-basics>
- Thompson, C. (2011). How Khan Academy is changing the rules of education. *Wired Magazine*, (July). Retrieved from http://resources.rosettastone.com/CDN/us/pdfs/K-12/Wired_KhanAcademy.pdf

- Thrun, S. (2014). Phasing out certificates of free courseware completion. [Web Log Post]. Udacity Blog. Retrieved 4-18-2014 from <http://blog.udacity.com/2014/04/phasing-out-certificates-of-free16.html>
- Tickle, K., Muldoon, N., & Tennent, B. (2009). Moodle and the institutional repositioning of learning and teaching at CQUniversity. In *Same Places, different spaces. Proceedings of ascilite* (pp. 1038–1047). Auckland. Retrieved from <http://www.ascilite.org.au/conferences/auckland09/procs/tickle.pdf>
- Timmerman, N., & Metcalfe, A. S. (2009). From policy to pedagogy: The implications of sustainability policy for sustainability pedagogy in higher education. *Canadian Journal of Higher Education*, 39(1), 45–60. Retrieved from http://prophet.library.ubc.ca/ojs/index.php/cjhe/article/download/493/pdf_13
- Tkacz, N. (2012). From open source to open government: A critique of open politics. *ephemera*, 12(4), 386–405. Retrieved from http://wrap.warwick.ac.uk/53295/1/WRAP_Tkacz_12-4tkacz.pdf
- Tonks, D., Weston, S., Wiley, D. A., & Barbour, M. K. (2013). “Opening” a new kind of school: The story of the open high school of Utah. *International Review of Research in Open and Distance Learning*, 14(1). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/1345/2419>
- Transparent. (1914). Oxford English Online Dictionary. Retrieved October 11, 2013, from <http://www.oed.com.libproxy2.usouthal.edu/view/Entry/204969?redirectedFrom=transparent#eid>

- Trowler, P. (Ed.). (2002a). *Higher education policy and institutional change*. Philadelphia: Open University Press/SHRE.
- Trowler, P. (2002b). Higher education policy, institutional change. In P. Trowler (Ed.), *Higher Education Policy and Institutional Change*. Philadelphia: Open University Press/SHRE.
- Tschofen, C., & Mackness, J. (2012). Connectivism and dimensions of individual experience. *The International Review of Research in Open and Distance Learning*, 13(1). Retrieved from <http://www.doaj.org/doaj?func=fulltext&aId=948656>
- Tucker, B. (2012). The flipped classroom. *Education Next*, 12(1), 82–83. Retrieved from http://educationnext.org/files/ednext_20121_BTucker.pdf
- Tulane University. (n.d.). English as a second language MOOC. Retrieved 4-18-2014 from <http://tulane.edu/global/esl/mooc.cfm>
- Tunnell, D. (1975). Open Education: an expression in search of a definition. In D. Nyberg (Ed.), *The philosophy of open education* (pp. 14–23). London: The Gresham Press.
- U.S. Census Bureau. (n.d.). *Census regions and divisions of the United States*. Retrieved March 6, 2014, from http://www.census.gov/geo/mapsdata/maps/pdfs/reference/us_regdiv.pdf.
- U.S. News & World Report. (2013). Open High School overview. Retrieved November 05, 2013, from <http://www.usnews.com/education/best-highschools/virginia/districts/richmond-city-public-schools/open-high-school-20595>

University of Delaware. (2012). Faculty handbook, section 3.2 Open Research Policy.
Retrieved February 20, 2013 from <http://facultyhandbook.udel.edu/handbook/32-open-research-policy>

University of Kentucky. (n.d.). Coursera. Retrieved 4-18-2014 from <https://www.uky.edu/coursera/>

University of Maryland. (2014). Author rights. Retrieved 4-18-2014 from <http://lib.guides.umd.edu/content.php?pid=201235&sid=1681921>

University of Maryland. (2013a). UMD, Vanderbilt team up for a new wrinkle in MOOCs. Retrieved 4-18-2014 from <http://www.umdrightnow.umd.edu/news/umd-vanderbilt-team-new-wrinkle-moocs>

University of Maryland. (2013b). UMD Libraries Open Access publishing fund.
Retrieved 4-18-2014 from <http://www.lib.umd.edu/oa/openaccessfund>

University of Mary Washington. (n.d.). A history of DS106. Retrieved October 12, 2013, from <http://ds106.us/history/>

University of Miami. (2012). UMGA launches MOOC for high school students.
Retrieved 4-18-2014 from http://www.miami.edu/index.php/news/releases/umga_launches_mooc_for_high_school_students/

University of Tennessee. (n.d.). Online education pilot programs. Retrieved 4-18-2014 from <http://www.tennessee.edu/system/academicaffairs/online-education/index.html>

- University of Virginia. (2014). University of Virginia, Monticello launch Thomas Jefferson MOOC on president's day. Retrieved 4-18-2014 from <https://news.virginia.edu/content/university-virginia-monticello-launch-thomas-jefferson-mooc-president-s-day>
- Van Meter, D. S., & Van Horn, C. E. (1975). The policy implementation process: A conceptual framework. *Administration & Society*, 6(4), 445–488. doi:10.1177/009539977500600404
- Vandover, W. F. (2013). Organizational decision making related to instructional technology at small liberal arts colleges and universities (Doctoral Dissertation, University of Minnesota). Retrieved from <http://conservancy.umn.edu/handle/156315>
- Veletsianos, G., & Kimmons, R. (2012). Networked Participatory Scholarship: Emergent techno-cultural pressures toward open and digital scholarship in online networks. *Computers & Education*, 58(2), 766–774. doi:10.1016/j.compedu.2011.10.001
- Verbrigghe, D. (2012, November 19). Arizona Universities looking at offering free online courses. *Cronkite News*. Retrieved 4-18-2014 from <http://cronkitenews.azpbs.org/2012/11/arizona-universities-looking-at-free-online-courses-to-complement-traditional-offerings/>
- Vollmer, T. (2013a). U.S. States considering public access policies [Web Log Post]. Retrieved October 13, 2013, from <http://creativecommons.org/weblog/entry/37830>

- Vollmer, T. (2013b). White House issues directive supporting public access to publicly funded research [Web Log Post]. Retrieved October 13, 2013, from <http://creativecommons.org/weblog/entry/35267>
- Vollmer, T. (2013c). FASTR introduced in U.S. Congress to drastically expand public access to federally funded research. Retrieved October 13, 2013, from <http://creativecommons.org/weblog/entry/37830>
- Von Hippel, E. (2005). *Democratizing innovation* [Open Access eBook]. London: MIT Press. Retrieved from <http://mitpress-ebooks.mit.edu/pdfreader/democratizing-innovation>
- Waltham, M. (2005). JISC: Learned Society Open Access Business Models. JISC, (June). Retrieved from <http://marywaltham.com/JISCReport.pdf>
- Wang, W. K. (1975). The unbundling of higher education. *Duke Law Journal*, (Mar.), 53–90. Retrieved from <http://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=2514&context=dlj>
- Wang, H., & Wang, C. (2001). Open Source Software adoption: A status report. *Software, IEEE*, 18(2), 90-95. Retrieved 4-18-2014 from http://140.118.5.28/MIS_Notes/Lit_in%20Eng%20Village%202_Keywd-OSS%20or%20OSS%20Database/Open%20source%20software%20adoption-%20A%20status%20report.pdf
- We The People. (n.d.). Require free access over the internet to scientific journal articles arising from taxpayer-funded research. 2012. Retrieved May 13, 2013, from <https://www.whitehouse.gov/petitions#!/petition/require-free-access-over->

