Welcome to Makers' Utopia?

A Sociological Discourse Analysis of Professional Communications on Public Library Makerspaces in Sweden

Kala Louise Liway Sabado Viñas

ABMM54 (30 credits): Master's thesis in Library and Information Science
Master's Program of Archival Science, Library and Information Science, and Museum Studies (ALM) at Lund University

Supervisor: Anna Johansson
Year: 2018

Title

Welcome to Makers' Utopia? A Sociological Discourse Analysis of Professional Communications on Public Library Makerspaces in Sweden

Abstract

Focusing on Swedish text-based, public library professional communications, this study investigates how discursive constructions in relation to library makerspaces represent and endorse certain institutional values, librarian praxis, and development strategies. The analysis highlights characterisation patterns that emerge through the discursive constructions of *making*, *makers*, and *makerspaces*. It also provides discussions on the tensions regarding the compatibility of the connotative meanings embedded in library professional discourse, and the overarching tenets of Swedish public libraries. The thesis employs sociological discourse analysis, merged with the methodologies of semiology, rhetorical genre theory, and sociotechnical perspective, to examine current library institutional development plan, library website information, and making-activity advertisements, that focus on makerspaces in Swedish public libraries. The onset of this study provides an in-depth review of publications that tackle the subject of makerspaces, highlighting predominant characterisations relating to the concepts of *making*, *makers*, and *makerspaces*. This background serves as contextual grounds for the analysis of professional discourse in the subsequent parts of the thesis. The analysis draws special attention to the importance of viewing and discursively representing library makerspaces as an integral extension of public library services, accentuating the institution's mission of providing democratic access to resources and information.

Keywords

Makerspace, making, makers, the Maker Movement, Swedish public libraries, institutional development plan, sociological discourse analysis, semiology, rhetorical genre theory, sociotechnical perspective, social imaginaire

Acknowledgements

First, I would like to thank my thesis supervisor, Ms. Anna Johansson, for providing invaluable counsel throughout this research. I really appreciate how you consistently allowed me the freedom to produce a thesis that is 'totally me'. I would also like to express my deep and sincere gratitude to Prof. Jamilla Johnston for answering my emails in record time, whenever I had a question about my research or writing. You have welcomed me under your wing despite the amount of work you already have — for this and everything else, thank you. It was a great privilege to work and study under both your guidance.

I am extending my thanks to my fellow classmates (GO ALM Class of 2018!). I am grateful that, in the course of this programme, I have had the opportunity to work with so many brilliant and talented people. Thank you for always being patient with me during our various group works, especially at times when I got bossy. You have all inspired me in one way or another. I wish you all success in all your future endeavours.

Finally, I must express my very profound gratitude to my mother, my future mother-in-law, and my partner, for their unwavering support and continuous encouragement throughout my years of study, and through the process of completing this thesis. Robin, thank you for everything, you have been my strength, the main reason I was able to pursue my dream of becoming a librarian. This accomplishment would not have been possible without any of you. Thank you does not begin to cover it, but it is the only phrase there is, so THANK YOU.

K.L.L. Sabado Viñas

P.S. To any future ALM students reading this thesis as inspiration for writing their thesis, I hope that my work can be of help. Hang in there and just keep giving it all you have. You are so near the finish line. Best of luck!

Table of Contents

Chapter 1. Welcome to Makers' Utopia?

1.1. Introduction

I have a confession — I am a Homo Faber.
I am a Homo Faber, standing in a room full of Homo Faber…

This was the opening line to my thesis presentation; the main reaction I got from the audience was bewilderment. Right after uttering this statement, I felt the need to ensure my classmates that I did not just insult them. Maybe calling it a confession was the wrong way to introduce the concept, especially when I was merely stating a fact. The concept of Homo Faber came to my attention while reading Dale Dougherty's (2016) book. In his opening chapter, he retells the history of the concept, explaining that it refers to 'man the maker'. This concept has evolved through time, following a history linked to a variety of social and cultural developments. Starting off with the notion of humans as tool-makers; to humans as artisans, inventors, and innovators; and finally, humans as DIYers, hackers, hobbyists, tinkerers, YouTube influencers, etc. To put it in a more day-to-day context, Dougherty (2016) simply declares that we are all makers. However, is there really any need for this type of proclamation? The idea of *making* is rendered natural in today's society, it is so ingrained in our human system — it is a ubiquitous process in our everyday lives— that we do not really feel the need to talk about it, nor to identify ourselves as *makers*. Yet, with the growth of the Maker Movement (circa early 2005) the covert nature of the concept of *making* is refashioned to take centre stage in various communications, primarily in the world of commerce. The Maker Movement has spread rapidly in the ensuing years, taking roots in various cultural institutions and organisations. One such example are public libraries.

Libraries subsist at the cusp of social, cultural, technological, and political metamorphoses. With new social developments come new modifications in institutional designs and functions. One example is the progression of the Maker Movement in today's modern society. Among other doctrines, this cause supports the notion of affording every individual access to the technology and knowledge needed to produce their own media. This outlook nurtures the DIY (*Do-It-Yourself*) spirit of the 1960s and 1970s, with philosophies promoting ideals related to anti-consumerism, self-reliance, and self-actualisation (Willet, 2016). Under the umbrella of the Maker Movement, the distinction between who can produce and who can consume information became an abstruse social inquiry. Consequently, over the past five years, concepts inherent to the Maker Movement has emerged in public discourse (Willet, 2016). Much of the literature written on the subject, relay the success of the movement within the corporate sector, celebrating the new forms of entrepreneurship, learning, and design thinking embedded in makerspace cultures. A common attribute of this rhetoric aligns the concept of *making* to activities and practises that offer amateurs the opportunity to create something out of passion or interest (Dougherty, 2016). Moreover, public discourse frames *makerspaces* as the appurtenances of producer culture, characterising it as communities and environments that enable the development of new manufacturing processes, and the pursuance of alternative entrepreneurial aspirations (Anderson, 2012). These characterisations depict the Maker Movement as the harbinger of a new industrial revolution (Anderson, 2012) — a utopia for self-made enterprises. Many of these viewpoints are now permeating the institutional identities of public libraries around the world.

Swedish public libraries, to varying degrees, are now expanding their institutional roles, environments, and praxis, to include spaces that nurture creativity, innovation, and collaboration. The current Library Act (2013:801) establishes the role of public libraries in advancing the tenets of social democracy by providing every individual equitable access to knowledge, information, and resources. The substrate of this provision encompasses the idea that public libraries should function as milieus that foster knowledge transfer and the free formation of opinions, thereby cultivating personal development and social participation among citizens. By providing convivial spaces that afford patrons access to expensive equipment, professional expertise, and peer networks, libraries accentuate their role as democratic meeting places. These institutions now inhabit the functions of cultivating connections among patrons of similar interest and facilitating activities that engage a person's creative thinking. The virtue of creativity, in this framework, personifies both the catalyst which prompts the use of technological tools to develop new products, and the processes that instigate individuals to acquire new skills, and to participate in sharing their expertise and experiences with others. In this sense, the advancement of maker-oriented spaces in public libraries, prefigures a future wherein these institutions become centres for technology, collaborative learning, and innovation. Yet, with these new gains come new sets of challenges.

Library professionals writing (primarily for other librarians) about makerspaces often align the pre-sets of the Maker Movement with the value and functions of public libraries in a somewhat romanticised fashion. On one hand, the provision of new maker-oriented spaces and services in these institutions is presented as a natural next step for libraries to retain their relevance in a modern society, of which the development of engaging and dynamic information services is of importance. On the other hand, makerspaces are framed as a way of refashioning libraries by expanding their functions and values to include that of cultural and creative community hubs (Willingham & de Boer, 2015). With these perceptions in mind, a parley, regarding the actual compatibility of a commercial maker-mindset with the pre-existing core values and functions of public library institutions, is left unestablished.

Against this background, this thesis primarily offers a study of how public library professionals *write about* making and makerspaces in Sweden. Through a theoretical framework that marries the tools of sociological discourse analysis with the methodologies of semiology, rhetorical genre theory, and sociotechnical perspective, this thesis aims to examine how library professionals characterise makerspaces in discursive outputs such as library institutional development plan, maker-service webpage information, and making-activity advertisements. The analyses presented in this paper concentrate on associating textual representations of public library makerspaces with first, the intended role of public libraries stated in the Swedish Library Act (2013:801); second, the contextualised perceptions of *making*, *makers*, and *makerspaces* in Sweden; and last, with some connotated prescient social imaginaires. In all respects, this thesis hopes to commence a discussion that foregrounds *making* as a process imperative to the development of cultural institutions. If we (current or future researchers and practitioners in the field of library and information science) hope to achieve a makers' utopia germane to library institutions, we must start talking about *making* in a coherent and principled vein.

1.2. Background

1.2.1. Defining the Maker Movement: Making, Makers, and Makerspaces

The Maker Movement burgeoned from the development of social practices that reify the tenets of the DIY (*Do-It-Yourself*) culture. Described in basic terms, the DIY ethos can be traced back to the DIY home improvement practices that emerged before the 1960s (Willet, 2016). In the ensuing years, the term was refashioned to envelope a "political response to mass production and industrialization" (Willet, 2016, p. 314). This outlook is an essential element for understanding the current characterisation of *making*. Sheridan, et.al. (2014) provide a context for research on the Maker Movement by identifying three specific components: *making* as a set of activities; *makers* as identities; and *makerspaces* as communities of practice. This section utilises these three components to provide a general background and some definitions to key concepts related to the topic.

Firstly, the Maker Movement lends its name to the value of providing democratic access to the technology and tools needed to produce various types of media. This principle emanates from the ethics of *hacker culture*: a precursor of the Maker Movement from the 1950s (Davis. 2017). *Making* inhabits the processes involved in media production. Fundamentally, *making* refers to a set of activities that are designed with a variety of goals in mind (Sheridan, et.al., 2014). These activities can cover everything from computer programming or application development, to jewellery design or wood sculpting. In most cases, *making* activities are constructed with a goal of learning new skills in mind. The Maker Movement opens *making* to every individual, situating access to new technology as one of the driving forces that supports its processes. Supplementary to this idea, several sources also regard *making* as a process of innovation, and the Maker Movement as a platform upon which creative ideas can blossom into new products that can change and improve the world. For example, Mark Hatch (2013), CEO and cofounder of TechShop[1], argues that the "distribution of easy-to-use, powerful, and cheap access to the right tools are critical to the success of every industrialized economy" (p. 201). He presents a positive outlook, elucidating many of the opportunities presented by the emergence of new and inclusive fabrication technologies. Hatch (2013) argues that the Maker Movement is invariably imbued with a sense of creativity and innovation. This progress fosters an individual's capacity to develop new products that can aid in the amelioration of human day-to-day life, and the larger social economy. Similarly, Chris Anderson (2012), former editor-in-chief of *Wired* magazine[2], regards the Maker Movement as the social manifestation of a new industrial revolution. He explains that this revolution is the by-product of emerging technologies and practices that enables anyone to partake in entrepreneurial activities that utilise industrial tools in pursuance of physical production. Both Hatch (2013) and Anderson (2012) underline how the democratising nature of the Maker Movement has brought forth new manufacturing and entrepreneurial opportunities to today's society. They highlight technology use and physical production as two prevalent goals of the *making* process.

Secondly, the Maker Movement mirrors the sensibilities of the DIY-mindset, framing a *maker identity* that revolves around self-empowerment and creativity. This principle characterises the phenomenon in terms of the people who associate with the ethos of making. The *maker* identity

[1] TechShop was considered one of the first and most successful makerspaces in America (see Sheridan, et.al., 2014). The company has filed bankruptcy during the writing of this thesis.

[2] A monthly published American magazine that focuses on "how technology is changing every aspect of our lives — from culture to business, science to design" (see https://www.wired.com/about/press/)

encapsulates all people interested in any type of making, regardless of purpose or level of experience. Dale Dougherty[3] (2016) defines *makers* as follows:

> [They] are people making all kinds of things for a variety of personal, social, and commercial reasons and for educational, artistic, practical, commercial, or entertainment value […] Some makers are professionals, but many are not. They are amateurs doing something they love to do (p. xviii).

This definition exemplifies how the Maker Movement captures different kinds of people, groups, and organisations. Dougherty (2016) believes that the term *maker* is inclusive and interdisciplinary, as many can relate to the universal idea of making. However, she points out that the Maker Movement can be characterised primarily as a phenomenon driven by amateurs. Dougherty (2016) asserts that many professionals are governed by strict rules, procedures, and goals, while novices will attempt to make and experiment just to challenged themselves. The *maker mindset*, in this sense, aligns itself with creative freedom: a person's ability to develop uncommon insights and procedures through self-experience. Furthermore, the Maker Movement reveres values such as resourcefulness, curiosity, and participation. Creativity, within the Maker Movement context, is aligned with particular types of processes, for example, innovation, exploration, invention, experimentation, and design (Willet, 2016). *Maker*, as an identity is therefore grounded on the development of forms of interaction between self, technology use, and alternative processes of learning.

Thirdly, the Maker Movement is related to a participatory culture that promotes collaborative learning in physical forums called *makerspaces*. The specific history and scope of the term *makerspace* remains unclear to this day (Davis, 2017). However, most literature written about the subject implicitly associates the term to the pre-sets of *hackerspace*, and the first publication of *MAKE* magazine[4] in 2005 (see for example, Davis, 2017, and Willingham & de Boer, 2015). In most cases, *makerspaces* (like hackerspaces) are defined as convivial community spaces where people gather to work on creative projects. Though, unlike hackerspaces, *makerspaces* do not only focus on electronics and programming: it concerns itself with a wider range of crafts (Willingham & de Boer, 2015) Moreover, makerspaces function as mini-factories wherein technologies (e.g. 3D printers, vinyl cutters, programming software, etc.) and tools (involved in textiles, metalsmithing, woodwork, etc.) are made available to members in pursuit of creative projects that often result to physical products. Lastly, *makerspaces* (mirroring the basic principles of hackerspaces) can be characterised as physical environments conducive to the concepts of collaboration and teamwork (Moorefield-Lang, 2015). Makers with varying skill-sets and viewpoints are urged to share the same resources within these types of spaces. Nurturing such basic interactions open new learning opportunities for all makers involved. Similar to the phenomenon's principle of advancing democratic access to technology, the collaborative aspect of the Maker Movement also underscores the importance of democratising knowledge and learning (Dougherty, 2016). The process of *making*, in this vain, does not only focus on the creative construction of physical products, it also functions as a way of building communities in which information can be disseminated among people of similar interests.

The Maker Movement is a phenomenon that is still in transition. In 2016, circa 1233 makerspaces exist around the world, and another 500 or more are still being developed (Davies, 2017). With this growing number comes, among others, the emergence of new kinds of maker-oriented or creative spaces. The Maker Movement is dependent on the emergence of new technologies; thus, it can never be stagnant. The development, diversification and specialisation of its outputs will

[3] The founder of *MAKE* magazine (Brady, et.al., 2014)

[4] This magazine features step-by-step guides to DIY projects, stories from inspiring makers, product reviews, etc. (Davis, 2017).

always be an ongoing process. The concepts of *making*, *makers*, and *makerspaces* are, for the purposes of this study, highlighted as the hallmarks of the Maker Movement. Yet, as exemplified above, these concepts all inhabit somewhat broad, and to some extent, vague definitions. This study engages with the topic of makerspace by anchoring an understanding of the Maker Movement to a particular type of institution (i.e. public libraries), in a specific geographical location (viz. Sweden).

1.2.2. The Maker Movement and Public Libraries

For public libraries, the Maker Movement serves as a catalyst for the development of new services that support social, human, and cultural capital. Its prevalence, within these types of institutions, is becoming more evident with the development of a variety of maker-oriented spaces and programs that support collaborative learning, and the creative production of artefacts (Willet, 2017). While some literature written about the subject praise the benefits of integrating makerspaces in public libraries, others examine the challenges and realities it entails. The following two sections provide an outline of some of these discussions.

Several books written on *makerspaces* in libraries function as step-by-step manuals. The onsets of such publications frequently promote the idea that makerspaces can afford libraries the opportunity to extend their traditional role of functioning as information repositories. John J. Burke (2014), in the first chapter of his book, *Makerspaces: A Practical Guide for Librarians*, defines library makerspaces as follows:

> [makerspace] is a space that is dedicated to both the tools of making and the discovery of talents for creativity and design, where people can make digital or physical items using tools and equipment that they do not own and where they can receive guidance on using them. This takes libraries on a path related to their traditional role of sharing expensive resources to increase knowledge but this time toward releasing the potential of patrons to create. By providing the space and the means of making, libraries can spur learning, invention, creativity, and innovation (p. 2)

This sentiment highlights several keywords that are now ubiquitously used to market and characterise library makerspaces. Among other terms, creativity, innovation, and making, are frequently aligned together. Furthermore, concepts such as innovative and collaborative learning, and productive self-expression, are promoted as visionary goals for makerspaces (for example, see Willingham & de Boer, 2015). The ensuing parts of many publications of this type, focus on providing examples of library makerspaces, some, even highlighting a few success stories (e.g. Burke, 2014; Willingham & de Boer, 2015; Claesson, et.al., 2015; and Kroski, 2017). Most guidebooks on makerspace in libraries, intended for librarians, commence their narratives through a similar manner.

Some researchers and (or) library professionals writing about makerspaces consider integrating *making* activities into library institution repertoires as a natural next step. Eric Johnson (2017) argues that information creation and sharing in the modern world, subsist in the realm of multimedia and physical objects. To keep up with this trend, libraries must develop new ways of offering comprehensive and engaging information services. For instance, many public libraries now commit themselves to making expensive fabrication resources available to their patrons (Johnson, 2017). The public library in Fayetteville (New York) is the first to have incorporated a makerspace within its institutional fold in 2011 (Mattern, 2014, Moorefield-Lang, 2015, and

Lille, 2016)[5]. This space is described as an environment designed to facilitate and encourage creation in the community (Britton, 2012). It followed the pre-sets of commercial makerspaces, affording patrons access to expensive tools like 3D-printers, laser cutters and vinyl cutters. Furthermore, *making* activities that involved workshops, tech classes, and incubator projects, were also designed to aid those who wished to partake (Mattern, 2014). However, unlike commercial makerspaces, public library makerspaces take an anti-membership, free-for-all stance: access to making technology and resources are rendered free in these environments (Willingham & de Boer, 2015). Most ensuing public library makerspaces around the world follow a similar matrix.

Other publications elucidate how makerspaces can boost the image and social value of libraries. For instance, Willingham and de Boer (2015) affirms that libraries have always been places for "making knowledge, building insight, and launching investigations into the nature of things" (p. 1). They believe that adding a makerspace component to a library can help enhance the institution's status to inhabit that of cultural and creative hubs. Expanding the role of libraries, in this sense, provides the institution the opportunity to function as an "active source of skills acquisition and productivity" (Willingham & de Boer, 2015, p. 1). Against this background, some libraries develop maker-oriented spaces that mirror the goals of the community it serves. *Skaparbibblan*, Vaggeryd's Maker Library, is one of Sweden's first public library makerspaces (Nygren, 2016). The space featured both electronic fabricating tools (e.g. MakerBots, Arduino, Makey Makey Kits, etc.) and a variety of woodworking equipment (Willingham & de Boer, 2015). This initiative carried a two-fold aim. Firstly, it served as a way of nurturing cooperation between governmental organisations, businesses, and people within the community. Secondly, this makerspace is constructed to fulfil the community's need for designers with technical knowledge. Vaggeryd is known for its furniture industry, thus, this makerspace is designed to support craftmanship and design learning among high school students (Claesson, et.al., 2015). The initiative's vision is to help the community match local manpower and skill-sets to the growing needs of its industries (Nygren 2014).

The abovementioned perceptions of library makerspaces represent ideals as to how the integration of maker-oriented spaces and praxis within library institutions, can help "refashion libraries for an uncertain future" (Barniskis, 2016). In many of the literature highlighted above, the primary goal is to offer librarians practical help on developing library makerspaces. Tempering the ideologies of the Maker Movement with pragmatism, is an effective way of naturalising its position as a logical extension to the institutional roles and functions of libraries around the world. It offers a way for library professionals to view the development of makerspaces as an uncomplicated step-by-step process, simplifying its concepts to endorse the DIY-sentiment of anyone can do it. Yet, refashioning the library's social function has always been an intrinsic challenge to these institutions throughout history. For public libraries, change does not happen overnight — it is dependent on the needs of the society they serve, and progress necessitates the ongoing development of services and institutional praxis that befit present sensibilities.

[5] While this initiative is referred to as the first public library makerspace in the US, it is important to highlight that the space itself is primarily called a FabLab (fabrication laboratory). This term is closely related to hackerspace and makerspace; all three are, to some extent, used interchangeably in many sources. However, certain dissimilarities in characteristics do exist (see Davis, 2017 for more information)

1.2.3. Critiques of Library Makerspaces

Many maker-oriented spaces are still rapidly developing, bringing with them features that are influenced by social, technological, and economic forces (Johnson, 2017). This augurs a somewhat unclear future. Johnson (2017) advocates the advantages of having makerspaces in libraries; however, he exhibits serious qualms about certain aspects of this development. He highlights three major issues that can affect the future of library makerspaces. One issue, he explains, is that library makerspaces often exercise a STEM-focus (science, technology, engineering, and mathematics) which help align its functions with current educational goals (Johnson, 2017). This focus, however, excludes other forms of making related to arts-and-humanities, and the preferences of other *makers* involved in traditional crafts. Other academic publications voice similar arguments. For instance, Barniskis (2016) highlight that formulation on makerspaces as places for STEM-based learning often displaces libraries as technology hubs that offer access to high-priced technological apparatuses. This kind of outlook draws out tensions as it embodies characterisations that may not be reflected by institutional values and functions. Promoting libraries as tech-hubs is a prevalent element in many marketing discourses about library makerspaces.

Another issue relates to the characterisation of *making* in public library makerspaces. Johnson (2017) asserts that makerspaces are primarily about innovation, product development, and entrepreneurship. This reflects a general "discomfort with the idea of pursuing creativity for its own sake (or at least without a predetermined end in mind" (Johnson, 2017, p. 346). In a similar vein, Willet (2016) elucidates how creativity is discursively related with particular kinds of processes that are often related to scientific procedures (e.g. innovation, exploration, experimentation, etc.). To varying extent, both sources recognise the tendency of current rhetoric on library makerspaces to relate the concept of *making* with the processes involved in acquiring technical knowledge that can support various entrepreneurial goals. Consequently, this outlook delineates a singular *maker* identity and purpose. Willet (2016) points out that this can potentially conflict the public library's mission to provide democratic access to information and resources, as it raises questions with respect to who is serviced and prioritised.

Lastly, Johnson (2017) criticises how the current rhetoric define makerspaces by their tools. He argues that "no one tool or a set of tools makes a makerspace a makerspace. Tool choices should stem from the mission and goals of the space, not the other way around" (Johnson, 2017, p, 364). Commercial makerspaces endorse the use of new modern technology as one of its assets. This inspires libraries to follow the same suit, characterising and marketing library makerspaces as places that can keep up with trends. However, this attitude has the tendency to sidestep issues relating to the upkeep and maintenance of makerspaces. Johnson (2017) explains that:

> Makerspaces will —and must— continue to evolve. More specifically, they must incorporate this expectation of technological and service evolution into their planning […] most of the cutting-edge technology available in today's library makerspaces will eventually no longer be found there. The technology will become more affordable to the general user (and therefore more ubiquitous, perhaps even moving into the home), more sophisticated (and therefore will need to be updated to the latest version), or fail to live up to its hype or promise (and will therefore fade away) (p. 356).

This sentiment underlines institutional proactivity as one of the key factors for the success and longevity of library makerspaces. For public libraries, integrating makerspaces into their institutional fold entails a slippery and unpredictable investment. The process of developing makerspaces starts way before it is implemented. A clear demarcation of goals and functions can provide some level of stability to this type of endeavour.

This section outlined some critiques of library makerspaces. Many of the arguments presented above are reflected in most scholarly literature concerning library makerspaces, in one form or another. Most of these sources refer to examples of library makerspaces in English speaking countries. In Sweden, the integration of maker-oriented spaces and services have developed gradually: with two libraries (i.e. Knivsta Library and Vaggeryd Public Library) commencing its progress in 2013 (Claesson, et.al., 2015). In the ensuing years, makerspaces have become prevalent additions to Swedish public library services. Yet, it remains unclear how Swedish library professionals navigate these rather unfamiliar waters. Swedish-based academic researches regarding the topic of makerspaces in public libraries remain, to this day, somewhat minute.

1.3. Aim and Research Questions

The thesis concentrates on the examination Swedish, text-based public library professional communications (i.e. library institutional development plan, maker-services webpage information, making-activity advertisements), for the purpose of building an understanding of how discursive constructions encircling library makerspaces represent and connote certain institutional values, functions, and development strategies. At present, Sweden has yet to contribute to the blooming status of international research on this subject. In contradistinction to other types of libraries (e.g. school and academic libraries), public libraries inhabit a unique position in that they are somewhat dislocated from strict pedagogical aims and objectives. This notion, combined with the aforementioned tendency of characterising makerspace as places for STEM-based learning, portrays a somewhat natural connection between makerspaces and school or academic libraries. The determination to foreground makerspaces in public libraries personifies an ex post facto aim of affording readers a geographically and institutionally anchored understanding of makerspaces. With this in mind, the thesis seeks to answer the following questions:

- Which institutional values and functions are connotatively signified in professional communications about public library makerspaces? How do these significations relate to the intended role of the public library stated in the current Swedish Library Act *(Bibliotekslag* 2013:801)?
- How does public library professional discourse typify the concepts of *making*, *makers*, and *makerspaces*?
- Which types of social imaginaires are connoted in library professional discourse on makerspaces, and how do they correspond with formulations conveying institutional development strategies?

1.4. Significance to the Field

This study is envisioned as means of intercommunicating with three broad and overlapping groups. Firstly, for library professionals, the goal is not simply to provide recipes for developing and evaluating makerspaces in libraries. There are others who are more adept in fulfilling this task; examples of this type of resource will be duly presented in Chapter 2. Contrarily, this study hopes to challenge readers to broaden their understanding of makerspace. This involves apprehending makerspace, and its various representations (e.g. in discourse, in the artefacts it

produces, and in the people, it encompasses), as parts of a dynamic ecosystem in which technology, information, practices, and people, all coexist. Secondly, for library and information science (LIS) researchers, a primary contribution of this study may be to elucidate how sociological discourse analysis can be utilised to disclose new understanding of how library institutions develop its functional identities to mirror social changes. Exercising the theoretical and methodological affordances of sociological discourse analysis, is still something that is lacking within the field of LIS (this will be elaborated in Chapter 4). However, this study functions as a mere example of how sociological discourse analysis can work as a theoretical framework; it does not aim to provide a type of turnkey model on which all aspects are delineated and fixed. Lastly, this study is also aimed at the general public, to individuals, library users and non-users alike, who are interested in the digital trends that circulate our society today. One of the aims of this research is to highlight how public libraries negotiate with the growing need for collaborative learning platforms and public services that promote digital and innovation literacy in our society.

1.5. Thesis Structure

The paper will be organised in the following order. It commences with a brief historical background on the Maker Movement, presenting definitions to the key concepts related to the subject (viz. *making*, *maker*, and *makerspaces*). The subsequent chapters will focus on outlining previous research (Chapter 2), and the parameters of the theoretical framework employed in the study (Chapter 3). This is followed by a description of the methods and methodologies related to the collection and treatment of the materials collected for the analysis (Chapter 4). Results, analyses, and discussions are presented in the latter parts of the thesis. The Analysis and Discussion chapter is divided into three main sections. These sections are designed to correspond with the three levels of sociological discourse analysis respectively — each section is framed and ordered in accordance to the structure of the research questions delineated above.

Chapter 2. Previous Research and Literature Review

The literature review will address two areas related to the topic of makerspace signification in public library professional discourse. The first section will address research studies and publications that expound on the subject of makerspace from an international perspective. The second section will focus on literature about makerspace from a Swedish context. In addition, this chapter also outlines some of prior research that are relevant to this study. While the primary focus of this research is grounded on the topic of makerspaces in Swedish public libraries, resources that relate to the subject of makerspaces in general, or to makerspaces in other types of libraries (or other types of institutions), will be mentioned. Furthermore, to provide a more comprehensive insight as to how the subject of makerspace is perceived and discussed within and outside the world of academia, this literature review is expanded to encompass both academic and non-academic publications. The bulk of the resource materials mentioned in this chapter is written in English. However, to fulfil the aim of providing a country-specific perspective on the subject of makerspaces, a few existing Swedish publications will be discussed. This selective body of sources depicted in this chapter provides some disciplinary and historical clues as to how we can examine the emergence of various discursive representations of makerspace in professional rhetoric.

2.1. Makerspace from an International Perspective

This section presents literature concerning the topic of makerspace from an international perspective. The beginning parts will review some publications that tackle the topic of makerspace in general. Subsequently, the latter parts will focus on specific literature concerning makerspaces in different types of libraries. The coda of this section distinguishes three articles that have influenced the design of this study. All three articles utilise various forms of discourse analysis to examine different aspects of makerspaces in public libraries.

2.1.1. Characterisations of Makers, Making, and Makerspaces

The widespread growth of maker-oriented spaces in today's society is reflected by many publications on the topic. On one hand, many of these sources afford pragmatic views on makerspaces, providing readers with recipes and guidelines that can aid in the development of new maker-oriented spaces. However, these types of literature often align makerspaces to specific goals and features. To examine the ways current rhetoric characterises makerspaces, this study enlisted three non-scholarly books, and one academic publication on the topic. The first book, *Makers: The New Industrial Revolution*, by Chris Anderson (2012), expounds on the evolution of the Maker Movement. It describes how the development of the Internet has democratised the processes of publishing and manufacturing. This progress has lead, to what Anderson (2012), refers to as the new industrial revolution: an era of economic vibrancy supported by new aspiring entrepreneurs, inventors, and manufacturers. The second book, *The Maker Movement Manifesto: Rules for Innovation in the New World of Crafters, Hackers, and Tinkerers*, by Mark Hatch (2014), encourages readers to take advantage of new available technologies to *make* and change the world. Hatch (2014) explains that the Maker Movement enables individuals to use creativity and self-motivation to achieve entrepreneurial goals, and to advance positive societal changes. The third book, Dale Dougherty's (2016) *Free to Make: How the Maker Movement is Changing our Schools, our Jobs, and our Minds*, promotes the concept of *making* as a way life. He asserts that a worldwide "renaissance of creating, designing,

modifying, inventing, customizing, and personalizing" (Dougherty, 2016, p. xviii) has emerged over the past decade. He provides several examples of makerspace success stories that elucidate how adapting a *maker mindset* has helped empower and reinvigorate individuals, communities, and institutions. The last book, *Hackerspaces: Making the Maker Movement*, by Sarah R. Davies (2017), is a scholarly publication that retells the history of the Hacker/Maker Movement, illustrating the movement's still rather vigorous progression today through a study of hacker and makerspace facilities across the United States. Her study affords an understanding of makerspaces from the perspective of hackers and makers. It explores cultures of hacking and making that lead to culmination of new identities that reflect the sensibilities of wider social changes. The first two books focus on the manufacturing and entrepreneurial aspects of *making* and the *maker* identity. The latter publications, on the other hand, underscores the emancipating aspects of the Maker Movementby stipulating ideals of creativity, passion, and self-empowerment.

Anderson (2012) and Hatch (2014)[6] aligns the tenets of the Maker Movement with goals relating to production, innovation, and entrepreneurialism. *Making,* in this regard, is closely associated with processes of manufacturing products through the use of new fabrication technologies (Anderson, 2012). In addition, *making* is endorsed as practices that cultivates various forms of innovation, design, and production (Hatch, 2014). For Anderson (2012), the Maker Movement was a development that urged the industrialisation of the Do It Yourself spirit. He asserts that while, traditionally, the Maker Movement encompasses a wide variety of *making* (e.g. from traditional crafting to high-tech electronics), a new *maker* mind-set, that arose from the development of the Web, has deviated from this broad definition (Anderson, 2012). This has resulted to the formation of a new *maker* identity grounded on the preference for digital tools and desktop fabrication machines. This *maker* identity embodies the cultural norm to use digital desktop tools to create designs for new products, prototype them, and share those designs and collaborate with others in online communities (Anderson, 2012).