- Weinstein, C. S. (1977). Modifying student behavior in an open classroom through changes in the physical design. *American Educational Research Journal*, 14(3), 249–262. doi:10.3102/00028312014003249
- Weller, M. (2011). *The Digital Scholar*. Bloomsbury Publishing PLC. doi:10.5040/9781849666275
- West, J., & Bergstrom, T. (2013). Cost-effectiveness of Open Access publications. Retrieved from <http://www.eigenfactor.org/openaccess/CostEffectiveness.pdf>
- Wheat, R. E., Wang, Y., Byrnes, J. E., & Ranganathan, J. (2013). Raising money for scientific research through crowdfunding. *Trends in ecology & evolution*, 28(2), 71–2. doi:10.1016/j.tree.2012.11.001
- White, M.C. (2013, May 21). The \$7,000 computer science degree—and the future of higher education. Retrieved 4-18-2014 from <http://business.time.com/2013/05/21/the-7000-computer-science-degree-and-the-future-of-higher-education/>
- Wicker, S. B., & Santoso, S. M. (2013). Access to the internet is a human right. *Communications of the ACM*, 56(6), 43. doi:10.1145/2461256.2461271
- Wikileaks. (n.d.). What is Wikileaks? Retrieved October 10, 2013, from <http://wikileaks.org/About.html>
- Wiley, D. A. (2000). Learning object design and sequencing theory (Dissertation, Brigham Young University). Retrieved from <http://www.citeulike.org/group/2668/article/675045>
- Wiley, D. A. (2006). Open source, openness, and higher education. *Innovate: Journal of Online Education*, 3(1). Retrieved from <http://contentdm.lib.byu.edu/cdm/ref/collection/IR/id/164>

- Wiley, D. A. (2007). *On the sustainability of open educational resource initiatives in higher education*. OECD Retrieved from <http://www.oecd.org/dataoecd/33/9/38645447.pdf>
- Wiley, D. A. (2010). Openness as catalyst for an educational reformation. *EDUCAUSE Review*, 45(4), 14–20. Retrieved from <http://net.educause.edu/ir/library/pdf/ERM1040.pdf>.
- Wiley, D. A. (2012a). Defining the “open” in Open Content. Open Content. Retrieved November 17, 2012, from <http://www.opencontent.org/definition/>
- Wiley, D. A. (2012b). Cable on free vs open [Web Log Post]. Open Content blog. Retrieved November 18, 2012, from <http://opencontent.org/blog>.
- Wiley, D., Green, C., & Soares, L. (2012). Dramatically Bringing down the Cost of Education with OER: How Open Education Resources Unlock the Door to Free Learning. *Center for American Progress*. Retrieved 4-18-2014 from <http://files.eric.ed.gov/fulltext/ED535639.pdf>
- Wiley, D. A., Hilton III, J. L., Ellington, S., & Hall, T. (2012). A preliminary examination of the cost savings and learning impacts of using open textbooks in middle and high school science classes. *International Review of Research in Open and Distance Learning*, 13(3). Retrieved from <http://www.doaj.org/doaj?func=fulltext&aId=1066324>
- Willinsky, J. (2006). *The access principle*. Retrieved from http://arizona.openrepository.com/arizona/bitstream/10150/106529/1/jwapbook.pdf?utm_source=dlvr.it&utm_medium=twitter

- Wilner, M.A. (2013, April 17). Brown University creates online course for high school students. *The New York Times*. Retrieved from http://thechoice.blogs.nytimes.com/2013/04/17/brown-university-creates-a-mooc-for-high-school-students/?_php=true&_type=blogs&_r=0
- Wilson, B. G., Ludwig-Hardman, S., Thornam, C. L., & Dunlap, J. C. (2004). Bounded community: Designing and facilitating learning communities in formal courses. *International Review of Research in Open and Distance Learning*, 5(3). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/204/286>
- Yuan, L., & Powell, S. (2013). MOOCs and open education: Implications for higher education. *Cetis White Paper*. Retrieved from <http://publications.cetis.ac.uk/wp-content/uploads/2013/03/MOOCs-and-Open-Education.pdf>
- Zaharias, P., & Poulymenakou, A. (2006). Implementing learner-centred design: The interplay between usability and instructional design practices. *Interactive Technology and Smart Education*, 3(2), 87–100. doi:10.1108/17415650680000

APPENDICES

Appendix A- Institutional Review Board Response Letter

UNIVERSITY OF SOUTH ALABAMA

irb@usouthal.edu



TELEPHONE: (251) 460-6308
CSAB 138 · MOBILE, AL. 36688-0002
FAX: (251) 461-1595

INSTITUTIONAL REVIEW BOARD December 9, 2013

Principal Investigator: Fredrick Baker III, B.S.B.A.
IRB Number and Title: IRB PROTOCOL: 13-356
[547784-1] POLICIES RELATED TO THE IMPLEMENTATION OF
OPENNESS AT RESEARCH INTENSIVE UNIVERSITIES IN THE UNITED
STATES: A DESCRIPTIVE CONTENT ANALYSIS

Event: New Project
Date of Review: December 9, 2013

This project has been determined to be non-human subjects' research due to the data being compiled is publically available and would not be a systematic investigation designed to develop or contribute to generalizable knowledge involving obtaining information about living individuals.

This project does not require IRB review or approval.

Appendix B-All RU/VH: Research Universities

	Location	Control
Arizona State University	Tempe, Arizona	Public
Boston University	Boston, Massachusetts	Private not-for-profit
Brandeis University	Waltham, Massachusetts	Private not-for-profit
Brown University	Providence, Rhode Island	Private not-for-profit
California Institute of Technology	Pasadena, California	Private not-for-profit
Carnegie Mellon University	Pittsburgh, Pennsylvania	Private not-for-profit
Case Western Reserve University	Cleveland, Ohio	Private not-for-profit
Colorado State University	Fort Collins, Colorado	Public
Columbia University in the City of New York	New York, New York	Private not-for-profit
Cornell University	Ithaca, New York	Private not-for-profit
CUNY Graduate School and University Center	New York, New York	Public
Dartmouth College	Hanover, New Hampshire	Private not-for-profit
Duke University	Durham, North Carolina	Private not-for-profit
Emory University	Atlanta, Georgia	Private not-for-profit
Florida State University	Tallahassee, Florida	Public
George Washington University	Washington, District of Columbia	Private not-for-profit
Georgetown University	Washington, District of Columbia	Private not-for-profit
Georgia Institute of Technology-Main Campus	Atlanta, Georgia	Public
Georgia State University	Atlanta, Georgia	Public
Harvard University	Cambridge,	Private not-

Indiana University-Bloomington	Massachusetts	for-profit
Iowa State University	Bloomington, Indiana Ames, Iowa	Public Public
Johns Hopkins University	Baltimore, Maryland	Private not- for-profit
Louisiana State University and Agricultural & Mechanical College	Baton Rouge, Louisiana	Public
Massachusetts Institute of Technology	Cambridge, Massachusetts	Private not- for-profit
Michigan State University	East Lansing, Michigan	Public
Mississippi State University	Mississippi State, Mississippi	Public
Montana State University	Bozeman, Montana	Public
New York University	New York, New York	Private not- for-profit
North Carolina State University at Raleigh	Raleigh, North Carolina	Public
North Dakota State University-Main Campus	Fargo, North Dakota	Public
Northwestern University	Evanston, Illinois	Private not- for-profit
Ohio State University-Main Campus	Columbus, Ohio	Public
Oregon State University	Corvallis, Oregon	Public
Pennsylvania State University-Main Campus	University Park, Pennsylvania	Public
Princeton University	Princeton, New Jersey	Private not- for-profit
Purdue University-Main Campus	West Lafayette, Indiana	Public
Rensselaer Polytechnic Institute	Troy, New York	Private not- for-profit
Rice University	Houston, Texas	Private not- for-profit
Rockefeller University	New York, New York	Private not- for-profit
Rutgers University-New Brunswick	New Brunswick, New Jersey	Public
Stanford University	Stanford, California	Private not-

		for-profit
Stony Brook University	Stony Brook, New York	Public
SUNY at Albany	Albany, New York	Public
Texas A & M University	College Station, Texas	Public
The University of Tennessee	Knoxville, Tennessee	Public
The University of Texas at Austin	Austin, Texas	Public
Tufts University	Medford, Massachusetts	Private not-for-profit
Tulane University of Louisiana	New Orleans, Louisiana	Private not-for-profit
University at Buffalo	Buffalo, New York	Public
University of Alabama at Birmingham	Birmingham, Alabama	Public
University of Alabama in Huntsville	Huntsville, Alabama	Public
University of Arizona	Tucson, Arizona	Public
University of Arkansas	Fayetteville, Arkansas	Public
University of California-Berkeley	Berkeley, California	Public
University of California-Davis	Davis, California	Public
University of California-Irvine	Irvine, California	Public
University of California-Los Angeles	Los Angeles, California	Public
University of California-Riverside	Riverside, California	Public
University of California-San Diego	La Jolla, California	Public
University of California-Santa Barbara	Santa Barbara, California	Public
University of California-Santa Cruz	Santa Cruz, California	Public
University of Central Florida	Orlando, Florida	Public
University of Chicago	Chicago, Illinois	Private not-for-profit
University of Cincinnati-Main Campus	Cincinnati, Ohio	Public
University of Colorado at Boulder	Boulder, Colorado	Public
University of Connecticut	Storrs, Connecticut	Public
University of Delaware	Newark, Delaware	Public
University of Florida	Gainesville, Florida	Public
University of Georgia	Athens, Georgia	Public
University of Hawaii at Manoa	Honolulu, Hawaii	Public
University of Houston	Houston, Texas	Public
University of Illinois at Chicago	Chicago, Illinois	Public
University of Illinois at Urbana-	Champaign, Illinois	Public