In a similar vein, Hatch (2014) stresses the importance of having access to tools of making and building a community of makers. For him, one of the primary goals of the Maker Movement is to democratise access to the tools of innovation. In addition, Hatch (2014) considers *makerspaces* as the building blocks of a new community of practice. *Makerspace*, in this context, embodies a catalyst, wherein access to tools becomes a fundamental element to economic development. He explains that without the tools and community, it will be impossible to maintain the Maker Movement. Hatch (2014) provides a general list of tools needed to develop a well-equipped makerspace. This list includes laser cutters, 3D printers and scanners, design computers, licenses for Adobe Illustrator, Photoshop, Acrobat, Wi-Fi, etc. Furthermore, Hatch (2014) emphasises that sharing is one of the main features of *making*, asserting that "[y]ou cannot make and not share [because] we make to share" (p. 15). He argues that the product of making has to be shared in order for it to be valuable and deemed "made" (Hatch, 2014). Anderson (2012) and Hatch (2014) correlate the vocabulary of the Maker Movement with the vernacular of the corporate community. In both instances, *makers* are characterised as inventive, innovative, tech-savvy individuals who are eager to learn and garner new skills and techniques that can aid in the pursuance of their entrepreneurial goals. Accordingly, m*aking* is typified by a variety of manufacturing practices that are dependent on various fabrication technologies, and *makerspaces* are defined as shared production facilities.

At the other end of the spectrum, Dougherty (2016) and Davies (2017) expound on both the emancipating and visionary aspects of the Maker Movement. Both authors, to varying degrees,

[6] As was mentioned in the Background section, both authors come from a business background, and have been influential within the world of commercial makerspaces. This, in part, explains the focus of both publications.

define *making* as the human desire to create. Dougherty (2016) affords an understanding of the Maker Movement based on the characteristics of the people it encapsulates. He emphasises that, throughout history, humans have always been "tool-makers, inventors and innovators, storytellers, tinkerers, and role-players" (Dougherty, 2016, p. 3). Against this background, Dougherty (2016) characterises *makers* as an inclusive and interdisciplinary term referring to any individual who creates and shares projects. He further defines *maker projects* as "creative applications for new and old technologies, combining mechanical, electronic, and digital systems" (Dougherty, 2016, p. 48). However, despite providing a broad scope to the term, Dougherty (2016) emphasises that makers are primarily dedicated amateurs, most of whom prefer the freedom to make without concern for making a living out of it. Moreover, this *maker* identity puts high value on an individual's enthusiasm and passion. These characteristics drive makers to create and experiment freely, dislocating the processes of *making* from the demands and expectations of the corporate world. *Making*, in this context, is instead seen as a hobby, a side-line, or as some sort of creative pursuit outside the workplace. According to Dougherty (2016), embodying the role of an amateur also affords *makers* the freedom to learn, create, share, and participate in their own terms. He believes that engaging in these processes develops the *maker mindset*: values that result from the practice of making. The qualities of a *maker mindset* include an individual's willingness to be active, engaged, playful, and resourceful (Dougherty, 2016). *Makers*, in this sense, become self-directed learners, experimental thinkers, and flexible and resourceful producers. In contrast, Dougherty (2016) considers *makerspace* simply as a generic and inclusive term referring to either non-profit or for-profit spaces, based in various institutions (i.e. schools, libraries, universities, or corporate campuses). He does not expound on this definition, instead, he outlines different models of makerspaces, highlighting various contextual purposes. For Dougherty (2016), the value of a *makerspace* is not dependent on where it is, its importance lies on the purpose of the space and the community of makers it accommodates.

Davies (2017) reflects similar sentiments, defining *making* as a generative process in which the goal is to follow one's own "interests and passions to make original and interesting stuff" (p. 63). She explains that the *maker* lifestyle is marked by a particular disposition which underscores the value of creativity, passion and drive (Davies, 2017). *Making*, in this framework, personifies creating out of freedom, and maker projects are imbued with an emotional value. Furthermore, *making* advances the notion of learning by doing. This characterises *makers* as flexible non-experts: individuals that pick up new skills (by partaking in activities outside their expertise) dependent on the prerequisites of the project they wish to undertake (Davies, 2017). Davies (2017) underscores that any new knowledge gained by the *maker* is shared with others within the community. This abstract form of a community is given a physical persona in *makerspaces.* Davies (2017) explains that *makerspaces*:

> […] invites the participation of people interested in any kind of making, from woodwork to needlepoint to app development, and those working at any level from complete beginner to the small business owner (p. 35).

In this characterisation, inclusion and participation are posited as hallmarks of *makerspaces*. Both publications recognise the commercial aspect of *makerspaces*; however, their definitions of the concepts that constitutes the Maker Movement differ from that of Anderson (2012) and Hatch (2014). For Dougherty (2016) and Davies (2017), the Maker Movement is defined not by its goals, but by the sensibilities and viewpoints of *makers*. *Making*, in this context, takes on a holistic role: it functions as a way of satisfying the human need to make. It is not wholly dependent on digital tools, nor restricted to the goals of commercial production. *Makers* are dedicated amateurs and non-experts: they are driven, passionate, and resourceful individuals.

Makerspaces are physical spaces where a community of *makers* can share resources and expertise.

2.1.2 Makerspaces in Libraries: Library Professional Sourcebooks

Most books written on the subject of makerspaces in public libraries are written by library professionals for other librarians. As mentioned earlier, these books often function as manuals or sourcebooks for librarians who are planning to build makerspaces in their libraries. Three such books are Burke´s (2014) *Makerspaces: A Practical Guide for Librarians*; Willingham and de Boer's (2015) *Makerspaces in Libraries*; and Kroski's (2017) *The Makerspace Librarian's Sourcebook*. While I will not be delving deep into these books, as the majority of their discussions have already been addressed in the Background section, I would like to briefly outline some of the ways they define the concepts of *making*, *makers*, and *makerspaces.*

Firstly, Burke (2014) focuses on the application of makerspaces in public libraries. He commences his book by defining his purpose and relating it to his interpretation of what a makerspace is. Burke (2014) writes:

> This work is all about librarians choosing to serve their communities by incorporating creative activities in their libraries, perhaps culminating in a formal makerspace (p. xv)

He then defines makerspaces as a concept that combines a community of users, a collection of tools, and a desire to create, exchange knowledge, and share what is created (Burke, 2014). He further clarifies that makerspaces involve people (*makers*) who show their interests in making by visiting the maker locale, and by participating in various programs. Burke (2014) asserts that understanding the needs of makers and building communities for sharing and learning are missions that are advantageous for libraries. He also states that library makerspaces involve tools and technologies: makerspaces invite the participation of makers by providing diverse making techniques and technology. Burke (2014) also stresses that library makerspaces require a structure. This structure is held together by makers, librarians facilitating makerspaces, and the other staff members of the institution. Finally, he regards makerspaces as a tool for libraries to drive makers to create, which will in turn, allow them to learn the practical skills needed to produce something. Making, Burke (2014) asserts, can create a virtuous cycle of learning and making that can benefit the individual, his or her community, and, to some extent, the world. The subsequent parts of his book highlights valuable resources, advice, and information that relates to the processes involved in planning, facilitating, and maintaining a library makerspace.

Secondly, Willingham and de Boer (2015) actively addresses library professionals by promoting their book as "your handbook to revitalizing your library as a twenty-first-century center of innovation" (p. 1). They proclaim makerspace as a natural next step for libraries: regarding it as a way of providing patrons services that involve innovative learning and productive self-expression. Willingham and de Boer's (2015) vision sees libraries as cultural creative hubs — institutions dislocated from its traditional function as a source of archival information, but rather an environment that advances skill acquisition and productivity. From their perspective, makerspaces are defined as mini-factories where objects are:

> manufactured based on digital designs with 3D printers and CNC machines, and other types of more traditional equipment like lathes, as well as through more basic methods using textiles and other materials (Willingham & de Boer, 2015, p. 5)

These spaces are primarily constructed for children with the goal of merging leisure, play, and learning. In some cases, mostly within the contexts of school and academic libraries,

makerspaces function as collaborative incubators where older students or other makers can start serious maker projects that usually lead to the development and production of saleable products (Willingham & de Boer, 2015). The authors stress that in order for makerspaces to be considered an integral part of the library institution, its functions and goals should be reflected by the institutions budgetary and development policies. Moreover, Willingham and de Boer (2015) depict makerspaces as an effective tool to encourage non-users to visit the library. However, they emphasise that in order for a makerspace to survive and bloom, proper marketing must be in place to inform all patrons about the new functions and services it affords. Finally, Willingham and de Boer (2015) expounds on Ray Oldenburg's (1989) concept of libraries as third places. Makerspaces allow libraries to become neutral places that invite the voluntary participation of anyone looking for a welcoming, high inclusive, and intellectually and socially stimulating, environments dislocated from home or work. Thus, Willingham and de Boer (2015) explain that the rebuilding of libraries, to incorporate maker-oriented spaces and services, further advances the democratic mission of the institution.

Kroski (2017) publication is promoted as a hands-on, essential all-in-one guidebook, written specifically for libraries. The book shows readers how to start their makerspaces by detailing the processes involved in planning, funding, equipping, and designing these types of spaces. It also presents an in-depth discussion on the transformative teaching and learning afforded by makerspaces. In the first chapter, Bronkar (2017) defines makerspaces as places where people gather to make things. She asserts that these places can be high-tech, low-tech, or even both. Yet, the second part of the book, concentrates on listing some essential technologies and tools that constitutes a well-equipped makerspace. For example, 3D printers, Arduino kits, wearable electronic, CNC, lego, drones, etc. Most of these tools are of a high-tech nature. Furthermore, Bronkar (2017) explains that the services offered in makerspaces are dictated by the needs of the community it serves. She then defines *makers* as individuals who create things, ideas, and concepts. The *maker* identity, in this sense, encompasses all form of making. In a latter chapter, Johnson (2017) delineates the aim and function of library makerspaces, writing that:

> At their core, library makerspaces are about helping people explore and communicate ideas in ways other than the written word. Because information creation and sharing is headed into the realm of multimedia and physical objects, libraries must embrace this new trend if they are to see themselves as offering comprehensive information services in the modern world (p. 346)

He further aligns tenets of the Maker Movement with the institutional values of libraries. First, Johnson (2017) explains that libraries and the Maker Movement share the same mission of making expensive resources available to all constituents. Second the collaborative aspect of makerspaces fits with the library's value of supporting and encouraging cross-disciplinary work. Third, makerspaces, according to Johnson (2017), accentuates the role of libraries as community hubs.

In summary, this section briefly reviews three non-scholarly publications specifically written for librarians or other library personnel. These books function as how-to manuals, providing readers with instructions and advices on how to build library makerspaces. Each publication highlights the advantages of integrating makerspaces in public libraries. Some of the conceptual definitions represented in these sources mirror the viewpoints found in literature describing commercial makerspaces. However, some emphasis is placed on themes such as collaborative learning, sharing experiences, and inclusivity. Moreover, the characterisations of the concepts of *making*, *makers*, and *makerspaces* often personify somewhat abstract visions, merging institutional goals with makerspace functions.

2.1.3. Disquisitions on Makerspace in the Field of LIS

Makerspace research within the field of LIS is still growing (Moorefield-Lang, 2015a). Scientific articles examining the development of makerspace initiatives in school and academic libraries constitute most of the peer-review publications written on the subject. However, to maintain the focus of the study, this section will only discuss some of these sources briefly; articles relating to the topic of makerspaces in public libraries will be reviewed more in-depth. The following parts will outline how makerspaces are presented and characterised in scholarly literature published within the field of LIS.

Some researchers approach the subject of makerspaces in libraries by delineating its goals and functions. The aim of these sources is often to provide readers with various strategies for developing and maintaining makerspace facilities in libraries. For example, Slatter and Howard (2013) provide an overview of the current state of makerspace in Australian public libraries. Their study commences with a discussion of how makerspaces have emerged in public libraries. Slatter and Howard (2013) regard makerspaces as content-creation spaces that mostly focus on technology but are generally more concentrated on the process of creation. Citing Lauren Britton (2012), one of the directors at the Fayetteville, New York Free Library, Slatter and Howard (2013) consider makerspaces as a physical place that allows people to interact with each other through creation and collaboration, and by sharing resources and knowledge. They define makerspace users "inventors, artists, entrepreneurs, crafters, and youth groups" (originally from Belbin & Newcombe, 2013, p. 2, in Slatter & Howard, 2013, p. 273). Furthermore, Slatter and Howard (2013) assert that makerspaces can be physically represented in a variety of ways; however, they all tend to share similar goals:

- Makerspaces expand library services by providing patrons access to various types of technologies and activities
- Makerspaces cultivate community engagement, involvement, and collaboration among patrons
- These spaces encourage participatory learning
- They promote equitable access to exclusive technological tools (i.e. 3D printers)
- Makerspaces transforms traditional perceptions of libraries from being places of consumption to places of creation

The authors analyse interviews with three information professionals to ascertain current practices exercised in developing maker-oriented spaces. Furthermore, they discuss some issues and challenges related to the development of makerspaces. Some of the issues highlighted in the article is linked with "budgetary constraints, resistance to change within organisations and proving the relevance of [makerspaces] within a library context" (Slatter & Howard, p. 272). Similar discussions and concept definitions are also presented in Brady, et.al. (2014); however, the objective of this article is to describe the "planning and execution of an accessible library makerspace event for people with disabilities" (p. 330). The challenges highlighted are therefore related to designing accessible makerspace activities for makers with various cognitive and visual impairments. In addition, Brady, et.al. (2013) discussion concentrate on the library's mission (which permeates the goal of library makerspaces) to provide democratic access to information and resources. The issues highlighted in this study centres around the construction of tools and technologies needed to adapt maker-oriented spaces to the special needs of these patrons. Herron and Kaneshiro (2016) conducted a similar study, describing the planning and development of a 3D printing makerspaces initiative at an academic health science library. They emphasise that one of the most important functions of a makerspace is to "stimulate creativity and technology innovation and to facilitate interprofessional and interdisciplinary mashups" (Heron and Kaneshiro, 2016, p. 7). Another such example is Lotts (2016) examination of the

creation and implementation of a Lego playing station at The Rutgers Art Library. She claims that this makerspace initiative served as a tool in helping build a new library brand by expanding the conventional research functions of an academic library to incorporate activities that promote creative problem-solving techniques to patrons.

Related to the approach presented above are publications that present readers with various methods of evaluating library makerspaces. While most literature written on the subject employ qualitative methods in their studies, sources that focus on evaluation strategies often utilise quantitative tools and methodologies. For example, Lille's (2016) study focuses on building an understanding of how library makerspaces impact user skills, knowledge and attitude. By collecting data via quantitative measures for indicators and follow-up surveys/questionnaires, Lille (2016), was able to gauge the effectivity of the Narva City MakerLab project. Her results show that most of the *makers* prefer and excelled on activities that involves traditional crafts (i.e. workshops on sculpting marzipan figures, candle-making, soap-making, wall-clock design, and photography). Lille (2016) explains that most of the participants reason that they joined the MakerLab to gain new skills and knowledge on a specific project, or to supplement an already existing hobby. Noh (2017) presents a somewhat similar study, focusing on evaluating the degree of improvement in a participant's creative thinking abilities' index after partaking in a six-month long picture book making programme at the J Library in Chungbuk, South Korea.

Other studies characterise makerspaces by outlining the types of activities and services it accommodates, and the tools and technologies that equip its environments. For instance, Fourie and Meyer (2015) conduct a pragmatic and reflective analysis of the LIS literature on makerspaces to urge libraries to regard maker-oriented initiatives as services that transcend the physical space. They also argue that makerspaces afford libraries the opportunity to enhance traditional institutional roles related to information resources and information literacy. Makerspace, in this framework, are defined as spaces "devoted to creative idea development and production […] They are presented as spaces that focus on hands-on involvement combined with play and especially fun". However, Fourie and Meyer (2015), reflecting Moorefield-Lang's (2015b) discussions on *maker learning spaces*[7], believe that makerspaces can embody more than just fun DIY creative spaces. They can also function as constructivist learning environments that empower patrons. Fourie and Meyer (2015) provide examples as to how libraries can construct makerspaces as informal constructivist learning spaces:

- libraries can extend the physical learning space to virtual spaces of interaction and creation by providing makers links to relevant websites and access to digital publications
- they can promote analogue collections in the library by displaying it as complimentary materials to various making activities;
- libraries can offer encouragement for socialising, cooperation, and help cultivate personal networks outside the physical walls of makerspaces, by providing virtual communication platforms such as blogs, forums, or websites
- they can nurture the virtues of self-motivation and self-efficacy by facilitating making activities that urge makers to find information on their own (e.g. pictures, sketches, etc.)
- makerspaces can also be a platform where makers can partake in the processes of exploration and creation, but also in discussions about ethical issues related to making things
- these learning spaces can also help patrons explore the library's role as provider of tools, spaces, and information, and its value of empowering patrons and the community

These suggestions elucidate how libraries can establish makerspaces as an integral part of their institutional fold, not just as a new and hip additions to their repertoires. Making activities are often discussed hand-in-hand with the tools and technologies they involve. Gierdowski and Reis

[7] Moorefield Lang uses the terms makerspaces and maker learning spaces interchangeably.