Champaign		
University of Iowa	Iowa City, Iowa	Public
University of Kansas	Lawrence, Kansas	Public
University of Kentucky	Lexington, Kentucky	Public
University of Louisville	Louisville, Kentucky	Public
University of Maryland-College Park	College Park, Maryland	Public
University of Massachusetts Amherst	Amherst, Massachusetts	Public
University of Miami	Coral Gables, Florida	Private not- for-profit
University of Michigan-Ann Arbor	Ann Arbor, Michigan	Public
University of Minnesota-Twin Cities	Minneapolis, Minnesota	Public
University of Missouri-Columbia	Columbia, Missouri	Public
University of Nebraska-Lincoln	Lincoln, Nebraska	Public
University of New Mexico-Main Campus	Albuquerque, New Mexico	Public
University of North Carolina at Chapel Hill	Chapel Hill, North Carolina	Public
University of Notre Dame	Notre Dame, Indiana	Private not- for-profit
University of Oklahoma Norman Campus	Norman, Oklahoma	Public
University of Oregon	Eugene, Oregon	Public
University of Pennsylvania	Philadelphia, Pennsylvania	Private not- for-profit
University of Pittsburgh-Pittsburgh Campus	Pittsburgh, Pennsylvania	Public

University of Rochester	Rochester, New York	Private not-for-profit
University of South Carolina-Columbia	Columbia, South Carolina	Public
University of South Florida-Tampa	Tampa, Florida	Public
University of Southern California	Los Angeles, California	Private not-for-profit
University of Utah	Salt Lake City, Utah	Public
University of Virginia-Main Campus	Charlottesville, Virginia	Public
University of Washington-Seattle Campus	Seattle, Washington	Public
University of Wisconsin-Madison	Madison, Wisconsin	Public
Vanderbilt University	Nashville, Tennessee	Private not-for-profit
Virginia Commonwealth University	Richmond, Virginia	Public
Virginia Polytechnic Institute and State University	Blacksburg, Virginia	Public
Washington State University	Pullman, Washington	Public
Washington University in St Louis	Saint Louis, Missouri	Private not-for-profit
Wayne State University	Detroit, Michigan	Public
Yale University	New Haven, Connecticut	Private not-for-profit

Yeshiva University

New York, New York

Private not-
for-profit

Appendix C- Open Policy Rubric

Rubric: Open Policy in Higher Education

INSTRUCTIONS: University documents will be examined for policies that address openness. The upper left half of the grading box references the degree to which a policy directly addresses openness (where 0= did not address, 1= addressed, but not directly, and 2=directly addressed). If the policy addresses openness, the bottom right half of the grading box references the tone of the policy (where 0=negative tone, 1= neutral tone, and 2= positive tone).

	Faculty Handbook	Strategic Plan	Technology Plan	Mission and Goals	Other:	Total Score
Open Access ³	/	/	/	/	/	
OEP/OER/ Open Content ³	/	/	/	/	/	
Open Source Software ¹	/	/	/	/	/	
Open Teaching/Open Learning ²	/	/	/	/	/	
Other: _____	/	/	/	/	/	

Notes:

Areas of Openness primarily informed by:

- ¹ Abel, R. (2006). *Best practices in open source in higher education study: The state of open source software*. Higher Education. Lake Mary, FL: The Alliance for Higher Education Competitiveness, Inc. Retrieved from <http://www.citeulike.org/group/2518/article/791631>
- ² Carnegie Foundation for the Advancement of Teaching. (2008). *Opening up education: The collective advancement of education through open technology, open content, and open knowledge*. (T. Lijoshi & M. S. V. Kumar, Eds.). Cambridge, Mass: The MIT Press.
- ³ Digital Connections Council. (2009). *Harnessing openness to improve research, teaching and learning in higher education. Innovations: Technology, Governance, Globalization*. United States of America: Committee for Economic Development. Retrieved from <http://www.ced.org/pdf/Harnessing-Openness-to-Improve-Research-Teaching-and-Learning-in-Higher-Education.pdf>

Rubric for examining open policy in higher education

Fredrick W. Baker III 2013

Appendix D- Coded Statements from Private Institutions

Code Key			
First set:	School initials	BrU= Brandeis University, BU=Brown University, CUNY=Columbia University in New York, GU=Georgetown University, NU=Northwestern University, PrU=Princeton University, TU=Tulane University, UM=University of Miami	
Second set:	Policy Document	FH=Faculty Handbook, SP=Strategic Plan, TP=Technology Plan	
Third set:	Area of Openness	OA=Open Access, OC=Open Content, OSS= Open Source Software, OT&L= Open Teaching and Learning, O:example = Other: specific topic of statement (open data, crowdfunding, etc.)	
Code	Dire ctnes s	Policy Role	Statement
Document Link:	http://www.brandeis.edu/strategicplanning/documents/documents/strategicplan5-23-13.pdf		
BrU-SP-OC	2	2	We can leverage the Brandeis approach and play a leadership role in the rapidly changing educational environment through innovations such as sharing courses in consortia arrangements, giving post-doctoral fellows teaching opportunities, leveraging free educational resources and new educational practices to focus our efforts where we have the most to offer.
BrU-SP-	1	/	Indeed the research informs the teaching,

OT&L			which is characterized by intense collaboration between professors and students that is often interdisciplinary in scope and frequently transcends the classroom.
Document Link:	http://www.brown.edu/web/documents/BuildingOnDistinctionOct262013.pdf		
BU-SP-O:Freedom	1	/	Brown's highly collaborative culture in which faculty work across academic boundaries and students are free to explore subject areas across the curriculum is facilitated by the physical proximity of classrooms, faculty, and academic support, within an easily walkable distance.
Document Link:	http://brown.edu/information-technology/sites/brown.edu/information-technology/files/uploads/brown-university-it-strategic-plan-v2.pdf		
BU-TP-OA	2	2	Establish a faculty committee to examine whether hiring, tenure, and funding decision processes inhibit collaboration , the development of database science, and the use of Open Access journals.
BU-TP-OA	2	2	This could be accomplished with little expense by subsidizing publishing costs, encouraging researchers to add publishing costs to their research proposals, or exploring new subscription models being established by Open Access journals.
BU-TP-OA	2	2	Encourage all faculty research funding proposals to include funding for publication/dissemination/data sharing that would support publication in Open Access journals.
BU-TP-OA	2	2	Establish a small fund to support Open Access publication of Brown research deemed to be of greatest interest to developing countries.

BU-TP- OA	2	2	Establish a committee to make a recommendation as to whether Brown should require that all faculty research results be deposited in an open electronic Brown repository and, if so, under what conditions, as well as what steps Brown should take to ensure the preservation of materials created at Brown.
BU-TP- OA	2	1	Should Brown's tenure processes be reevaluated to foster collaborative authorship, Open Access publication, and rapid disclosure of research results such as in database science www.SciAm.com/science2point0?
BU-TP- OA	2	1	In many cases faculty members are unaware of rights that they can retain to share their research freely even if they choose to publish in proprietary journals that limit access to their subscribers.
BU-TP- OA	2	1	Should Brown's policies regarding course materials be re-examined to encourage the use of more Open Access materials, given the dramatic rise in the costs of textbooks and the lack of choices for students?
BU-TP- OA	2	1	Should Brown encourage and support faculty publication in Open Access journals in order to provide more choices to researchers and to make their research more accessible globally?
BU-TP- OA	2	1	Have significant changes taken place, such as the rise of Open Access journals, that suggest a need to review the policies?
BU-TP- OA	1	/	Young faculty, in particular, may be reluctant to freely and immediately share their research if they believe they must withhold it in order to have it published in prestigious proprietary journals in order to get tenure or achieve professional recognition.