(2015) discuss the design, implementation, and pilot of a Mobile Makerspace at a liberal arts institution in Elon, North Carolina. They detail their process of selecting suitable equipment for the initiative, with regards to the needs, preferences, and skill levels of the users. The final equipment selection included tools that focused primarily on 3D printing, electronics, paper cutting, and building sets (Gierdowski & Reis, 2015). To attract students who have an inclination for non-STEM making, the MobileMaker was also equipped with crafting materials, such as vinyl cutters, craft papers, and a variety of hand tools. A minor goal of the project is to make writing and composing visible across the school campus. The idea is to encourage students to approach writing with a *maker mindset*. Gierdowski & Reis (2015) explains that similar to the process of *making*, writing involves the processes of "drafting and composing of an artefact, trial, error, revision, and reflection" (p. 483). What a *maker* approach brings to the table is that it challenges the traditional definition of texts. *Making*, in this framework, opens the parameters of writing and affords *makers* an understanding that information and knowledge can be conveyed through 3D artefacts. Curry (2016) shares a somewhat similar sentiment in his exploration of how makerspaces can function as new learning spaces in academic libraries. He asserts that a makerspace model that incorporates art and design into the makerspace concept has emerged. Curry (2016) explains that while traditional makerspaces mostly carried STEM-based tools (e.g. 3D printers), the recent advancement of the importance of art and design in transforming technological innovation has resulted to the construction of academic library makerspaces that marries older and newer, art and design technologies and techniques.

Lastly, several publications afford discussions relating to the complex relationship between librarians and library makerspaces. For example, Moorefield-Lang (2015a) asserts that while makerspaces are now becoming ubiquitous additions to library services, training for library maker learning facilitators is difficult to obtain. In most cases, many in-service librarians rely on the information they get from their peers/colleagues, or from various online resources, to supplement their training. Furthermore, Moorefield-Lang (2015a) stresses that most pre-service librarians graduate each semester without knowing the skills needed to facilitate and maintain makerspaces. In this context, the slippery nature of makerspaces is underscored. Moorefield-Lang (2015a) elucidates that in contrast to the rapid development of new maker learning spaces and services, makerspace training is evolving rather slowly. Non-profit makerfaires and making bootcamps for young people are becoming widespread but making training initiatives for adults are still somewhat lacking. Librarians or other facilitators of library makerspaces must turn to commercial makerspace workshops to gain the knowledge they need. In most cases, librarians opt for teaching themselves by watching YouTube videos, researching other relevant online sources, or by simply experimenting and tinkering (Moorefield-Lang, 2015a). Along similar lines, Koh and Abbas (2016) explore professional competencies needed in facilitating informal learning spaces for teenagers. The authors state that teen-centred learning spaces are "designed to facilitate informal learning, creation, socialization and community engagement" (Koh & Abbas, 2016, p. 2). They further argue that the longevity and success of these spaces depend on the professionals that staff them. Against this background, Koh and Abbas (2016) delineate professional skills related to the use of technology, pedagogy, community advocacy, networking/partnering, user profiling, management and communication, subject-based knowledge; and virtues such as curiosity, creativity, flexibility/adaptability, and patience. To support librarians in developing these skills, Koh and Abbas (2016) stress the importance of pre-service and in-service training.

2.1.4. Understanding Makerspace Through a Discourse Analytic Lens

Presently, there are only a few published studies that employ discourse analysis to examine the various aspects of public library makerspaces. Against this background, the three articles I have found to have fulfilled these prerequisites have become, for a lack of a better word, a treasure map for this study. All three articles have inspired and guided this study, to varying degrees. This section provides a review of the following: (a) Rebehak Willet's (2016) "Making, Makers, and Makerspaces: A Discourse Analysis of Professional Articles and Blog Posts about Makerspaces in Public Libraries"; (b) Willet's (2017) "Learning through making in public libraries: theories, practices, and tensions"; and (c) Shannon Crawford Barniskis´(2016) "Access and Express: Professional Perspectives on Public Library Makerspaces and Intellectual Freedom".

Willet (2016) employs discourse analysis to examine professional library journal articles and blog posts that focus on makerspaces in public libraries. Her analysis reveals how common themes, relating to the "future of public libraries, DIY and maker cultures, and informal learning" (Willet, 2016, p. 325), are being discursively constructed. Willet (2016) also expounds on the tensions and questions that emerge from discursive constructions of *making*, *makers*, and *makerspaces*, found in the field of LIS. She argues for the importance of viewing public library makerspaces as an appendage of the library's mission of providing access to resources that can aid in servicing the needs of diverse communities. Willet (2016) concludes her discussions by emphasising the need for "dialogue about aims, purposes, and best practices in relation to making and makers" (p. 326). Using a similar methodology, Willet's (2017) second article analyses interviews and observational data, from a system-wide public library makerspace program, to build an understanding of how learning and teaching occur in library makerspaces. Her analysis affords a comparison of established pedagogical theories and the realities of teaching and learning that exist within library makerspace context. Willet (2017) argues that as public libraries expand their roles to embody that of learning institutions, an understanding of pedagogical techniques and praxis becomes a must. She asserts that rather than approaching makerspaces with a "one-size-fits" all outlook, librarians should exercise flexibility to design diverse makerspaces tailored to a variety of teaching-and-learning models, styles, and structures. In a somewhat similar vein, Barniskis (2016) utilises constructivist discourse analysis to examine interview data focussed on the roles of makerspaces and librarians in public libraries. Her analysis elucidates how librarians perceive creative spaces in relation to library policies concerning the foundational principles of intellectual freedom and access. Barniskis (2016) introduces the concept of *librarian as enzyme*, pertaining to:

> The role of the library staff in bringing people together, introducing people to tools and offerings, and creating a culture of "diving in" appears crucial to the success of these library services. Without this enzymatic role, creative spaces and tools may exist, but few may use them. In creating the networks that fortify knowledge building, librarians play a significant role (p. 121).

Her discussion highlights how the roles and praxis of librarians are reframed to accommodate the growing need for participatory learning and creative spaces that afford patrons the chance to create, learn, and be engaged.

This thesis mirrors some elements found in the three articles summarised above. Firstly, like in Willet's (2016, 2017) and Barniskis' (2016) respective articles, this study employs a form of discourse analytic approach to build an understanding on the state of makerspaces in public libraries. Accordingly, all three academic articles utilise data (e.g. interviews, journal publications, etc.) taken from the perspective of library professionals (or from researchers in the field of LIS). This practice presented itself as a way of finding the niche of this thesis. The decision to examine Swedish text-based professional discourse was a way for this study to build upon and engage in similar discussions, contributing a more geographically specific examination

of the subject. However, while I would have liked to follow Willet´s (2016) framework of analysing both academic and non-academic data sources, the lack of Swedish-based scholarly publications about makerspaces, barred the possibility. Secondly, this thesis exercises similar procedures related to the treatment of data samples. Willet (2016, 2017) and Barniskis (2016) presented an exemplary level of transparency in describing their methods. Their articles provided me with valuable information in terms of which software to use, and how to textually convey my method process in a clear and effective manner. However, my methodologies diverge from theirs to accommodate the requirements of the theoretical framework I designed for the study. Unlike Willet (2016, 2017) and Barniskis (2016), this study focuses on examining the connotative messages embedded in professional discourse. Consequently, these connotative messages are dissected to disclose affixed ideologies, viewpoints, assumptions, or expectations conveyed in professional discursive outputs meant to characterise and advertise library makerspaces.

2.2. Makerspace from a Swedish Perspective

Peer-reviewed, Swedish-based scientific publications that centres around the topic of makerspaces are almost non-existent. The only example I found exists in the field of medicine. Svensson and Hartman (2017) examines the advantages of providing hospital clinicians access to makerspaces. The authors define makerspaces as facilities that are equipped with prototyping tools and expert staff. Svensson and Hartman (2017) explains that hospital makerspaces can help encourage user innovation, which yields both quantitative and qualitative benefits. On one hand, hospital makerspaces can provide users the opportunity to develop usable products and technologies that can aid medical institutions in achieving budgetary goals. On the other hand, these makerspaces can also be used as an empowering mechanism that encourages productivity among users (*makers*). However, Svensson and Hartman (2017) argue that the current lack of user-directed policy in health care institutions limits any such possible gains.

On the subject of makerspace in Swedish library institutions, Claesson's, et.al. (2015) non-academic book, *Skaparbibblan*, is the only published literature existing. This book mirrors the format and content of librarian source books on makerspaces written in English. It defines the maker movement as an outgrowth of DIY handcrafting and artificer cultures. However, Claesson, et. al. (2015) emphasise that the maker movement is a phenomenon that primarily centres around technical tools, techniques, and processes. In this regard, the authors introduce the term *skaparbibblan* as a way of reference. Claesson, et.al. (2015) argue that unlike the English term *makerspace*, *skaparbibblan* functions as a hypernym which envelopes the practices and tools of traditional handicrafts and the technologies and processes of modern industrial production. This Swedish translation is presented as a more inclusive nomenclature that esteems both the old and new aspects of *making* analogously. Malmberg's (2015) book, *Happenings som arbetsmetod*, relates a somewhat similar concept of makerspace found in Swedish school libraries. However, her book focuses on integrating *happening* (a term borrowed from the theatre vernacular) into Swedish school librarian praxis.

Other resources relating to the topic of library makerspaces in Sweden, consist of magazine articles taken from *Biblioteksbladet*: a Swedish members' only magazine, published by the Swedish Library Association (*Svensk biblioteksförening*). Two such examples are Tobias Carlsson's (2013) "Makerspaces - rum för skaparna", and Emelie Ljungberg's (2015) "Makerspace — räddade biblioteket i Chattanooga". Both articles discuss the expanding roles of libraries in Sweden, in which advancing institutional values that centres around encouraging users to learn by creating is a dominant theme. There are also some electronically published student dissertations regarding the topic. Puhakka's (2015) master's thesis, "From collection to connection: En

undersökning av makerspace förhållande till folkbibliotek och folkbildning"; and Linden's (2016) bachelor's dissertation, "Makerspaces på bibliotek: en analys av befintlig forskning", are two such examples. This study would not be referencing the abovementioned dissertations as each posit dissimilar methods, methodologies, and topic focus. However, both dissertations utilise some common literature sources. Thus, they present somewhat similar definitions of *making*, *makers*, and *makerspaces* found in the sources reviewed in the beginning sections of this chapter.

Chapter 3. Theoretical Framework

To provide a thorough understanding of the significance of makerspace within Swedish public library context, it is necessary to utilise a multifaceted theoretical framework. This framework exercises the process of triangulation, that is, the notion of using different theoretical techniques to ensure that the results and analyses presented are not simply "artefact[s] of [a] particular source or method" (Nygaard, 2017). Jorge Ruiz Ruiz' (2009) three levels of sociological discourse analysis (i.e. textual, contextual, interpretative) operate as the fundamental theoretical infrastructure of this study. Subsidiary theories (*viz*. semiology, rhetorical genre theory, and sociotechnical perspective) are employed to supplement each respective level of analysis. The pairing of a sociological discourse tool with a subsidiary theoretical perspective, functions similarly to a cogent organism within an ecosystem. In this case, each theory pair affords means of exercising an analytical process that examines each specific facet of makerspace signification singularly, while still recognising the various ways in which the perception of such phenomenon can affect and be affected by bigger social and cultural contexts. The subsequent parts of this chapter will provide a brief overview of each theoretical perspective, discussing the ideas and concepts that will inform the main body of this research. Each section concludes with a passage relating the application of each theory in the study.

3.1. Sociological Discourse Analysis

Language and communication play a central role in the context of meaning-making. As Norman Fairclough (1993) proposes, language usage should be regarded as a form of social practice. He implies that *discourse* is a mode of action and representation: it allows people to affect the world and each other. Furthermore, he asserts that there is a "dialectical relationship between discourse and social structure" (p.64). Discourse, in this sense, subsists between two coexisting processes: one where it is shaped and constrained by social structures, and another, where it reciprocates these processes and imbue the world with its own sets of norms and constraints. In this respect, discourse becomes a practice "of not just representing the world, but of signifying the world, constituting and constructing the world in meaning" (Fairclough 1993, p. 64). Fairclough (1993) introduces a three-dimensional conception of discourse. The first dimension is a form of micro-analysis that considers discourse as text. This features the ways in which participants produce and interpret text. The second is a type of macro-analysis that positions discourse as a catalyst for the formation of discursive practices. The third dimension considers discourse as a social practice. In this last dimension, Fairclough (1993) emphasises the interpretative process that goes together with analysing discourse.

Jorge Ruiz Ruiz (2009) builds upon Fairclough's (1993) three-dimensional model, updating some of its aspects to feature a more pronounced sociological standpoint. Sociological discourse analysis (SDA hereafter) merges traditional discourse analysis procedures with the methods of analysis developed in other social sciences (Ruiz, 2009). Unlike traditional discourse analysis, the integration of a specific type of sociological discourse analysis within social research studies is still in its nominal stages. Furthermore, its appropriation to the field of library and information science remains, to this day, non-existent. Ruiz (2009) explains that traces of discourse analysis have been ubiquitously applied within the field of sociology and humanities, but the lack of a defined framework has resulted to "an enormous diversity of styles and forms of analysis" (paragraph 1). In most cases, researchers utilise modified procedures of discourse analysis, befitting its tenets to fulfil their form of inquiry. This has resulted to hybrid approaches that are hard to identify and standardise. To lessen the confusion and misconceptions regarding the

application of discourse analysis within social research studies, Ruiz (2009) introduces a formal framework for SDA.

Like Fairclough (1993), Ruiz (2009) emphasises the role of discourse in understanding social realities. He clarifies that the meanings that guide individual actions are primarily produced socially, and that the "social universe is largely a space of shared meaning" (Ruiz, 2009, paragraph 9), thus rendering discursive practices as tools that help us understand social reality. To apprehend discourse from a sociological standpoint, Ruiz (2009) delineates three different levels of analysis: a textual level, a contextual level, and an interpretive level.

The first level, *textual analysis*, occupies a characterisation process in which discourse is regarded as an object of study, primarily focusing on determining the composition and structure of discourse. It encompasses two subsidiary modes of analysis. Content analysis refers to the fragmentation of text "into pertinent units of information for their subsequent coding and categorization" (Ruiz, 2009, paragraph 17). This analysis mode is distinctly quantitative in nature. Semiotic analysis, on the other hand, embodies a more qualitative method of approach. It focuses on problematising the dialectical relationship between signs and meanings. Ruiz (2009) mirrors Fairclough's (1993) standpoint, regarding this mode of analysis as a tool for understanding the ways in which discourse makes use of language as means of expression and how this process, in turn, modifies and renew prior discourses. This type of analysis involves two procedures: (a) structural semiotic analysis "attempts to reveal hidden linguistic codes" (Ruiz, 2009, paragraph 23) to identify their internal logic which functions a generative matrix for reproducing text; (b) Contrariwise, formal semiotic analysis focuses on the effects of a given discourse within a specific context of production by understanding the rhetorical features of language usage.

Contextual analysis inhabits the second level of SDA. On this level, discourse is treated as a "singular event produced by subjects who are immersed in a specific time and place within a given symbolic universe and who have their own discursive intentions" (Ruiz, 2009, paragraph 27). The contextual level includes two types of analysis. Firstly, situational discourse analysis underlines the basic assumption of the intentional dimension of discourse. It requires a thorough description of the circumstance in which discourse have been produced and the participants who produce it. Secondly, intertextual discourse analysis focuses on understanding discourse by relating it to other discourses that circulates a particular social space regarding a specific discourse topic. This mode of analysis relates to issues regarding dominant discourses. In this case, Ruiz (2009) favours Foucault's (1973) concept of intertextuality to that of Fairclough's (1993). Fairclough (1993) interprets discourse as an indicator of ideological domination, rendering discourse participants as mere reproducers of dominant discourses. Contrarily, Ruiz (2009) promotes a more comparative approach to the subject, exemplifying Foucault's (1973) principle of analysing discourse not just on the basis of its dominance, but rather on the recognition of its similarities and differences with respect to other discourses.

The third level of *interpretation* centres around the sociological facet of discourse. It involves "making connections between the discourse analyzed and the social space in which they have emerged" (Ruiz, 2009, paragraph 38). This level consists of three categories of interpretation: discourse as social information, discourse as a reflection of social ideologies, and discourse as a social product. The first category focuses on the informative dimension of discourse; i.e. it explains discourse in terms of a discourse participant's ability to convey his or her social reality to an audience. The aim of this category is to highlight the ways in which a limited presentation of social reality can be apprehended based on the knowledge of a participant germane to a specific social space. The second category is closely related to the features of critical discourse analysis. This approach aims to demonstrate "how social discourse are impregnated by dominant

discourses projected from sources of power" (Ruiz, 2009, paragraph 42). The final category refers to discourse as a product which can reflect the social condition under which it has been created. Ruiz (2009) asserts that discourse as a product carry a heavy symbolic load as it indirectly reveals the "fundamental aspects of life and the social structure" (paragraph 45) it inhabits. This type of analysis dislocates discourse from linguistic ties, aligning it to a wider social context.

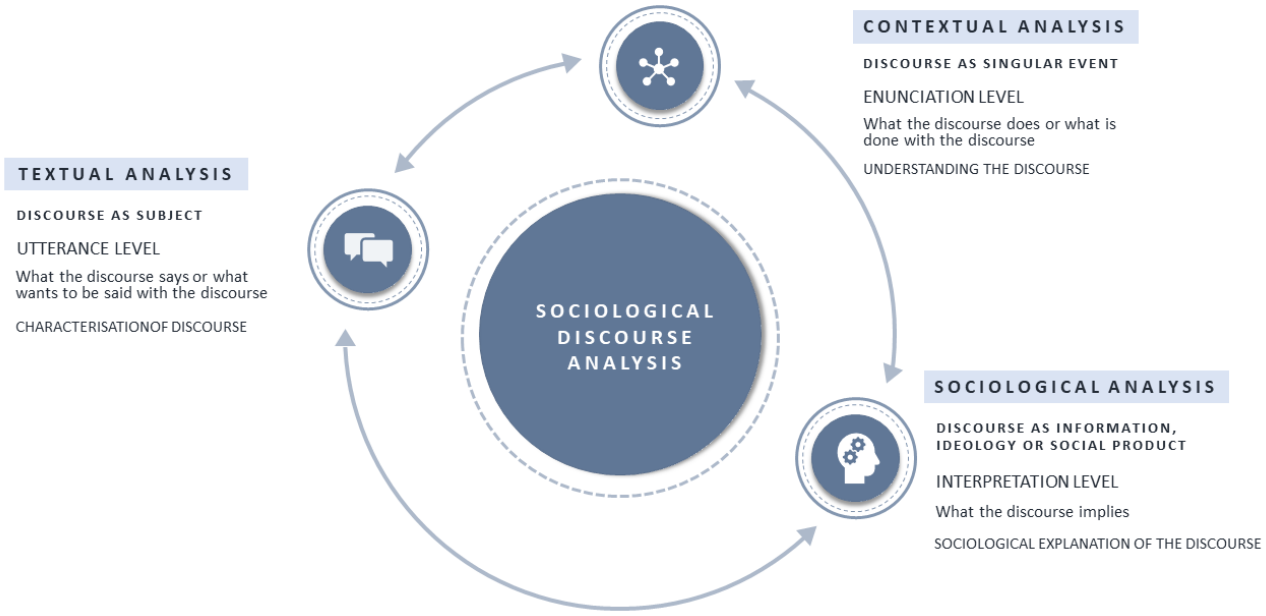

Figure 1. based on Ruiz (2009) diagram of "Processes of Sociological Discourse" (paragraph 12)

These three levels of SDA constitute a circular theoretical framework: one level is bidirectionally connected to another. Each level consists of various subsidiary procedures of analysis, forming a framework that affords theoretical manoeuvrability but still allows the analyst to conduct his or her study using systematic and strict scientific logic (Ruiz, 2009, paragraph 47). While this framework provides an "open space" for apprehending discourse through multiple theoretical techniques and procedures, its scope can be somewhat intimidating. Moreover, the lack of prior studies using the SDA framework within the field of LIS embodies a research gap, which in effect means that there are no guidelines as to how it can be applied within the context of this study. However, evading the possibility of exercising the affordances of a new research method within an area of study, can result to knowledge barriers that might prevent the disclosure of significant problems and questions.

In this regard, this study will embark on a somewhat anomalous journey of discovery. However, to provide some familiarity along the way, this research will take advantage of subsidiary theories acclimatised to the field of information studies. The scope of Ruiz' (2009) theoretical framework will also be modified accordingly to fit the topic and scale of this study. The figure below will illustrate these modifications.

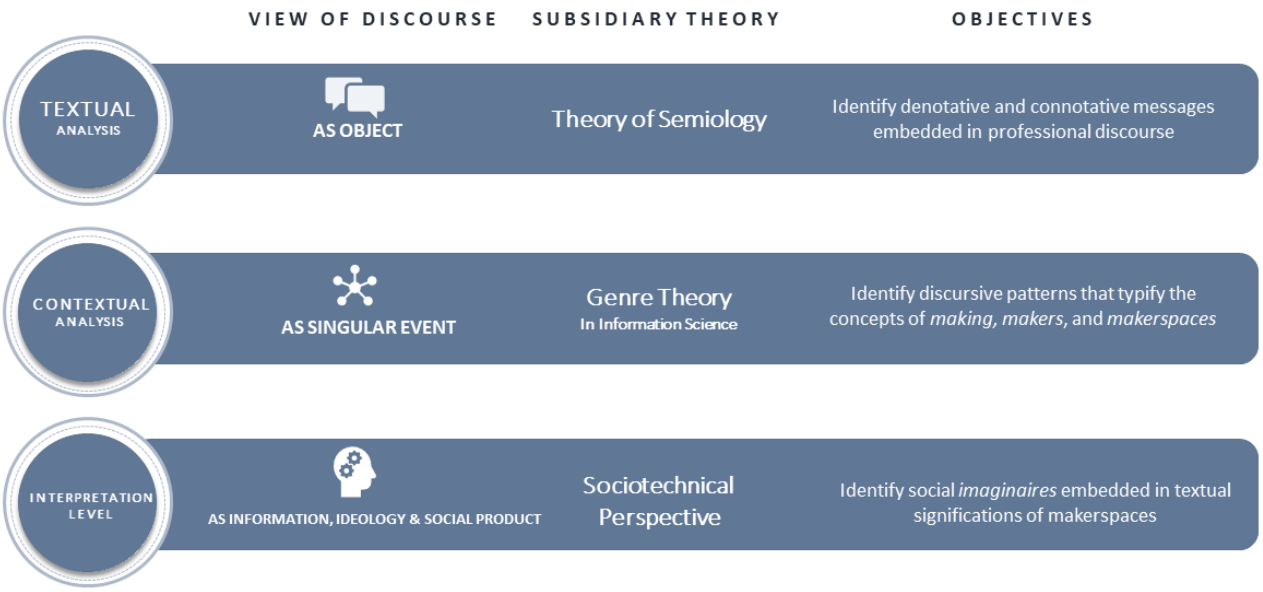

Figure 2. Modifications on Ruiz' (2009) diagram of "Processes of Sociological Discourse" (para. 12)

3.2. Subsidiary Perspectives

3.2.1. Concepts of Semiology

To put simply, semiology, based on Roland Barthes' legacy, is the science of understanding signs as conveyors of complex meanings. On one hand, it embraces the Saussurean semiotic tradition of "studying the life of signs" (Barthes, 1988, p.159), upon which the notion that signs are arbitrary is of importance. On the other hand, it diverges from the strict procedures of semiotics by advancing the task of studying the processes by which "any message may be impregnated with a secondary meaning, a meaning that is diffuse [and] generally ideological" (Barthes, 1988, p.159). Barthes (1988) argues that signs reveal lifestyles and social realities by signifying a two-tiered message. The first message, *denotation*, inhabits the first order of signification which constitutes the level of expression — a *signifier* (Christensen, in Lecki, et.al., 2010). The second message, *connotation*, occupies the second order of signification which founds the level of content — that which is *signified*. In other words, denotation refers to the descriptive layer of interpretation: its subject of study is the phonic, graphic, and syntactic substance of expressions. Connotation, on the other hand, connects what is denoted to broader themes and meanings, situating what is being signified closer to fragments of an ideology or social reality (Christensen, in Lecki, et.al., 2010). In this framework, the reader plays an important role in the signifying process.

In section 6.1., the concepts of denotation and connotation are combined with the two approaches included in the first level of SDA. In practice, this entails the identification of reoccurring discursive fragments (i.e. frequently uses terms, phrases, expressions, etc.) among the data samples. These fragments constitute a denotative system. At the level of connotation, the denoted message is unmasked to disclose hidden ideological codes. Analysing connotative messages affixed to library professional communications on makerspaces, can help reveal which library values and functions are reified, and which are gainsaid. To emphasise the non-hierarchal model of investigation afforded by the SDA framework (i.e. the bidirectional link between each level), the concepts of connotation and denotation will also be employed in the subsequent levels of analysis.

3.2.2. Rhetorical Genre Theory in Information Science

Genre theory primarily stems from the field of humanities, specifically endorsed through the methods of hermeneutics (Andersen, 2015). In this context, genre functions as the panacea for the urge to classify various forms of text within an encompassing taxonomy system. While this theory has provided a stable stage for the study of language and the forms it can embody, its parameters are restricted to reductionism, rules, and formalism (Miller, 1984). Rhetorical Genre Studies was determined and refined by many researchers who wanted to advance the idea of investigating texts in their social contexts. Carolyn R. Miller (1984), in her widely renowned article, "Genre as Social Action", asserted that genres were forms of social action. She expanded her definition of genre to merge its traditional tenets with the understanding of its pragmatic functions. Miller (1984) proposes that "genre," within the context of rhetoric, refers not to textual forms, but to a "classification based in rhetorical practice consequently open […] and organized around situated actions" (p. 155). Genre, in this framework, inhabits the role of typified communicative actions that inadvertently link writers and readers within a shared space of meaning and activity (Andersen, 2015). Refashioning the parameters of genre theory in this manner afford two basic corollaries. First, rhetorical genre theory adapted in the field of LIS sustains the consideration of genre as socially constructed acts, consisting of communicative practices that aim to fulfil predetermined purposes within a discourse community (Burkholder, 2010). Second, genre as an analytical approach focuses on understanding how professional, cultural, and social communication is carried out by a diversity of people, thus displacing the concept of genre as a methodological tool used to examine and organise activities, artefacts, knowledge, and people (Andersen, 2008).

Section 6.2. presents an analysis that merges the methodologies of rhetorical genre theory with the rudimentary requirements of the second level of SDA. The aim is to foreground various contextualised connotated perceptions of *making*, *makers*, and *makerspaces* in Sweden. The abovementioned concepts supersede the forms of activities (*making*), people (*makers*), and artefacts (*makerspaces*), that constitute a contextualised space of meaning — a genre of making germane to public libraries in Sweden. In practice, this entails organising the connotative and denotative meanings identified in the first level of SDA into pertinent thematic codes. This procedure would effectuate a mode of analysis that treats discourse on makerspaces as singular event produced by library professionals who are immersed in a specific spatial and chronological context which is imbued with a variety of purposes.

3.2.3. Sociotechnical Perspective

Sociotechnical perspective embodies a social constructivist approach to technology: the adaptation of the methodologies of sociology to the study of technology. It is a multidisciplinary mode of talking about technology, one in which the consideration of both the content and the context of technical change occurs analogously (Bijker & Law, 1992). Technology, in this sense, pertains in general to any machinery or equipment developed from the practical application of scientific and technical knowledge (Oxford English Dictionary, 2018). In the framework of information science, sociotechnical perspective is viewed as multidimensional mode of study which discloses the complex interplay between people, activities, artefact, and technology (van House, et.al., 2003). Accordingly, these factors are what constitute a sociotechnical system. One way to analyse these systems is by understanding the discourse that reifies and represents them. An *imaginaire* (or imaginary) embodies a collective vision about a specific sociotechnical system, they are:

> often implicit but nonetheless effective systems of images, meanings, metaphors, and interlocking explanations-expectations within which people, in specific time periods and geographical-cultural climates, enact their knowledge and subjectivities and articulate their self-understandings as knowers—as producers, perusers, critics, benificiaries, and/or consumers of expert and everyday knowledge (Code, 2006, p. 245).

Thus understood, social *imaginaires* carry within it significations of normative meanings, customs, expectations, assumptions and values, that command the implementation and development of a sociotechnical system. For libraries, the *imaginaire* acts as an idealistic vision of what is possible to achieve within the institution (Barniskis, 2017). Library makerspaces make up a sociotechnical system in which *imaginaires* embodied through various types of discourses, in the case of this study, professional rhetoric, act as the main engine of progress.

Section 6.3. exhibits an analysis that combines conceptual outlooks appertaining to the third level of SDA (i.e. discourse as a form of social information, as conveyor of ideologies, and as social product), with the methodologies of sociotechnical perspective centred on the recognition of social *imaginaires*. The substrate of this contemplation effectuates a way of linking discursive connotations with the social space in which they have emerged. From a pragmatic standpoint, this entails examining connotative messages and metaphors embedded in professional discourse, to concretise the complex relationship between denoted institutional development strategies and connotated prescient social *imaginaires*.

Chapter 4. Methods and Methodologies

Using a theoretical framework that combines the tools of SDA with the methodologies of perspectives germane to the field of sociology, this study aims to examine the types of institutional values, functions, and development strategies, conveyed through library professional discourse encircling makerspaces. This qualitative study focuses on documentary sources published by public library professionals for colleagues, users, and other interested parties (e.g. local politicians, other governmental organisations, non-users, book vendors, etc.). Selecting texts that inhabit the practical zone ensures some uniformity in vernacular and tone of language. Providing research data might not be the primary function of these document sources; however, a thorough consideration of the processes involved in their initial construction can reveal some of the overt and covert purposes behind their production (Goodwin, in Bond, 2006).

4.1. Setting

The data for this study consisted of public library institutional development plan, maker-service webpage information, and making-activity advertisements. The initial search for these sources occurred between the 1st and the 14th of February 2018. It commenced with a general Google search using specific keywords and phrases in Swedish (e.g. *skapparbibblan*, makerspace *på bibliotek*, *skaparverkstad*, *pyssel*, etc.). This primary search yielded an irresolute data corpus, with several links referring to the same sources, some of which were outdated versions, and were unavailable for download. A more refined secondary search was therefore conducted between the 16th and the 28th of February 2018. To develop a data corpus that is more representative of all Swedish public libraries, this search utilised the National Library of Sweden's list of published library institutional development plan[8] as a base point. Each library policy document was reviewed based on specific criteria. Furthermore, a cross-referencing process was performed, wherein samples of makerspace information and makerspace activity advertisements available on each of the selected library's website were catalogued. The search was finalised when a saturation point was reached, that is, when subsequent searches produced results of similar kind (e.g. when they refer to the same document or event, link, etc.).

4.2. Materials and Treatment of Samples

This study consisted of three data sets. Each data set enveloped materials selected by convenience sample, based on accessibility online, validity (i.e. sources dated to or from 2018), and topicality (i.e. any mention of makerspace or other related concepts and terminologies). Data Set 1 (DS1 hereon) comprised of fifty-eight library institutional development plan; Data Set 2 (DS2 hereon) encompassed samples of maker-services information taken from fifteen library webpages; and Data Set 3 (DS3 hereon) included sixty-eight examples of making-activity advertisements published online by the libraries included in DS1 (see figure below). For the sake of clarity, institutional development plan in the context of libraries, refers to an official document that details the organisation's overall strategy for survival and growth (Armstrong, 2009). It consists of a definition of the institution's mission, an outline of objectives and goals, description of the organisation, and developing functional plans (*Ibid*). Maker-services webpage information applies to digital texts published online by a library institution through their website. These digital texts describe the types of maker-oriented services offered at a particular library,

8 Bibliotheksstatistik — "Biblioteksplaner": http://bibliotheksstatistik.blogg.kb.se/uppdrag-planer/

specifying the types of equipment available in the space(s), and the forms making-activities facilitated by the library. Making-activity advertisements presents similar information found of library webpages, but in a more compact form. These texts are frequently posted via the library website digital activity calendar, containing the following information:

- title of the activity
- a brief description of the purpose and aim
- logistical specification such as the time and place for the meeting, if reservation is required, what materials to bring, or whether an activity is free of charge
- the types of users legible to partake in an activity

The figure below illustrates the types of data samples collected for this study.