BU-TP-OA	1	/	Has Brown found the right balance in its intellectual property and technology transfer policies between encouraging innovation, patenting, and increased university licensing revenues versus encouraging the widespread dissemination of research, the promotion of competition through non-exclusive licensing, and the establishment of special provisions regarding technology transfer to developing nations?
BU-TP-OC	2	2	Review existing curricular offerings and identify a small number of world class offerings that would be made open in conjunction with the Open CourseWare Consortium with a preference for those not duplicative of existing open offerings.
BU-TP-OC	2	1	Should Brown formally establish digital repositories (e-portfolios) for work done by students while they are at Brown? T This greater openness might be extended so that students' e- portfolios would remain open to them to deposit their creative works even after they leave the university although this would raise issues of security etc. (Doing this might strengthen links between alumni and the university.)
BU-TP-OC	2	1	Should Brown's Medical School be collaborating with the Hewlett and Clinton Foundations in providing open medical education materials to assist caregiver education in Africa and elsewhere?
BU-TP-OSS	2	2	We will employ open standards and best practices where feasible and define a university technology architecture.
BU-TP-OSS	2	2	We will favor technology options that embrace open standards and best practices rather than proprietary approaches.
BU-TP-	2	2	Establish a formal mechanism for student

OSS			(and faculty) participation in Open Source Software development for educational purposes.
BU-TP-OSS	2	1	Will Brown expand its role in collaboratively developing, utilizing, and sharing Open Source Software , including enterprise software, for academic institutions?
BU-TP-OSS	2	1	What should Brown's strategy be vis-a-vis open source ?
BU-TP-OSS	2	1	Will Brown expand its role in collaboratively developing, utilizing, and sharing Open Source Software , including enterprise software, for academic institutions?
BU-TP-OSS	2	1	Has Brown established a clear preference for open standards and interoperability in its IT and communications environment?
BU-TP-OT&L	2	2	Greater openness can, I believe, improve the processes of teaching and learning and would certainly facilitate a greater global contribution by Brown.
BU-TP-OT&L	2	2	Require all Brown syllabi to be open online all the time to students and faculty.
BU-TP-OT&L	2	1	Is Brown's IT infrastructure capable of supporting high-performance computing, collaborative scientific research, and greater openness including new forms of teaching, learning, and research enabled by new technologies?
BU-TP-OT&L	2	1	Should Brown's policy be that course syllabi be available online to all (or at least to Brown students, staff, and faculty) throughout the year? Should this continue to be left to individual faculty decisions which have resulted in far less openness ?

BU-TP-OT&L	2	1	Is Brown's IT infrastructure capable of supporting high-performance computing, collaborative scientific research, and greater openness including new forms of teaching, learning, and research enabled by new technologies?
BU-TP-OT&L	1	/	The opportunities---to provide greater access to information and to enable contributions from all the members of the Brown communities- are consistent with Brown's student centered philosophy.
BU-TP-OT&L	1	/	The Teaching and Learning Technology planning group identified numerous areas in which existing services should be improved or expanded, e.g. simplify granting access to collaborative tools such as wikis to individuals outside the Brown community.
BU-TP-O: General Support	2	2	Charge the CIO and the Vice-President for Research to report on the capabilities of Brown's IT infrastructure to support collaborative research and high performance computing with recommendations for the long term evolution of the infrastructure in light of the plan for academic enrichment and the increased potential for openness and collaboration .
BU-TP-O: General Support	2	2	It was greater openness at research institutions that underlay the worldwide collaboration that resulted in decoding the human genome with scientists posting research results immediately, accessible to anyone interested.
BU-TP-O: General Support	2	2	Making courseware available and encouraging Open Access publications are easy examples of how to bring about greater openness , but a systematic examination of the connection between openness and internationalization is likely to produce many other examples.

BU-TP-O: General Support	2	2	(This reflects greater openness by giving students more information about their health and by allowing caregivers to have access to more information and to electronically add results of tests to the records etc.)
BU-TP-O: General Support	2	2	I believe that embracing greater openness and collaboration offers Brown the best opportunity to renew and extend itself and to redefine the terms of the competition it faces, while at the same time allowing it to better serve its goals of promoting excellence in teaching and learning, creating and disseminating new knowledge, and serving the community.
BU-TP-O: General Support	2	2	Brown, with its recent history of successful innovation, and its adoption of a student-centered educational model, is better positioned than its principal competitors to examine the possibilities for openness and collaboration thoughtfully and to adopt them where beneficial.
BU-TP-O: General Support	2	2	One could even say that increasing openness and collaboration are natural outgrowths of the path Brown has followed for the past 40 years.
BU-TP-O: General Support	2	2	Brown should begin a systematic effort involving different elements of the Brown community to look at the costs and benefits of increasing openness and collaboration at Brown.
BU-TP-O: General Support	2	2	The CIO is incorporating greater openness in the IT strategic plan.
BU-TP-O: General Support	2	2	The VP for International Activities is looking at opportunities to use greater openness to increase Brown's international presence.
BU-TP-O:	2	2	I believe that greater openness is often the

General Support			right thing to do.
BU-TP-O: General Support	2	2	A more open university increases the dissemination of new learning and promotes innovation.
BU-TP-O: General Support	2	2	Greater openness allows an institution to demonstrate its strengths, creating more opportunities for both faculty and students.
BU-TP-O: General Support	2	2	Greater openness facilitates an institution's efforts to discover and remedy weaknesses in itself.
BU-TP-O: General Support	2	2	The list of positive aspects of openness for me goes on and on, even though I recognize that greater openness is not always good.
BU-TP-O: General Support	2	2	The optimum amount of openness will always depend on the purpose to be accomplished and the context, but I am convinced that Brown should generally be moving in the direction of greater openness .
BU-TP-O: General Support	2	2	Brown should look carefully and thoroughly at the costs and benefits of providing greater openness in various aspects of university life.
BU-TP-O: General Support	2	2	But Brown should also vigorously defend "fair use" rights and support balanced intellectual policies that recognize the importance of creativity but also the values of openness and sharing.
BU-TP-O: General Support	2	1	Brown traditionally has been relatively open to interdisciplinary collaboration ; are there still barriers to collaboration at Brown?
BU-TP-O: General Support	2	1	I believe that Brown should embrace greater openness and collaboration , but I also realize that there is much about openness that is not well understood.
BU-TP-O:	2	1	One way to begin would be to undertake a

General Support			small number of initiatives/experiments that would allow Brown to better understand the costs and benefits of greater openness and collaboration and the willingness and ability of Brown's culture to become more open .
BU-TP-O: General Support	2	1	We can see signs of greater openness in MIT's making freely available course materials on over 1,800 of its courses (with translations appearing in multiple languages), U.C. Berkeley's posting of video lectures on YouTube, and the video and audio streaming of lectures and colloquia by some universities to members of their on- and off-campus communities.
BU-TP-O: General Support	2	1	What do I mean by openness ?
BU-TP-O: General Support	2	1	First, openness is not binary.
BU-TP-O: General Support	2	1	Information, processes and institutions are neither open nor closed.
BU-TP-O: General Support	2	1	They can be placed on a continuum between being open and closed.
BU-TP-O: General Support	2	1	If an individual can make his or her own contribution to the information, and can use his or her unique insights and experience to modify, repurpose, and redistribute it, that information is more "responsive" and thus more open than if the information is "read only."
BU-TP-O: General Support	2	1	But how has the potential for greater openness actually been affecting higher education?
BU-TP-O: General Support	2	1	HOW IS HIGHER EDUCATION RESPONDING TO GREATER OPENNESS ?