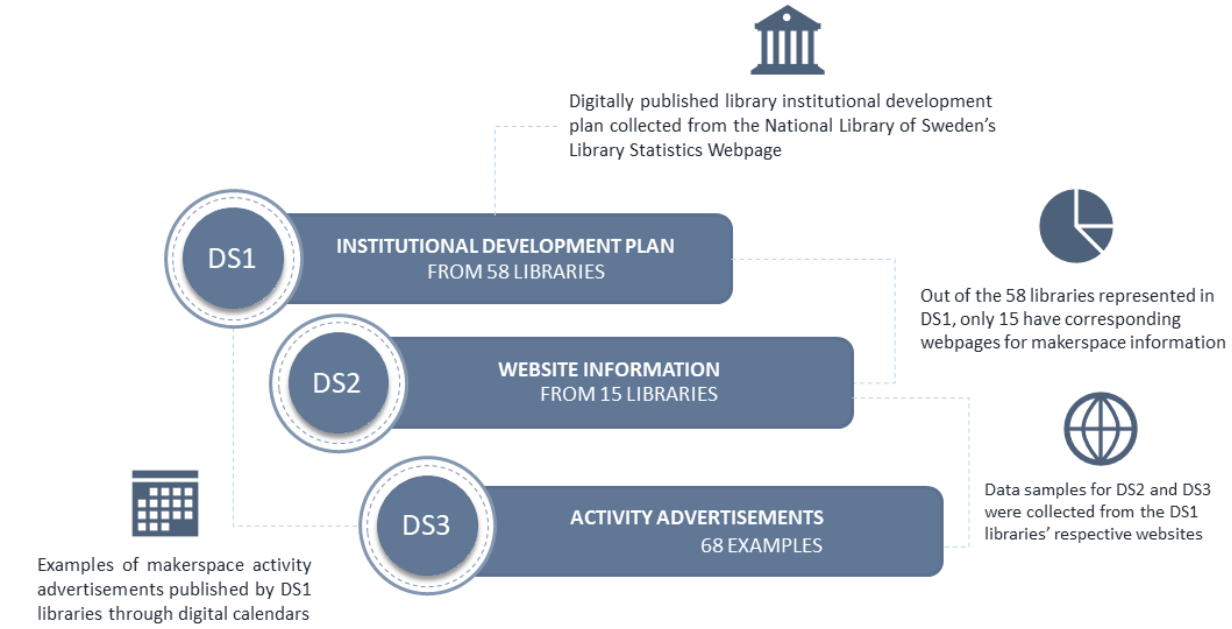

Figure 3. Data Samples

All three data sets comprised mainly of materials written in Swedish. These materials were represented in English, using my own translations, in parts where direct quotations were utilised. The original excerpt was included in the Appendix. These verbatim translations, along with those of keywords or phrases, were only used whenever necessary. At the time this study was conducted, the policy documents for DS1 were available as PDF downloads on the National Swedish Library's statistical website[9]. The sources included in DS2 and DS3, on the other hand, were taken directly from each respective library website. To ensure access to these pages throughout the span of this research, each sample was converted to and saved as PDF files. References to a specific DS2 or DS3 material were presented with an accompanying website link. Moreover, full access to the PDF collection of all the materials used in this research can be made available upon valid request.

9 Bibliotheksstatistik — "Biblioteksplaner": http://bibliotheksstatistik.blogg.kb.se/uppdrag-planer/

4.3. Analytical Approach

This study was conducted using a three-stage analytical approach, informed by the three levels of SDA and the methodologies of three subsidiary perspectives. The first stage was designed to supplement the requirements of textual analysis. This involved two main approaches. The first approach constitutes what Ruiz (2009) considers as a content analytic approach: distinctly quantitative in nature, and focuses on the fragmentation and categorisation of discourse. The second approach founds a more qualitative analytical praxis, focusing on the meaning of discourse at the enunciation level (Ruiz, 2009). For this study, A total of 141 document sources were imported into NVivo 11: a qualitative data analysis software. These sources were categorised into three distinct data sets (i.e. DS1, DS2, and DS3). Using a combination of quantitative content analysis and qualitative semiotic analysis, the data samples were reviewed repeatedly, focusing on discursive fragments, such as repetitions of words/phrases, similarities and differences of expressions, and absences and unique formulations. NVivo 11's Query functions (e.g. Text Search, Word Frequency) were vital to this process. The application of the tools of semiology in the textual examination of the data samples helped foreground the denotative and connotative features of library professional discourse on library makerspaces.

The pre-sets of the contextual level of SDA, supplemented by the methodological affordances of rhetorical genre theory was the analytical approach used in the second stage. Examining the data samples through a genre lens entailed focusing on discursive constructions that typify the concepts of *making*, *makers*, and *makerspaces*. NVivo 11 was therefore used to organise and gather related materials in once place. Mirroring some of the procedures exercised in Willet´s (2016) study, an initial list of codes was constructed based on any themes that emerged while reviewing the materials. This list was later cross-referenced with the themes highlighted in some of the literature mentioned in the onset of this study. A final list of codes was developed, and later used as specific Nodes for encoding in NVivo11. To provide space for all aspects of the data corpus, a Miscellaneous Node was added to the final thematic code selection (in the list below, N stands for Nodes):

N1: Characterisation of making
N2: Characterisation of makers
N3: Characterisation of makerspaces
N4: Makerspace and public library values/functions
N5: Makerspace and librarian praxis
N6: Makerspaces and tools/technology
N7: Makerspace and social context
N8: Miscellaneous

The results of this coding process enabled the identification of thematic patterns conveyed across codes and data sets (Willet, 2017). Moreover, this stage also provided the basis for determining intertextual elements present in the data samples. This second analytical approach afforded a way of estbalishing a pragmatic relation between library professional discursive constructions and contextual perceptions on *making*, *makers*, and *makerspaces*, that exist in Sweden.

In the final stage of the analysis, discursive constructions that are related to the themes of society and technology were examined. This process involved establishing connections between the discourse analysed and the social space they inhabit (Ruiz, 2009). The examination of the data samples coded for N6 and N7 were used as means of understanding how professional discourse about library makerspace convey a collective vision about makerspace as a sociotechnical system (Barniskis, 2017). This level of analysis effectuated means of concretising the complex relationship between denoted institutional development strategies and connotated prescient social *imaginaires*.

4.4. Limitations

Although this research was carefully prepared and designed to reach its aims, it still had its limitations and shortcomings. Bui (2014) explains that limitations can be inherent to the research design, analytical approach, time and resources, or conditions set by the researcher. She defines *limitation* as "a flaw or weakness in the study that affects the internal validity and external validity of the results" (Bui, 2014, p. 113). Internal validity is achieved when variables within a study (e.g. data samples, control groups, etc.) are treated to produce causal and comprehensive context-based results. External validity, on the other hand, refers to instances where the results of the study can be generalised, and applied to other settings and groups. Bui (2014) explains that two of the most common limitations for many researches are related to limited access to participants or materials; and insufficient samples sizes. This section will discuss the limitations that affected the external and internal validity of the study.

The first limitation was related to lack of diversity in the data samples. To accommodate the time, spatial, and design requirements prearranged for the study, I decided to focus on collecting library professional communications published online. This restricted the depth and scope of the discussions presented. The data corpus could have been expanded if several on-location observations were designed and conducted. Accordingly, this could have provided a way of anchoring this study to a specific time and place setting by highlighting other practical aspects of makerspace in relation to specific Swedish library contexts. The lack of any data samples representing the views of makers or other interested parties ensured that the focus remained on the various aspects of the designated data corpus; however, it also rendered a somewhat generalised view on the subject of makerspaces. Conducting one-on-one interviews with makerspace users could have alleviated this problem. A second limitation was the lack of scientific publications that specifically tackled the subject of makerspaces in Swedish public libraries. This barred the study from expanding its scope to encompass not only professional communications but also academic research about makerspaces in Sweden. On one hand, the availability of academic sources could have disclosed some theoretical foundations that this research could have built upon. On the other hand, as there were only a few published Swedish based scientific researches, performing a discourse analysis on academic publications, as was exercised in some prior studies that inspired the design of this thesis (e.g. Willet, 2016), would have been a challenge. Both limitations impact the internal validity of the study. With a more diverse data collection, the study may have presented a more comprehensive context-based understanding of makerspaces in Swedish public libraries.

Other limitations were related to the development of the theoretical framework for the study, and the formulation of the thematic codes for analysis. Firstly, building a theoretical framework based on specific theoretical perspectives, used within the field of LIS, was a powerful way to develop a methodology tailored to the needs and purposes of this study. However, a limitation was that this methodology might have somewhat lessened the applicability of this theoretical approach to other studies conducted outside the field of LIS. Secondly, while the study focuses on understanding the signification of makerspaces in Swedish public libraries, modifying the codes to reach a more substantial level of inclusivity might have more accurately reflected the universal effects of this phenomenon on library institutions around the world. The formulation process itself took a substantial amount of time; however, allotting a final instance for formulation review would have helped suit each thematic code to a larger universal context.

4.5. Ethical Considerations

To ensure that the study was conducted as ethically as possible, the ethical guidelines presented by the Association of Internet Researchers (AoIR, 2012)[10] were taken into consideration. This guideline emphasises the researcher's obligation to protect the community, authors, or participants, he or she studies, especially in situations that render them vulnerable. For the purposes of this thesis, the materials gathered were readily available online and, in most cases, published through the public libraries' own websites. These data samples did not mention any specific authors, but carried information regarding which institution they were designed for, their purposes, and their intended audience(s). While the connection between the object of research and the person(s) who produced it were rendered indistict in these instances, it was important to consider that a group of individuals still participated in the production of these materials (AoIR, 2012). To adequately protect these individuals in the analysis of the data sets, references to any data sample were primarily presented using the name of the institution as the source. However, to adhere to the writing requirements of the thesis, direct links were provided for data samples that were quoted. This practice was strictly exercised with the acute awareness that institutional website pages, regardless of their anonymous appearances, may still carry personal information about the producer of the materials it represents.

In relation to the ethical consideration mentioned above, this study also encoutered challenges regarding the archival of data samples. AoIR (2012) highlights the complex nature of electronically stored resource data, explaining that these materials can easily be accessed and reused for other purposes dislocated from the intentions of the archiving researcher. Moreover, they emphasise that possible risk or harm might result from incautious reuse of stored materials, most especially in cases where the original source (e.g. institution, organisation, community, etc.) of the material does not longer exist. In the case of this study, many data samples had to be downloaded and saved. This guarranteed constant access to these materials, most of which were found on non-stagnant webpages. As of now, there are no written guidelines with respect to this process. However, to minimise harm or the abusive reuse of any of the materials used in the study, the data collection for this thesis had not been published and will remain privately archived.

Another ethical dimension that emerged was related to the theoretical and analytical approach employed in the study. AoIR's (2012) guidelines were constructed to cover the many complex aspects of internet research. Among other definitions, they related internet research to inquiries that "employ visual and textual analysis, semiotic analysis, content analysis, or other methods of analysis to study the web and/or internet-facilitated images, writings, and media forms" (p.4). Many of these methods were encapsulated in the theoretical framework designed for this study. Intrisically, the discourse analytic approach positions the researcher as an interpreter of text (Fairclough, 1993). Systematic and objective interpretation stands at its core; however, traces of subjectivity do manage to permeate the analysis of even the most perfect researcher. Keeping this in mind, this study was conducted using adaptive and inductive approaches (AoIR, 2012). Accordingly, the ideas presented in the data samples were respected textually, through the use of proper citations and critical translations; and intellectually, through well-informed methodologies guided by information taken from established academic sources (e.g. published scholarships within and outside the field of LIS).

[10] The AoIR is a member-based academic association committed to ensuring that research on and about the internet is conducted ethically and professionally (see https://aoir.org/ for more information).

Chapter 5. Results of Content Analysis

This chapter presents the results yielded from the review of the data collection. The following sections are arranged in their order of employment in the analysis. Non-textual elements (i.e. word cloud, and tables depicting major themes and related keywords) are utilised to provide readers coherent and easy-to-follow descriptions. The word cloud depicted in the first section is presented in Swedish, as they represent words that are directly taken from the data samples. The table provided in the subsequent section; however, is presented in English. The Keywords related to each theme are not entirely verbatim translations, instead, the focus is to provide their conceptual essence. Both illustrations of data represent results registered in a raw Data Inventory Excel file. As this file includes direct links to all the data samples included in the data collection, it will not be included in the Appendix[11]. Instead, direct links will only be provided for references that include quotations. Access to the raw file will be granted upon valid request.

5.1. Frequently Used Concepts

Figure 4. Word cloud for word frequency test

The Word Cloud[12] above illustrates some of the most frequently used terminologies in library professional discursive constructions pertaining to *makerspaces* or other maker-oriented activities, concepts, or ideologies. Below are the most omnipresent terms that emerged during the word frequency review. The most recurring concept in the data collection is *eget skapande*, constituting approximately 41% of all terms reviewed for the study. Notably, the term is mostly ubiquitous in the policy documents included in DS1, with 50 out of 58 data samples using the term. Finding a direct translation for this concept in English has been a challenge. However, in

[11] See my discussions pertaining to the ethical treatment of the data samples in section 4.5.
[12] See also Word Frequency Table in the Appendix.

essence, it can be defined as a creative form of self-expression, that is, an individual's ability to make something of their own. For the purposes of this study, *eget skapande* will be henceforth referred to as *creative expression*. In several of the data samples, this term is associated with concepts such as *stimulera* (to stimulate or encourage), *inspirera* (to inspire), *att lära* (to learn), *att producera* (to produce), and *skapande-aktiviteter* (making activities). The term *delaktighet*, participation in English, inhabits the second most common used term in the data collection (it is included in 38% of all the data samples). This term is often linked with concepts related to sharing knowledge and experiences, collaboration and cooperation, and information and digital literacy (i.e. *utbyte av kunskap och erfarenheter*, *samverkan*, *digitalt*, *informationskunnighet*, respectively). *Kreativitet* (creativity in English) and *innovation* (innovation in English), are two terms that often appear in close relation to the abovementioned terminologies. Furthermore, these two concepts frequently occur alongside each other in several of the policy documents reviewed for the study.

The data samples included in DS2 (website information) and DS3 (activity advertisements) appear to use similar terminologies. References to specific makerspace initiatives, activities, and tools are represented in these data samples. For instance, the term *makerspace* is typically used in the selected policy documents; however, its Swedish counterpart, *skaparbibblan* (Luleå kommun, 2015), which roughly translates to maker-library, occurs mostly in the data samples included in DS2 and DS3. Other terms used to refer to exact types of maker-oriented spaces are: DigiLab (Karlshamns kommun, 2017), Digidel (Helsingborgs stadsbibliotek, n.d.), creative corner (Göteborgs stadsbiblioteket, n.d.), *pysselverkstad* (Folkbiblioteken i Lund, 2018), that is, arts and crafts workshops, and *stickcafé* (Stockholms stadsbibliotek, 2018) or knitting café. Terms attributing to various making activities such as programming, crafting, knitting, and crocheting (respectively referred to as, *programmering*, *pyssling*, *stickning*, and *virkning*) are also predominantly used in both data sets. In addition, several of the data samples included in DS2 and DS3 present terms linked to various tools and apparatuses utilised in maker-oriented spaces, for example, 3D printer, vinylcutter (*skärmaskin*), Green Screen, programming softwares (i.e. Scratch, MakeyMakey), editing softwares (i.e. Adobe Photoshop), sewing machine, etc.

The concepts highlighted above are those relevant for the topic of this thesis. However, other terms relating to the overall functions and missions of public libraries are primarily presented in the policy documents included in DS1. These data samples frequently quote or cite the current Swedish Library Act (*Biblioteksla*g 2013:801). Mirroring the basic missions of libraries expressed in international contexts (i.e. library manifestos of IFLA and UNESCO), the Swedish Library Act (2013:801) puts heavy emphasis on the importance of libraries for:

> The development of a democratic society and the foundational role they play for knowledge transfer and the free formation of opinions (Swedish Library Association, 2015, p. 3).

This is represented in policy documents through terms such as *likvärdighet* (equality) and *åsiktsbildning* (forming opinions). Along similar lines, the Swedish Library Act (2013:801) also underscores that particular attention should be devoted to persons with disabilities, individuals with other native languages other than Swedish, and persons whose background is considered as national minorities in Sweden. The data samples included in DS1 present some references to this function. The library's role of advancing the linguistic development of children and young adults is also implied along these contexts (Swedish Library Association, 2015). This last notion is copiously represented in the data samples included in DS1 and DS3. The policy documents demarcate this function through a variety of formulations that frame the development of makerspaces as a way of engaging patrons of this particular age groups. However, the collection of activity advertisements for makerspace events shows concrete emphasis on this target audience by explicitly labelling their events as for children (*barn*) and/or young adults

(*ungdomar*). Lastly, the Swedish Library Act (2013:801) foregrounds the library's role in increasing knowledge about how information technology can be utilised for the attainment of knowledge, learning, and cultural participation. Thus, terms such as *informationskunnighet* (roughly related to information-seeking skills) and *digitala verktyg* (digital tools), often appear repeatedly in the policy documents included in this study.

5.2. Key Themes

THEMATIC CODES	KEYWORDS	SOURCES	REFERENCES
N1 CHARACTERISATION OF MAKING	Interactive, arts & crafts, handicraft, workshops, DIY, DIWO (do it with others), tinkering, experimentation, storytelling programming, innovation, creating technical solutions, creative arts, fantasy-based making, digital production, recycling	35	50
N2 CHARACTERISATION OF MAKERS	Children, young adult, age-specific activities, gender-specific, amateurs, non-experts, innovators, inventors, producers of knowledge and culture, handcrafters, curiosity, collaborative	40	54
N3 CHARACTERISATION OF MAKERSPACES	Inspiring, creative, participatory, living room & workshop metaphor, performative and interactive spaces, creative corner, cultural expression, creative forums, fun and informal learning spaces	35	45
N4 MAKERSPACES & PUBLIC LIBRARY VALUES	Encourage creativity, innovation, and collaboration, inclusivity Empowerment, support digital learning, nurture cooperation among community organisations, prioritised groups Meeting places, democratic mission cultural hubs, technology hubs	38	78
N5 MAKERSPACE & LIBRARIAN PRAXIS	ICT skills, pedagogical skills, method development skills, communication skills, subject-based knowledge, service minded, resourceful, creative, external expert network	11	14
N6 MAKERSPACE & TOOL/TECHNOLOGY	3D printers, MakeyMakey, LittleBits, Scratch, vinyl cutters, image editing software, music software, Green Screen, Stop motion, toolbox, robots, VR, sewing machine, yarn, spinning wheel, arts & crafts supplies, Strawbees Quirkbot, Ozobot, seed swap	19	27
N7 MAKERSPACE & SOCIAL CONTEXT	Development of community and local businesses, a sense of belonging/community, cultural participation, creation of identity, integration, social and cultural empowerment, democratic knowledge production and consumption	19	24
N8 MISCELLANEOUS	Financing models, drop-in or reservation, FIKA or other incentives, pop-culture themed making activities	13	16

Figure 5. Table on thematic codes

The table above illustrates the frequency of, and the keywords or concepts related to, each encoded theme delineated for this study. In this taxonomy system, N (viz. *node*) functions as the main legend. It is important to note that while each thematic code is presented singularly, some formulations included in the data samples often tackle two or more themes at the same time. Thus, certain formulations were encoded to represent more than one theme. The codes embedded

in N1 to N4 comprise the majority of concepts and formulations found in most of the data samples. For N1, most of the formulations refer to specific forms of activities and processes related to *making*. Keywords such as arts and crafts (*pyssel*), handicraft (*hantverk*), and workshop, are prominent in these formulations. Other terminologies closely related to this theme are programming (*programmering*), creating, tinkering, experimenting, etc. N2 contains formulations that represent attributes relating to *makers*. Several formulations contain age and/or gender specific nomenclatures, while others refer to makers through broad descriptive titles (e.g. handcrafters, inventors, amateurs, innovators, etc.). N3 encompasses formulations that describe *makerspaces*. On one hand these formulations often focus on conceptualising the overarching functions of maker-oriented spaces (e.g. as performative spaces or learning spaces). On the other hand, as was exemplified in the first section of this chapter, several maker-oriented spaces have allotted names, depending on the functions or activities each space accommodate. Formulations that link makerspaces to various library values constitute the data encoded in N4. Among all the thematic codes, this theme is primarily foregrounded in most of the data samples. Many of these formulations associate makerspaces with the concepts of democracy, inclusivity, empowerment, etc. Others signify formulations of a somewhat imperative nature (e.g. encourage creativity, support digital learning, nurture cooperation).

The formulations encoded in N5, N6, and N8, are frequently represented in a concrete manner, referring to specific subjects. For N5, some formulations relate to specific professional skills (e.g. Information and Communications Technology skills, pedagogical skills, etc.), while others signify descriptive concepts that can be linked to personal virtues (e.g. resourceful, creative, service-minded). The formulations included in N6 focus on the tools and technologies found in makerspaces. Individual brand names are utilised, in several of these formulations (e.g. Scratch, LittleBits, MakeyMakey, etc.), to refer to digital-based equipment. However, non-specific terms are used to signify tools used in traditional, nondigital handcrafting activities (e.g. toolbox, sewing machines, arts and crafts supplies, etc.). N8 contains a sporadic collection of formulations. Many of which refer to whether a maker event requires payment or is for free, while others delineate if an activity requires some sort of reservation or is open for drop-in. Some formulations also present information on certain incentives for partaking in makerspace activities (e.g. free *fika*, take-home slime, make-your-own Harry Potter wand, etc.).

Lastly, N7 encapsulates formulations that connects makerspaces to a variety of social functions. These formulations are often represented in a broad and descriptive manner. For example, some formulations regard makerspaces as a way of affording patrons a sense of belonging, or as means of supporting the creation of identity, or as a mechanism that supports integration, etc. Other formulations convey specific social functions such as promoting the development of local businesses. Formulations aligning makerspaces with concepts of social and cultural empowerment are foregrounded in many of the policy documents reviewed for this study.

The two sections above presented the overall results of the content analysis. In the case of this study, the process of identifying the denotative and connotative features of library professional discourse on makerspaces, generated a two-fold approach to the subject. The first approach constitutes what Ruiz (2009) considers as a content analytic approach. He clarifies that this approach is markedly quantitative in nature as it focuses on "breaking down or fragmenting the text into pertinent units of information for their subsequent coding and categorization" (Ruiz, 2009, para. 17). This was exercised in this study through a word frequency test (as was described in Chapter 4), which has resulted to the identification of some similarities and differences in the types of wording employed in discursive formulations related to makerspaces. On this premise, the distinguished discursive fragments were assessed based on their denotative value, focusing on linguistic signifiers (i.e. words or phrases) that occur repetitively in the data collection. By way of illustration, the results presented in section 5.1., depict some frequently used concepts in

the data samples. Moreover, the categorisation process was expanded to encompass the method of grouping similar discursive fragments together, to constitute a variety of overarching themes relevant to the topic (as was exemplified in section 5.2.). Through this first approach, the analysis effectuates a variety of well-grounded inductive inferences, verified efficiently by the ample amount of data samples the study encompasses. In addition, the substantial number of relevant literature reviewed for this study provides an invaluable framework to the discussions presented in the subsequent chapter. Accordingly, Chapter 6 also presents the second approach which "centres its attention on the effects of the meaning of discourse at the enunciation level" (Ruiz, 2009). This founds a more qualitative analytical praxis, taking what has been revealed through quantitative methods, and examining them to disclose their significance in producing meaning. This approach resonates with Barthes' (1988) cogitation on signs as conveyors of binary messages. First is the denotative message which is represented through graphical signifiers, inhabiting the covert level of enunciation; second is the connotative message, which occupies the level of content, and convey the covert meanings embedded in discourse (Barthes, 1988). The subsequent chapter will delve deeper into the qualitative facet of this study.

Chapter 6. Analysis and Discussions

This chapter will analyse the encoding results of the study (presented in Chapter 5), using a theoretical framework that joins the tools of sociological discourse analysis with the methodologies of semiology, rhetorical genre theory, and sociotechnical perspective. The subsequent analyses culminate in building an understanding of how library professional discourses, *talking about* library makerspaces, constitute a binary system of signification. In accordance to the theoretical framework designed for this thesis, this chapter is divided into three main sections. The first section presents a textual analysis, focusing on the overt and covert messages embedded in professional discourse on library makerspaces, and an examination of the tensions that arise with regards to corelating these messages with the intended role of public libraries in Sweden. The second section presents a contextual approach to the subject, concentrating on an examination of the discursive formulations that typify the types of *making*, *makers*, and *makerspaces*, that take precedence in Swedish library professional discourse, designed to communicate information on, and to market, public library maker-oriented services and functions. The last section provides a consideration of discourse as a form of social information, a conveyor of ideologies, and as a type of social product. In this final stage, library professional discourse is examined to reveal discursively conveyed social *imaginaires* and the intended institutional development strategies constructed to correspond the presumed social needs implied through discourse. To achieve a level of clarity and coherence, each subsequent section will answer the three research questions in the order of appearance delineated at the onset of this thesis. In addition, each section commences with a figure reiterating the research question, the level of SDA it corresponds to, and the subsidiary perspective it employs.

6.1. Connotated Institutional Values in Swedish Library Professional Discourse on Makerspaces

> Democratising knowledge production is another priority for public libraries. The institution must function as centres for creative expression, and provide access to the making and spread of self-produced media […] Today's information society situates the public library as a natural place for meeting, making, and learning — it is a place where knowledge can develop into a variety of forms (Malmö stad, 2015, n.p. own translation[13]).

The quote above represents the general sentiment signified in the data collection. It is analogous to cases wherein, library-related literature on makerspaces, draw links between the tenets of the Maker Movement and the ethos of public libraries, in an idealised manner (e.g. Burke, 2014; Willingham & de Boer, 2015). In practice, this is done by melding commercial makerspace's mode of expression with the institutional parlance of public libraries. This exercise is not only practiced in the formation of professional sourcebooks, designed to guide current and future

[13] See Excerpt 1. in the Appendix for the original version.

library makerspace facilitators. In Sweden for instance, this habit has permeated even the construction of library professional communications, designed to inform users of new maker-oriented services. These types of information are frequently conveyed through a variety of digital outputs, such as library institutional development plans (DS1), library webpage information on maker-oriented services (DS2), and making-activity advertisements (DS3). Regardless of which communicational output is employed, the content and substance remain the same — each contains messages signified by words, phrases, sentences, expressions, etc.

From a discourse analytic perspective, language functions as the lifeblood of meaning making, and language usage is regarded as a form of social practice. Fairclough (1993) postulates that a producer or interpreter of language texts, is always confronted with clusters of words and meanings. He argues that the relationship between words and meanings are never singular nor monodirectional. In a similar vein, Ruiz (2009) explains that, from a sociological standpoint, the notion of imbuing reality with meaning is far from a facile process. He claims that social action is "guided by the meaning that individuals attach to their actions," (Ruiz, 2009, para. 6) and interpreters (or researchers) must consider the various facets of this meaning when "attempting to understand and explain the action" (*Ibid*) it corresponds to. To put this in context, the concepts of *making*, *maker*, and *makerspaces*, cannot exist without imbued meanings, just as meanings cannot be established or understood without first demarcating the word it refers to. Therefore, the first level of SDA requires the researcher to focus his or her analytical eye (and mind) on what is textually represented. The goal of conducting this type of textual analysis is to pinpoint the composition and structure of discourse. This allows the researcher to understand the meaning conveyed through discourse, by considering the facets of its barebones, that is, the words, phrases, and expressions that constitute each discursive formulation. The *semiological* technique of identifying denotative and connotative significations, affords a pragmatic approach to such theoretical aspirations. With regards to understanding how public library professional discourse *talk about* makerspaces, a textual analysis echoing the considerations mentioned above, can help build an incipient understanding of the messages embedded in professional communications aimed towards the public.

As a case in point, let us consider some of the most frequently used concepts in the data collection. From a denotative standpoint, the concept *eget skapande* (self-expression), as represented in several of the data samples, combines two lexical signifiers:

> (1) *eget* is an adjective that signifies ownership. It is generally used to emphasise a notion of possession or belonging (Oxford English Dictionary[14], 2018).
>
> (2) *skapande* is a noun which can be translated to either (a) creation: which is the action of making, producing, or bringing something into existence (OED, 2018); or (b) making: which refers to the ability to produce a material thing, to manufacture, to construct, or to assemble" (*Ibid*).

Together, these two halves constitute a concept associated to *self-expression*[15], that is "the expression of one's feelings, thoughts, or ideas, especially in the creative arts" (OED, 2018). Other DS1 samples in the data collection use the concepts *kreativt skapande* and *eget skapande*, interchangeably. The significance of the concept within the vernacular of arts, is emphasised by Willet (2016), as she refers to the phrase "individual artistic expression[16]" in her discussions (p. 323). This can be a viable translation to *kreativt skapande*. Nonetheless, this locution inhabits an

[14] OED henceforth. (Reference list: *Oxford English Dictionary Online*. March 2018. Oxford University Press. Available via: http://www.oed.com.ludwig.lub.lu.se/. viewed 16 May 2018.
[15] Please note that Hatch (2014) and Willingham and de Boer (2015) both allude to this exact concept once in their respective works; however, neither clarifies what the concept refers to.
[16] Rasmussen (2016) also refers to the concept artistic and creative expression in his article.

almost similar description to the concept of *self-expression* mentioned above, and can therefore be considered a logical alternative to the translation presented in this study. However, in connection to the data samples, the concept of *self-expression* is often dislocated from creative outputs associated with expressive arts. Instead, the activities promoted to resemble the concept (especially in the samples included in DS2 and DS3), typically connote various forms of *making* that instigate digital production. Yet, several library-related publications, focusing on public library makerspaces, signify an identical denotative feature. For example, Koh and Abbas (2016) mentions the phrase "self-directed learning" (p. 2) in their article; Bossaller and Haggerty (2017) refers to "self-created inventions" and "self-taught patrons" (p. 13); and Williams and Folkman (2017) talks about "self-directed tasks" and "self-discovery" (p. 24). The concept of *self-expression*, highlighted in the context of Swedish library professional discourse on makerspace, and the samples of similar wordings signified in the journal articles mentioned above, convey some rather homogenous connotative meanings. First, the emphasis on the lexical signifier 'self' connotes a focus on the individual. Second, its adjacency to either verbs or abstract nouns, implies that the action or thought signified, is performed or acknowledged by the agent on his or her own accord.

The centrality of the concept of 'self' in library professional discourse on makerspaces can be accredited to the historical link between the Maker Movement and the DIY ethos. As Willet (2016) clarifies, the culture of *making*, as it stands today, resulted from the emergence of social practices developed as a political response to the torrent of mass production and industrialisation that beset the 1960s and 1970s. The DIY Movement advanced philosophies that promote anti-consumerism, self-reliance, and self-actualisation (Willet, 2016). Along similar lines, some scientific articles scrutinising the changing role of public libraries around the world, reflect upon related discussions. To cite an instance, Rasmussen (2016), in his investigation of library user participation in Nordic countries, discloses that the principle of *cultural democracy* that emerged in the 1970s, has given way to a new library ethos. He explicates that while the concept of *cultural democracy* is primarily linked to the library's mission of making highbrow culture accessible to every individual, the principle has now transitioned to delineating the task of encouraging every citizen to actively participate in cultural life:

> […] they should not only be spectators of highbrow art, but should also have access to the means of cultural production and distribution. [This] is not something brand new, but it is in the wake of Web 2.0 that participatory culture has really expanded (Rasmussen, 2016, p. 547).

This passage personifies the public library's adaptive institutional identity. In it, Rasmussen (2016) refers to Jenkins and Bertozzi's (2008) definition of participatory culture, as a culture almost bare of barriers with respect to artistic expression and civic engagement. Jenkins and Bertozzi (2008) further explains that the participatory culture puts high value on the concept of creating and sharing creations. Against this background, iterations surrounding the concept of *making*, found in today's modern context, tend to endorse a somewhat similar mind-set. In non-library literature on makerspaces, the *maker* is portrayed as an uber-active agent. For example, Dougherty (2016) postulates that, in general, people are transitioning from being passive consumers to active *makers*. He believes that this changeover is driven by the individual's desire to learn and to affect his surroundings by surmounting social adversities. All three authors paint a recognisable link between the concept of 'self' and 'expression'. Like Dougherty (2016) describes, passive consumption has become yesterday's norm. This perception has also taken grounds in cultural institutions such as public libraries, as was exemplified by Jenkins and Bertozzi (2008), and Rasmussen (2016). Putting two and two together, the social changes that emerged in the 1960s and 1970s has led to the redefinition of public library values.