BU-TP-O: General Support	2	1	On a more mundane level, greater openness can be seen in the social networking communities such as on Facebook that link undergraduates and alumni of an academic institution.
BU-TP-O: General Support	2	1	There are signs of increased openness at Brown as well. For example, Brown's own DecameronWeb http://www.brown.edu/Departments/Italian_Studies/dweb/dweb.shtml permits faculty, students, and even self-learners around the world to develop and share resources.
BU-TP-O: General Support	2	1	But my understanding is that there is no thorough, systematic, and comprehensive effort under the auspices of Brown's leadership to look at the opportunities and threats resulting from Internet related greater openness .
BU-TP-O: General Support	2	1	WHAT MIGHT GREATER OPENNESS MEAN TO BROWN?
BU-TP-O: General Support	2	1	And there are other trends that I think increase the need for Brown to better understand the costs and benefits of greater openness .
BU-TP-O: General Support	2	1	The new technologies facilitating openness are disruptive, and as Clayton Christensen has pointed out, even when they are recognized as valuable, they are not often embraced by institutions that consider themselves to be successful.
BU-TP-O: General Support	2	1	Where can Brown best use greater openness in accomplishing its multiple missions?
BU-TP-O: General Support	2	1	Where might greater openness be valuable, and how, in teaching and learning, in research, and in service to the community?
BU-TP-O: General	2	1	Does Brown have the infrastructural capability -- from IT capability to rules

Support			governing tenure and the availability of research, to the culture of Brown's faculty/students/staff-- to increase openness ?
BU-TP-O: General Support	2	1	I have listed below some issues that might be explored in thinking about openness and Brown.
BU-TP-O: General Support	2	1	I have included some examples of greater openness at other institutions of higher education to suggest areas where Brown can learn from the experience of others.
BU-TP-O: General Support	2	1	What role should greater openness play in supporting the goals of Brown's internationalization initiative, and for addressing the lack of availability of higher education and the needs of self- directed learners around the world?
BU-TP-O: General Support	2	1	We will not know how, or whether, greater openness will affect higher education for many years.
BU-TP-O: General Support	2	1	I do not believe that Brown faces an immediate crisis but at the same time, other institutions are taking strides toward greater openness .
BU-TP-O: General Support	2	1	While there are some openness initiatives at Brown that I applaud, Brown as an institution has no reason for self-satisfaction.
BU-TP-O: General Support	2	1	There is no systematic examination of which I am aware about the costs and benefits of greater openness or even about how and whether the Internet will affect Brown's future.
BU-TP-O: General Support	2	1	The openness initiatives at Brown today only hint at what might be done if Brown embraced openness as an institution.

BU-TP-O: General Support	2	1	What Brown does about openness depends on the leadership of the university.
BU-TP-O: General Support	2	1	I would very much appreciate the chance to discuss these issues with any members of the administration or any of Brown's governing bodies or as part of a public dialog about openness .
BU-TP-O: General Support	2	1	One can't flip a switch and become " open ".
BU-TP-O: General Support	2	1	Institutions can, however, become more open .
BU-TP-O: General Support	2	1	Goal: Establish IT governance mechanisms that align technology priorities and policies with institutional goals in a manner that is participative and transparent.
BU-TP-O: General Support	1	/	Their degree of openness can be assessed by looking at their " accessibility " and their "responsiveness."
BU-TP-O: Definition al	2	1	If an individual, for example, can obtain information without restrictions based on price, status, or access to a particular technology, that information is more open than if, for example, a subscription is required to obtain access or the information is only available using a particular software program.
BU-TP-O: Definition al	2	1	This is the accessibility aspect of openness --very similar to what is sometimes referred to as "transparency".
BU-TP-O: Definition al	2	1	But accessibility or transparency refer to only one aspect of openness .
BU-TP-O: Definition al	1	/	This increase in the " accessibility " and "responsiveness" of information, processes, and institutions resulting from the rise of the Internet (and the fact that a billion people are now connected to it) has led to new ways of

			thinking about, and created new possibilities for, higher education.
BU-TP-O: Access to Informatio n	2	1	When I try to understand the impact of the Internet, it has helped me to think about how the Internet is facilitating greater " openness " in information, processes, and institutions.
BU-TP-O: Access to Informatio n Document Link:	1	/	Brown is creating new centers for collaboration across departmental lines and accepting new and innovative courses. http://www.columbia.edu/cu/vpaa/handbook/
CUNY- FH-OC Document Link:	2	1	Certain printed materials are considered in the public domain and, therefore, may be freely copied. http://facultyhandbook.georgetown.edu/
GU-FH- OA	1	/	Free inquiry and unconstrained publication of the results of inquiry are at the heart of a university.
GU-FH- OC Document Link:	1	/	To this end, copyright assures authors the right in their original expression, but encourages others to build freely upon the ideas and information conveyed by a work. http://www.northwestern.edu/strategic-plan/Docs/2013-Strategic-Plan-Update.pdf
NU-SP- OT&L	2	2	The courses will be available free via the web and will include Understanding Media by Understanding Google and Every- thing is the Same: Modeling Engineered Systems.
NU-SP- OT&L Document Link:	2	2	coursera partnership. Northwestern is partnering with Coursera on developing a number of massive online open courses (MOOCs). http://www.it.northwestern.edu/stratplan.pdf

NU-TP-OSS	2	2	Based on open- source code and using security event notices from security industry consortiums, these applications will improve our auditing and reporting capabilities in support of regulatory and policy compliance.
Document Link:	http://www.princeton.edu/dof/policies/publ/fac/rules_toc/		
PrU-FH-OA	2	2	This authorization is irrevocable, non-assignable, and may be amended by written agreement in the interest of further protecting and promoting the spirit of Open Access .
PrU-FH-OA	2	2	The members of the Faculty of Princeton University strive to make their publications openly accessible to the public.
PrU-FH-OA	1	/	The terms of any contract, grant, or gift to cover the research should, insofar as possible, permit flexible operation under regular University policies and procedures, permit free publication of results (except where the requirements of national security dictate otherwise), reimburse the indirect expenses as well as the direct costs of the research, conform to the principles of the University Patent Policy, and in general permit the University to exercise administrative control and responsibility for the work.
PrU-FH-OA	1	/	The Council of the Princeton University Community and the rule-making bodies under its oversight shall make no rule abridging freedom of inquiry, freedom of expression, freedom of publication, or freedom of association.
Document Link:	http://tulane.edu/provost/upload/Faculty-Handbook-2013-14.pdf		
TU-FH-OA	2	2	In turn, faculty members are strongly encouraged to make the results of their research freely available to students,

colleagues, and the public.

TU-FH- 1 / Toward this end, the right of faculty
OA members to pursue their chosen path of
inquiry and to disseminate the results **freely**
is aggressively protected.

Document <https://umshare.miami.edu/web/wda/facultysenate/Faculty>
Link: Manual.pdf

UM-FH- 1 / 3. The University will not enter into any
OA contract or grant that specifically prevents
the **free** exchange of ideas, or prohibits the
free publication of results, except as detailed
in (4) below.

Appendix E- Coded Statements from Public Institutions

Code Key		
First set:	School initials	ASU= Arizona State University, GIT=Georgia Institute of Technology, OSU=Oregon State University, PU=Purdue University, UK=University of Kentucky, UMCP=University of Maryland-College Park, UT=University of Tennessee, UV=University of Virginia
Second set:	Policy Document	FH=Faculty Handbook, SP=Strategic Plan, TP=Technology Plan
Third set:	Area of Openness	OA=Open Access, OC=Open Content, OSS= Open Source Software, OT&L= Open Teaching and Learning, O:example = Other: specific topic of statement (open data, crowdfunding, etc.)

Code	Direct ness	Policy Role	Statement
Document Link:	https://provost.asu.edu/sites/default/files/shared/curriculum/Academic%20Plan%20Documents/Agenda%20Item%205%20-%20Revised%20Combined%20ASU%20ASP%202014-2015%20Report.pdf		
ASU-SP-O: Open Data	2	1	There is increasing demand for people who are able to access and utilize open data sources , manage large public databases, conduct appropriate analysis on large data sets, and use big data in practice.

Document Link:			https://uto.asu.edu/files/ASU-UTO%20Strategic%20Plan%202013-2017.pdf
ASU-TP-OT&L	2	1	Finally, much discussion and debate is occurring in the community on the topics of MOOCs (massively open online courses) and e-textbooks and their impact on the cost and effectiveness of a university education. While ASU's strategy around each of these issues is still evolving, those strategies have clear implications for the technology support and service environment.
ASU-TP-OT&L	1	/	A university is a place where faculty and students come together to learn and share ideas in a free and open environment. This tradition of openness and access can sometimes seem at odds with the need to create an electronic information system that protects privacy and intellectual property and prevents the unauthorized or illicit use of university resources.
Document Link:			http://www.policylibrary.gatech.edu/sites/default/files/archive/2013/12/FacultyHandbook.pdf
GIT-FH-OA	2	2	At author request, access will be delayed for up to one year. [in reference to the Open Access policy]
GIT-FH-OA	2	2	In lieu of submission to a Georgia Tech institutional repository, an author may satisfy the terms of this policy by making such work available through an alternative repository of the author's choosing, with notification to the Provost or Provost's designate, provided that such repository makes the work accessible in full-text to the public, without costs imposed on any

			individual user, and that it offers to preserve and maintain access to the work indefinitely.
GIT-FH-OA	2	2	In legal terms, each Faculty member grants to GTRC a nonexclusive, irrevocable, royalty- free , worldwide license to exercise any and all copyrights in his or her scholarly articles published in any medium, provided the articles are not sold or licensed for a profit by GTRC or any GTRC-granted licensee .
GIT-FH-OA	2	2	Each Faculty member grants to Georgia Tech Research Corporation (hereinafter "GTRC") nonexclusive permission to make available his or her scholarly articles and to exercise the copyright in those articles for the purpose of open dissemination.
GIT-FH-OA	2	2	The Provost's Office or designate will make the scholarly article available to the public in an open-access institutional repository.
GIT-FH-OA	2	2	The Provost will charge an Open Access Policy and Implementation Committee with policy interpretation and with developing a plan that renders compliance with the policy as convenient for the faculty as possible.
GIT-FH-OA	2	1	5.5 Policy on Open Access to Faculty Publications
GIT-FH-OC	2	2	Ownership of Intellectual Property developed by faculty, staff, or students of GIT where GIT provides support of their efforts or use of institutional resources in more than a purely incidental way (unless such resources are available without charge to the public) shall reside with

			GTRC.
GIT-FH-OC	2	1	This is to ensure that all licensable knowledge created or invented will be available for public use. Exclusive licensing agreements by GTRC will contain a due diligence provision to require the license to revert to GTRC within a reasonable period of time if the licensee does not make the Intellectual Property available to the public.
GIT-FH-OC	1	/	For Copyrighted Material that is (1) created by a student in furtherance of or in connection with student's studies or activities at GIT during his/her matriculation at GIT and (2) that does not fall under Section 50.5.B, the student hereby grants to GTRC and GIT a non-exclusive, royalty- free license to copy, display, distribute, perform, display and make derivate works of the Copyrighted Materials for GTRC's and GIT's purposes only.
Document Link:	http://www.strategicvision.gatech.edu/sites/vision.gatech.edu/files/Georgia_Tech_Strategic_Plan.pdf		
GIT-SP-OC	1	/	Intellectual property policies and practices at Georgia Tech will be as open and non-restrictive as possible, and assistance will be provided for companies that wish to engage the Institute and its resources.
Document Link:	http://oregonstate.edu/is/strategic-plan-projects/it-roadmap-operating-plan		
OSU-TP-OC	2	1	[Progressive initiatives] Open Education Content: an institutional approach

Document Link:	http://www.purdue.edu/cio/docs/finalCITPreport.pdf		
PU-TP-OSS	2	2	Consider Open Source Software [in reference to cost saving measures]
Document Link:	http://www.uky.edu/ukit/StrategicPlan/files/Inside.pdf		
UK-TP-OSS	2	1	Identify a UK-led IT commercialization/ open source project to support the goals of the university's strategic plan
Document Link:	http://www.it.umd.edu/ITstrategy/plan/		
UMCP-TP-OSS	2	2	The Division of IT should champion the pursuit of open source software solutions for enterprise-level use and only pursue more expensive commercial offerings when there is sufficient value or functional advantage in doing so.
UMCP-TP-OSS	2	2	As UMD systems are planned for replacement, given the vast human resources available (and needed for enterprise open source development), an evaluation should be considered of the factors (e.g., security, version management, support, etc.) in determining the viability of open source/community source as an alternative to commercial product implementation.
UMCP-TP-OSS	2	1	Limitations and risk (e.g., security, version control, release management) previously ascribed to Open Source Software are being mitigated with governance structures like those including community source .
UMCP-TP-OSS	2	1	A number of other disciplines within higher education are being impacted by open source/community source , including learning technology

			software.
UMCP-TP-OSS	2	1	Community source software development differs from traditional open source development in that communities of institutions are committing specific human resources toward an implementation, which not only fulfills enterprise-wide needs of the partnering institutions, but also may be implemented by other institutions once development is complete
UMCP-TP-OT&L	2	1	In 2012, the potentially disruptive force and movement toward some new online learning systems (Massive Open Online Courses or MOOCs, e.g., edX, Coursera, and Udacity) and new learning practices (flipping classes, pervasive uses of multimedia), provides motivation for UMD to explore their benefits and drawbacks and to prepare faculty and students for the most effective uses of online pedagogy.
Document Link: Notes	http://www.utc.edu/information-technology/pdfs/master-plan.pdf Technology Plan is from Chattanooga Campus		
UT-TP-OSS	2	1	Over the next 3-5 years it is likely that cloud computing will move from hype to reality and open source and community source software will provide more alternatives to traditional vendor software offerings.
UT-TP-OSS	2	1	Another option would be adopt “ Open Source ” technology like the new WordPress content management system recently implemented at the University of Maine, Orono.
UT-TP-OSS	2	1	However, it should be expected that

some web design assistance would be required, even if the University decided to go with an **Open Source** Content Management System.

Document Link: <http://www.virginia.edu/provost/documents/Handbook-2012-2013.pdf>

UV-FH-OT&L 1 / The recording may not be reproduced or uploaded to publicly **accessible** web environments. [in reference to preventing unauthorized class recordings by students to be published]

Appendix F- Keyword and Relevant Keyword Tables for Private and Public Institutions

Keyword Count for Private Institutions

Private Institutions	A	C	F	L	O	P	S	T	Total
Brandeis University	14	34	12	3	14	40	51	38	206
Brown University	54	76	9	2	100	11	69	235	556
Columbia University in the City of New York	41	10	47	7	20	68	121	60	374
Dartmouth College	19	15	68	0	13	37	112	3	267
Emory University	35	67	15	9	11	21	121	41	320
Georgetown University	15	7	47	26	2	38	56	21	212
Northwestern University	17	0	15	1	9	9	72	3	126
Princeton University	35	29	28	0	11	17	55	69	244
Tulane University of Louisiana	7	2	20	17	11	23	40	23	143
University of Miami	9	6	87	6	13	48	44	32	245
University of Notre Dame	18	16	34	7	8	53	71	5	212
University of Southern California	40	9	31	24	15	39	82	19	259
Vanderbilt University	14	9	35	0	1	22	11	6	98
Yeshiva University	25	15	7	2	6	30	69	19	173
Total	343	295	455	104	234	456	974	574	3435

A=Access, C=Collaborat, F=Free*, L=Licens*, O=Open*, P=Participat*,
S=*Source, T=Technolog*

Relevant Keyword Count for Private Institutions

Private Institutions	A	C	F	L	O	P	S	T	Total
Brandeis University	0	1	1	0	0	0	0	0	2
Brown University	20	18	4	1	88	2	2	0	135
Columbia University in the City of New York	0	0	1	0	0	0	0	0	1
Dartmouth College	0	0	0	0	0	0	0	0	0
Emory University	0	0	0	0	0	0	0	0	0
Georgetown University	0	0	2	0	0	0	0	0	2
Northwestern University	0	0	0	0	0	0	0	0	0
Princeton University	0	0	1	0	2	0	1	0	4
Tulane University of Louisiana	2	0	5	0	2	0	0	0	9
University of Miami	0	0	2	0	0	0	0	0	2
University of Notre Dame	0	0	2	0	0	0	0	0	2
University of Southern California	0	0	0	0	0	0	0	0	0
Vanderbilt University	0	0	0	0	0	0	0	0	0
Yeshiva University	0	0	0	0	0	0	0	0	0
Total	22	19	18	1	92	2	3	0	157

A=Access, C=Collaborat, F=Free*, L=Licens*, O=Open*, P=Participat*,
S=*Source, T=Technolog*

Keyword Count for Public Institutions

Public Institutions	A	C	F	L	O	P	S	T	Total
Arizona State University	48	75	9	10	19	23	183	173	540
Georgia Institute of Technology-Main Campus	39	16	2	7	65	7	44	136	316
Louisiana State University and Agricultural & Mechanical College	22	16	21	58	25	44	48	135	369
Mississippi State University	18	1	13	5	10	25	73	13	158
Montana State University	7	6	2	0	6	27	29	7	84
Ohio State University-Main Campus	38	4	14	3	7	37	64	24	191
Oregon State University	20	35	12	8	13	23	82	62	255
Purdue University-Main Campus	36	10	20	5	10	17	30	25	153
The University of Tennessee	31	30	33	39	12	39	124	71	379
University of Arizona	54	25	92	17	21	69	133	532	943
University of California-Berkeley	52	21	22	15	10	17	74	28	239
University of California-Irvine	3	2	1	0	2	1	9	7	25
University of California-Riverside	41	13	2	2	11	15	96	62	242
University of Cincinnati-Main Campus	26	9	1	0	3	16	66	11	132
University of Connecticut	4	7	3	0	2	7	13	0	36
University of Delaware	16	12	2	4	1	13	53	33	134
University of Florida	3	0	4	0	7	15	10	1	40
University of Hawaii at Manoa	40	27	9	14	4	22	181	91	388
University of Houston	3	5	1	0	0	9	29	9	56
University of Kansas	66	15	54	15	25	83	117	117	492
University of Kentucky	21	26	33	4	13	23	175	32	327
University of Maryland-College Park	5	14	1	0	1	1	7	60	89
University of Missouri-Columbia	23	43	38	14	25	37	52	44	276
University of Nebraska-Lincoln	5	4	0	0	3	4	20	7	43
University of New Mexico-Main Campus	6	5	3	0	3	1	12	3	33
University of North Carolina at Chapel Hill	46	21	7	10	6	17	91	67	265
University of South Carolina-Columbia	11	15	21	11	9	33	32	11	143
University of South Florida-Tampa	68	24	24	21	33	36	118	135	459
University of Virginia-Main Campus	19	9	46	8	8	18	69	14	191
Washington State University	18	14	48	9	9	21	72	18	209
Total	789	504	538	279	363	700	2106	1928	7207

A=Access, C=Collaborat, F=Free*, L=Licens*, O=Open*, P=Participat*, S=*Source, T=Technolog*

Relevant Keyword Count for Public Institutions

Public Institutions	A	C	F	L	O	P	S	T	Total
Arizona State University	0	0	0	0	7	0	9	0	16
Georgia Institute of Technology-Main Campus	2	0	1	0	4	0	1	1	9
Louisiana State University and Agricultural & Mechanical College	5	0	3	6	6	0	1	0	21
Mississippi State University	0	0	0	0	0	0	0	0	0
Montana State University	0	0	0	0	0	0	0	0	0
Ohio State University-Main Campus	0	0	0	0	0	0	0	0	0
Oregon State University	0	0	0	0	0	0	0	0	0
Purdue University-Main Campus	0	0	0	0	1	0	0	0	1
The University of Tennessee	0	0	0	0	1	0	1	0	2
University of Arizona	0	0	0	0	2	0	3	0	5
University of California-Berkeley	0	0	0	0	0	0	0	0	0
University of California-Irvine	0	0	0	0	0	0	0	0	0
University of California-Riverside	0	0	0	0	0	0	0	0	0
University of Cincinnati-Main Campus	0	0	0	0	0	0	0	0	0
University of Connecticut	0	0	0	0	0	0	0	0	0
University of Delaware	0	0	0	0	0	0	0	0	0
University of Florida	0	0	0	0	0	0	0	0	0
University of Hawaii at Manoa	0	0	0	0	0	0	0	0	0
University of Houston	0	0	0	0	0	0	0	0	0
University of Kansas	0	0	0	0	0	0	0	0	0
University of Kentucky	0	0	0	0	0	0	0	0	0
University of Maryland-College Park	0	0	0	0	1	0	1	0	2
University of Missouri-Columbia	0	0	0	0	0	0	0	0	0
University of Nebraska-Lincoln	0	0	0	0	0	0	0	0	0
University of New Mexico-Main Campus	0	0	0	0	0	0	0	0	0
University of North Carolina at Chapel Hill	0	0	0	0	0	0	0	0	0
University of South Carolina-Columbia	0	0	0	0	0	0	0	0	0
University of South Florida-Tampa	0	0	0	0	0	0	0	0	0
University of Virginia-Main Campus	1	0	0	0	0	0	0	0	1
Washington State University	0	0	0	0	0	0	0	0	0
Total	8	0	4	6	22	0	16	1	57

A=Access, C=Collaborat, F=Free*, L=Licens*, O=Open*, P=Participat*, S=*Source, T=Technolog*

Appendix G- Idealized Policy Statements Faculty Handbook

Code Key		
First set:	Policy Document	FH=Faculty Handbook, SP=Strategic Plan, TP=Technology Plan
Second set:	Area of Openness	OA=Open Access, OC=Open Content, OSS= Open Source Software, OT&L= Open Teaching and Learning, O:example = Other: specific topic of statement (open data, crowdfunding, etc.)
Third set:	Policy Role	E=Enabler, N=Neutral, B=Barrier

Code	Statement
FH-OA-E	This institution strives to support faculty in publishing through Open Access channels, in part, by hosting an online repository providing access to faculty research, regularly reviewing tenure and publishing policies to support Open Access, and by forming and maintaining a Committee on Open Access.
FH-OC-E	This institution supports the creation and use of Open Content by encouraging faculty to share their personally created course materials and other works online under a Creative Commons License where they desire, and by adopting Open Educational Resources, where best applicable, into courses.
FH-OSS-E	This institution encourages the examination, adoption, and use of Open Source Software options in courses, computer labs, and faculty duties wherever it is a feasible alternative to proprietary software models.
FH-OT&L-E	This institution supports and encourages Open Teaching and Learning practices such as making some course materials and environments accessible online to participants outside of the institution, encouraging student participation in external events and external interaction with the class, and the creation and sharing of products and services beneficial to the community-at-large.
FH-O-E	This institution is generally supportive of openness and encourages experimentation and use of new models and practices that embrace the ideals of openness. A Committee on Openness has been established to

	help guide and support your efforts and adoption of all non-standard open practices should be brought to their attention and ruled by their guidance.
FH-OA-N	This institution's strategy toward Open Access Research is still evolving; therefore, any faculty with questions, ideas, or concerns related to openness topic should consult with the appropriate administrator for his or her department.
FH-OC-N	This institution will address issues related to Open Content on a case-by-case basis. Any faculty with questions, ideas, or concerns related to this topic should consult with the appropriate administrator for his or her department.
FH-OSS-N	It is still unclear if and how Open Source Software fits into the goals, structures, and processes of this institution. Any faculty with questions, ideas, or concerns related to this topic should consult with the appropriate administrator for his or her department.
FH-OT&L-N	This institution is aware of efforts to promote Open Teaching and Learning practices in higher education, and is actively evaluating whether these practices fit with our mission and values.
FH-O-N	This institution manages the processes and practices related to innovation and openness on a case-by-case basis. Decisions and support related to openness will be handled within the department by the appropriate committee.
FH-OA-B	This institution does not support the concept of Open Access for faculty research. Open Access publications will be given limited consideration in tenure decisions, and faculty are expected to take advantage of standard copyright policies in the publication process.
FH-OC-B	This institution believes that Open Content has not yet reached a point where it is stable or consistent enough in quality to be readily usable. Faculty members should generally avoid adopting Open Content for classes and exceptional cases should be discussed with departmental administration.
FH-OSS-B	This institution wishes to use, promote, and train our students in the standard software programs common to most industries. Therefore, Open Source Software will generally not be used. Exceptional cases should be discussed with departmental administration.

FH-OT&L-B	In order to protect the integrity of our students and the efforts of our faculty, this institution prohibits Open Teaching and Learning practices such as making course content and student work accessible online.
FH-O-B	This institution manages the processes and practices related to innovation and openness on a case-by-case basis and generally seeks to retain rights and usage of resources and properties within the university. Decisions and support related to openness will be handled within the department by the appropriate committee.

Appendix H- Idealized Policy Statements Strategic Plan

Code Key		
First set:	Policy Document	FH=Faculty Handbook, SP=Strategic Plan, TP=Technology Plan
Second set:	Area of Openness	OA=Open Access, OC=Open Content, OSS= Open Source Software, OT&L= Open Teaching and Learning, O:example = Other: specific topic of statement (open data, crowdfunding, etc.)
Third set:	Policy Role	E=Enabler, N=Neutral, B=Barrier

Code	Statement
SP-OA-E	Open Access research models are central to this institution’s identity and values. As part of this institution’s efforts to be supportive of Open Access research, we will establish and host a repository of research, will assemble a Committee on Open Access, and will create and promote an Open Access research policy among our faculty.
SP-OC-E	This institution embraces the values of openness and will support the creation, adoption, and use of Open Content by creating and hosting an Open Educational Resource repository, seeking to adopt open textbooks wherever feasible, and by establishing and promoting Open Educational Practices among faculty.
SP-OSS-E	We believe that Open Source Software can be beneficial to this institution and the community-at-large. Therefore, we will seek to give preference to examining and adopting Open Source Software wherever feasible in our institution, will develop facilities and infrastructure to serve as incubators for Open Source projects, and will enable and encourage faculty and staff to contribute some portion of their work week to Open Source Projects.

SP-OT&L-E	This institution promotes certain Open Teaching and Learning practices in furtherance of its goals related to broadening access to education, encouraging collaboration within and beyond our institution, and exposing our students to a more holistic global perspective. As part of these efforts, we emphasize the encouragement of access and interaction between our students and the larger community in a variety of ways.
SP-O-E	This institution believes in the creative power of openness, and will therefore seek ways to experiment and use new models of openness such as the generation and use of Open Data, and promotion of crowdsourcing models. A Committee on Openness will be established to examine open practices and to guide faculty in their exploration and adoption of these practices.
SP-OA-N	Open Access Research has become an important element to consider in the strategic vision of any institution; however, it has not yet evolved to a point where it clearly fits within the vision for this institution. Any faculty with questions, ideas, or concerns related to this topic should consult with the appropriate administrator for his or her department.
SP-OC-N	The role of Open Content for this institution must be considered on a case-by-case basis. Any faculty with questions, ideas, or concerns related to this topic should consult with the appropriate administrator for his or her department.
SP-OSS-N	Any faculty with questions, ideas, or concerns related to the adoption, implementation, or use of Open Source Software should consult with the appropriate administrator for his or her department.
SP-OT&L-N	Open Teaching and Learning practices provoke interesting questions related to the mission and practices of this institution that must be considered further.
SP-O-N	The concept and philosophy of openness has recently been integrated into a variety of institutions in numerous ways. If you have questions, ideas, or concerns for how these issues may impact your role at this institution, please consult with the administrator of your department.
SP-OA-B	Open Access Research is not a concept that fits well with the goals and ambitions of this institution at this time. Open Access publications will be given limited consideration in tenure decisions, and faculty are expected to take advantage of standard copyright policies in the publication process.

-
- SP-OC-B In an effort to preserve the integrity of the work and resources of this institution, Open Content should generally not be created at or used by this institution.
- SP-OSS-B Open Source Software should generally not be adopted for classes or used at this institution. Exceptional cases should be discussed with departmental administration.
- SP-OT&L-B Open Teaching and Learning practices, such as making course content and student work accessible online, pose potential risks to our students and faculty; therefore, these practices should not be engaged in without a documented need and the consent of the appropriate institutional administration.
- SP-O-B The processes and practices related to openness could challenge systems and overturn the structures that preserve the integrity of operations at this institution. Openness should generally not be employed as a design decision in any of the practices or products of employees of this institution. Decisions related to openness will be handled within the department by the appropriate committee.
-

Appendix I- Idealized Policy Statements Technology Plan

Code Key		
First set:	Policy Document	FH=Faculty Handbook, SP=Strategic Plan, TP=Technology Plan
Second set:	Area of Openness	OA=Open Access, OC=Open Content, OSS= Open Source Software, OT&L= Open Teaching and Learning, O:example = Other: specific topic of statement (open data, crowdfunding, etc.)
Third set:	Policy Role	E=Enabler, N=Neutral, B=Barrier

Code	Statement
TP-OA-E	This institution will support Open Access to research by giving preference to Open Access journals, supplying access to Open Access research databases, and by hosting the necessary technological elements needed for providing storage and related infrastructure to a repository of faculty research. We believe that providing these supports and encouraging participation our institution will move to the forefront of research institutions.
TP-OC-E	This institution will seek to adopt Open Content wherever it is both feasible and the situation appears that the adoption would benefit the student. Products generated by the institution will be reviewed by committee and considered for release under an open license that enables free access, sharing, and use.
TP-OSS-E	Open Source Software will be given consideration for adoption wherever feasible, paying special attention to cost savings and functionality, and will be given preference for adoption and implementation whenever there is a close decision.
TP-OT&L-E	This institution will support Open Teaching and Learning practices through developing digitally accessible spaces for students and outside participants to interact, create, share, and collaborate. We believe that by encouraging the intermingling of our classrooms with the larger community our students will be better able to obtain a holistic picture of practice in their field.
TP-O-E	New models of openness can provide technological advantages for the institution and can support its goals and practices. A Committee on

	Openness will be established to examine open practices and to guide technology decisions to support the exploration and adoption of these practices.
TP-OA-N	Open Access Research could potentially play a role in the technological strategy of this institution. Any faculty with questions, ideas, or concerns related to this topic should consult with the appropriate administrator for his or her department.
TP-OC-N	The role of Open Content is not yet clear in the technological strategy for this institution.
TP-OSS-N	Open Source Software will be evaluated on a case-by-case basis to determine whether and how well it fits within the strategic vision for technology at this institution.
TP-OT&L-N	Open Teaching and Learning practices may support the strategic vision for technology at this institution, but has not yet been evaluated.
TP-O-N	If you have questions, ideas, or concerns for how the concept or practices of openness may be integrated into your role at this institution, please consult with the committee on openness.
TP-OA-B	The practices of Open Access Research can provide unwanted technical burdens on the resources of the institutions that support them. This institution does not at this time believe that the benefits of using such a system outweigh the burdens for its support.
TP-OC-B	The adoption and use of Open Content is generally discounted or not supported at this institution.
TP-OSS-B	Open Source Software does not clearly fit within the strategic vision for technology at this institution. Exceptional cases should be discussed with departmental administration.
TP-OT&L-B	Open Teaching and Learning practices, such as making course content and student work accessible online, have the potential to compromise the technological stance of this institution; therefore, these practices should not be engaged in without a documented need and the consent of the appropriate institutional administration.
TP-O-B	This institution must make every338 effort to control the image and quality of the efforts it promotes. It is therefore important that products, interactions, practices, and other events

associated with the institution adhere to certain standards. For these and other reasons, employees are generally discouraged from adopting or integrating openness in their role within the university. Decisions related to openness will be handled within the department by the appropriate committee.

BIOGRAPHICAL SKETCH

BIOGRAPHICAL SKETCH

Fredrick William Baker III was born in Mobile, Alabama, on June 26, 1979. He graduated in 2008 from the University of South Alabama in Mobile, Alabama, with a B.S. in Business Administration with a major concentration in Entrepreneurship and a minor concentration in Psychology. Fred worked as a graduate assistant through much of his time in the Instructional Design & Development Program, and received the Dr. Chandru Hiremath Memorial Award for Ph.D. Student of the Year for 2013-2014. He is married to Amy Duff Baker, of Hahira, Georgia, and has three sons, George, Charlie, and Sam. You can learn more about him at his website: www.fredwbaker.com