2§ of the current Swedish Library Act (2013:801) mirrors similar sensibilities, as it establishes the role of public libraries in advancing the tenets of social and cultural democracy, by providing

every individual equitable access to knowledge, information, and resources (see Appendix). From this perspective, the 'self' is connotated as a building block of democracy. According to the Swedish Library Association (2015), this formulation states the government's idea that:

> democracy is fortified and deepened when private individuals are given increased knowledge and good conditions for a free exchange of opinions and for discussions about common affairs. The idea that libraries should promote the development of a democratic society expresses a goal of universal participation and the free formation of opinions (p. 7-8).

The substrate of this provision encompasses the idea that public libraries should function as milieus that foster knowledge transfer and the free formation of opinions, thereby cultivating personal development, and in so doing, even social and cultural participation. Several of the data samples mimic a similar outlook. The DS1 samples included in the data collection, connect connotations encircling the democratic mission of public libraries in Sweden, with discursive formulations relating to public library makerspaces. This passage from Gothenburg City Library's institutional development plan is an apt representation of how the contemplation above is textually enunciated in many of the DS1 samples:

> Our public library rationale mirrors the principles of freedom of expression, thus, the library supports the free formation and exchange of opinions. Spaces for making and self-expression, are available at the library. Self-expression can inhabit a variety of artistic forms, and can be produced within one's own cultural participatory aspirations. Interaction among people should be nurtured in different inspirational and creative forums. The library invites the participation of users in a modern participatory culture, which, among others, is the result of the development of new digital technology. One such example is the emergence of social media platforms. People tell stories, they share stories, they tell stories (Göteborgs stad, 2013, p. 11, own translation[17]).

The formulation commences by denoting a judicial terminology (i.e. 'freedom of expression'), claiming that the library's ethos echoes the principle of freedom of expression, ergo the library functions as a democratic institution that supports the free formation and exchange of opinions. Subsequently, in this discursive construction, the concepts of *making* and *self-expression* are denoted in a singular sentence fragment. The sentence after, defines that the concept of *self-expression* as any form of artistic output that is solely dependent on the individual's own ambitions, with regards to cultural participation. Moreover, the library institution is portrayed as a form of creative forum that welcomes and inspires all types of individuals. The ensuing sentence represents the library's goal of inviting individuals to partake in a so-called modern participatory culture, contingent on the development of new types of technology that primarily corresponds the affordances of social media platforms. The entire passage is concluded with an assertive statement pronouncing: "people create stories, they share stories, they tell stories" (Göteborgs Stads, 2013, p.11, own translation). A closer examination of these discursive constructions can disclose some predominant covert meanings embedded in the data collection. Several of the institutional development plans commence their respective passages on library makerspaces by referring to the intended democratic role of public libraries in Sweden. To textually represent this stance, some of the DS1 data samples refer to specific judicial concepts, while others allude to official documents such as the UNESCO Public Library Manifesto[18]. Among others, this discursive practice can be interpreted as a way of establishing maker-oriented spaces and services as natural insertions to public library functions. Moreover, by aligning such discursive formulations with themes or concepts found in library-related, international official documents, library professionals inadvertently depict the provision of maker-oriented services

[17] See Excerpt 2. in the Appendix for the original version.

[18] An official document, constructed by UNESCO and The International Federation of Library Associations and Institutions (IFLA), demarcating the intended institutional functions and values of public libraries around the world. See https://www.ifla.org/publications/iflaunesco-public-library-manifesto-1994.

as a global institutional aspiration for public libraries. Whether these intentions are enunciated deliberately or unintentionally, aligning the tenets of the Maker Movement with the intended role of public libraries in Sweden, requires more than simple allusions to laws and official documents. As Barniskis (2016) underscores, library makerspace facilitators sometimes face the challenge of capturing the attention and approval of apathetic library stakeholders (e.g. city council, uninterested colleagues and patrons, etc.). She further clarifies that while the idea of having a technologically-advanced maker-oriented space at the library might be interesting to many, some might find it hard to understand what *making* has to do with the institution. Accordingly, Barniskis (2016) stresses that "stakeholders need clear connection to understand why they should support a collaborative creative space" (p. 166). In this regard, conscientiously constructed professional communications, aimed towards other librarians, and the general public, can be an effective means of accentuating the connection between *making* and public libraries.

However, as Barniskis (2016) elucidate, some professional communications often portray library makerspaces in a rather critical and problematic way. By way of illustration, let us go back to the abovementioned passage from the Gothenburg City Library institutional development plan. The excerpt claims that *self-expression* can take a variety of forms, and the form it takes is solely the choice of the individual. Here the 'self' is connotated as the active agent who chooses the output and purpose of his or her *self-expression.* Still, the succeeding sentence clarifies that the library primarily invites user engagement in a "modern participatory culture" (Göteborgs Stads, 2013, p.11, own translation) — a notion defined as the outgrowth of the development of digital technology, such as the "emergence of social media platforms" (*Ibid*). This ensuing message can be perceived as a contradiction to the preceding claim. This connotes "modern participatory culture" as the preferred means of cultural engagement, and *making* is somewhat circumscribed to processes that fall within that category. This is further emphasised by the definition charged to the concept. While social media platforms are merely used as an example in the formulation, it still implies that the space is primarily constructed for patrons whose interests are aligned with the processes of digital cultural productions. Barniskis (2016) claims that discursive constructions that underline these types of distinctions have the tendency of alienating core users. In the case of this study, library professional discourse focusing on endorsing the value of maker-oriented spaces and services, inadvertently diminish the initial power of the 'self' through significations of concepts that connote various preconditions for *making*, and sharing. This can potentially conflict with the intended role of public libraries in Sweden. In the premise of Paragraph 2 of the Swedish Library Act (2013:801), public libraries are charged with the role of providing equitable access to knowledge and resources that can further self-development and participation among a diverse community of patrons. This mission holds a predominant link with the principles of the Maker Movement, as elucidated in many library-related publications on makerspace, and in the data- samples included in this study. However, the current depiction of public library makerspaces in library professional discourse, bear constructions that can potentially raise questions about who is prioritised and who is excluded in these types of services.

To further examine this cogitation, let us examine how the terms *participation*, *learning*, and *digital*, are collectively utilised in various discursive formulations related to Swedish public library makerspaces. In general, the term *participation* refers to the process of sharing in action or to an individual's active involvement in a group, matter, event, etc. (OED, 2018). In the data collection, however, this word is frequently denoted alongside *learning* or *digital*, in references to the concept of *making*. Formulations that signify *participation* and *learning* together convey a meaning almost analogous to the concept of *collaborative learning*. Several library-related literature link this concept with the Maker movement, describing it as the effect of nurturing interactions among patrons of similar interests: *makers* involved in a particular library

makerspace are encouraged to learn from each other, and to share their knowledge and experiences with others (Pomerantz & Marchionini, 2007; Sheridan, et.al. 2014; and Willet, 2016). The concept of *digital participation*, on the other hand, refers to an individual's ability to make informed use of digital technology and understand how technology can be utilised to perform a variety of tasks that support an individual's social and cultural participation (Hague and Williamson, 2009, p. 3). In the data samples included in this study, the link between public library values, and the collaborative learning aspect of the Maker Movement, and its connection to digital participation, can be summarised by this discursive formulation:

> The thought behind a makerspace is that anyone can come and work on their projects; they can also share and discuss their ideas with others. The makerspace adapts itself to needs of its users. In short, it is all about collaborative learning and problem-solving […]
> The link between makerspace and the library encompasses, among others, affording new digital skills, such as programming (a new 'language'). Also, in accordance to the library's longstanding tradition of public education, the makerspace affords users access to, and knowledge on, new technological tools, such as 3D printers, and other possibilities for making. A makerspace can also be considered a new prospect for furthering integration (Region Gävleborg, 2016, n.p. own translation[19])

This construction iterates an overarching definition to the term *makerspace* endorsed in several of the data samples. It explains that *makerspaces* are thought to accommodate any individual who wants to work on a variety of creative projects, as well as other members who wish to share or discuss their ideas with others. Furthermore, it emphasises that *makerspaces* are designed based on the needs and preferences of its members. In the concluding sentence of the first passage, *collaborative learning* and problem-solving are connoted to constitute a makerspace's primary raison d'être. The subsequent excerpt demarcates what the connection between makerspaces and public libraries entail. It clarifies that *makerspace*, within Swedish public library context, carries the function affording patrons a way of honing new digital skills associated with programming. Another purpose for library makerspaces is to disseminate information on the usability of new technological tools (e.g. 3D printers) in various prospects of *making*. The closing sentence states that *makerspaces* can also be perceived as a new function that can advance the notion of integration. These discursive formulations reflect some of the values highlighted in the Swedish Library Act (2013:801).

Some of the data samples indicate direct references to the Swedish Library Act (2013:801). In addition to underlining the democratic mission of public libraries, §2 also demarcates the types of services that should be included within the library institutional fold. This bill underlines the library's broader mission of promoting a general interest in learning. In this framework, libraries are charged to assume the role of convivial spaces that support a free exchange of opinions among patrons. Barniskis (2017) discusses how current discourse on library faith lack the concept of *conviviality*. She defines library faith as an example of an imaginaire, or collective visions about a sociotechnical system; the concept connotes an "idealistic vision of what is possible in a public institution," and centres around the notion of social justice, that is, the idea of ensuring that every member of a society develops and flourishes (Barniskis, 2017, n.p.). Furthermore, Barniskis (2017) relates the concept of *conviviality* to the idea that library patrons can shape the library as a tool to suit their needs, preferences, and purposes. This entails that every convivial space is unique with a design based on its location and intended use (Shaftoe, 2008). The concept of conviviality, while not directly denoted, is one of the hallmarks of the Maker Movement that is connoted in the data samples, especially in formulations that aim to define the value of Swedish library makerspaces. Contrariwise, the concept of *collaborative learning* is denoted in several of the data samples. Moorefield-Lang (2015) maintains that

[19] See Excerpt 3. in the Appendix for the original version.

makerspaces are very conducive to collaboration and teamwork. She further clarifies that makerspaces functions as rooms where *makers*, with complimentary skills sets and viewpoints, can collaborate and help each other find solutions that would not be as apparent to the *maker* if he or she conducts his or her project in isolation.

The excerpt, taken from the Gävleborg County's webpage (Region Gävleborg, 2016), represents the concepts of *conviviality* and *collaborative learning*, in its discursive construction of makerspaces in Swedish public libraries. The first passage connotes that the makerspace welcomes the participation of any patrons regardless of which *making* project they opt to work on. Moreover, it clarifies that the space is open even for individuals who simply desires to meet others to share and discuss ideas. The idea that the space is constructed for the specific needs of the users, affixes the convivial characteristic of the *makerspace*. The succeeding sentence, however, opposes this notion by delineating the intended purpose of the library makerspace, connoting an environment that is solely dependent on digital production tools. Similar formulations aligning *makerspaces* with a digital-centric mindset, are also evident in many of the data samples included in DS2 and DS3. Library webpage information focusing on representing maker-oriented services online, with the intention of reaching other patrons that are active on the Web, often highlight similar denotations. The information communicated focuses on the types of tools afforded in each library makerspace. To some extent, this discursive practice can be coming from a variety of interpretations linked with §7 of the Swedish Library Act (2013:801). This government bill implies that part of the public library's democratic mission is to strive to "increase knowledge about how information technology can be used for the attainment of knowledge, learning, and participation in cultural life" (Swedish Library Association, 2015, p. 19). Johnston (2017) advocates the development of new library services to meet the needs of modern-day society, but exhibits serious qualms about discursive representations of makerspace that endorse maker-oriented services and programmes through singularly tool-centric constructions. He remonstrates that:

> no one tool or set of tools makes a makerspace a makerspace. [Instead, tool] choices should stem from the mission and goals of the space, not the other way around […] Makerspaces are about creation, collaboration, and community (Johnston, 2017, p. 384).

The samples of library making-activity advertisements included in this study, rely on similar modes of constructions heavily. These samples often utilise tool-centric formulations to convey the purposes and values of public library makerspaces in Sweden. In many cases, the concepts of learning and collaboration often gets overshadowed by a list denoting specific tools (or at times, a list of specific tool brands) of digital production equipment (e.g. Makey Makey kits, Arduino, MakerBots, etc.). This type of marketing discursive practice might be advantageous for many commercial makerspaces that are used to advertising the types of equipment they offer, as means of outshining business competitors, and thereby attracting the attention of new members (Davies, 2017). However, this custom does not necessarily befit the contexts of public libraries. Johnston (2017) asserts that foregrounding a tool-centric orientation can, on one hand, signify the public library's ability to offer patrons guidance in using unfamiliar digital technologies. However, he states that "library makerspaces are doing their communities a deep disservice if that is the totality of their instructional offerings" (Johnston, 2017, p. 254). This outlook recognises that knowledge of digital tools is necessary, but it is not sufficient to further collaborative learning and creative problem-solving, among patrons.

Lastly, let us explore how the concepts of *creativity* and *innovation* are depicted in library professional discourse on makerspaces. The concept of *innovation* only occurs in DS1 samples. However, all data samples often reiterate the concept of *creativity*, or the idea of being creative. In general, *creativity* can be defined as an individual's ability to produce or make something out of an original idea. However, like the concept of *self-expression*, within the context of public

library makerspaces, the term *creativity* is discursively associated with processes dislocated from the artistic arts (Willet, 2016). In many of the data samples, *creativity* is framed alongside abilities that are more inherent to a manufacturing mind-set:

> Build it, take it apart, fix it, make it, play with it, do it!
> […]
> On Saturdays, fun and creative materials and will be available at the library. You can also try out new gadgets and make stuff. The keywords are DIY (do it yourself) and DIWO (do it with others). These sessions are a chance for you to learn something new and to share your knowledge with others (Landskrona stad, 2017, n.p., own translation[20]).

This excerpt describes the types of activities exercised at a library makerspace. These are denoted through a call-to-action statement that links together a variety of imperative discursive formulations: "build it, take it apart, fix it, create it, play with it, do it!" (Landskrona stad, 2017, n.p., own translation). The subsequent passage connotes that the library makerspace is a purveyor of fun activities, creative materials and gadgets, all for the purposes of allowing patrons the opportunity to try new things and create. Furthermore, the excerpt foregrounds the concepts of DIY (*Do-It-Yourself*) and DIWO (*Do-It-With-Others*). The conclusion of the passage implies that participation can lead to the prospect of learning new skills, and the opportunity to share one's knowledge with others. Discursively linking *creativity* with the notion of producing physical artefacts, through the use of new fabrication technology, is a feature of the Maker Movement discussed in most literature that focus on makerspaces. Willet (2016) explains that the term *creativity* appears predominantly in her materials, and that *making* "is framed as a creative approach and process" (p. 323). Furthermore, she explains that in her sample of journal articles and blogposts, *creativity* is constructed as the procedures of an inventor rather than that of an expressive artist. The opening sentence of the abovementioned quotation connote a somewhat similar mind-set. Concepts such as *building*, *dismantling*, *fixing*, somehow invoke a picture of an overly enthusiastic engineer, gifted with a box of Legos — you will never know what you will get. This enigma is further emphasised by the fact that no specific type of artefact is delineated, in the passage, as the result. Instead, the focus is placed on the procedures of production. This discursive practice is rather inherent in several DS1 and DS2 samples. Contrariwise, data samples included in DS3 often utilise a more product-front discursive formulation, as in, the resulting artefact is demarcated before defining the procedures and equipment involved in the *making* process. It seems that with more broader definitions of makerspaces, come abstractions regarding the spatial purposes, and the types of artefacts that can be yielded from a specific making-activity.

Willet (2016) infers that creativity is "never framed as a quality of artists, authors, and musicians" (p. 323), but is rather related to production processes such as innovation, invention, experimentation, and design. In the case of this study, the connection between *creativity* and *innovation* is mostly signified in the data samples for DS1:

> Creativity and innovation are the prerequisites for development in today's knowledge society […] The library, in the digital age, is an evolving and intelligent room — it is an exciting and inspiring environment. The library is a place where users can participate in a variety of cultural experiences; it is where users can garner inspiration and support for the development of their skills and creativity (for example via a makerspace). The library, in other words, should function somewhat like a public living room and garage […] A makerspace is a place designed to encourage explorations that envelope technology, arts, and craftsmanship. It is a place that

[20] See Excerpt 4. in the Appendix for the original version.

> supports playful tinkering and innovation by means of interdisciplinary collaborations (Håbo kommun, p. 9, own translation[21]).

This excerpt, from the Håbo City Library's institutional development plan (Håbo kommun, 2016), presents an apt summary of the sentiments connoted in several of the DS1 samples that discursively relate the concepts of *innovation* and *creativity*, to characterisations of library values and makerspaces. Unlike the excerpt exemplified before, this passage defines library makerspace in a broader fashion. It claims that creativity and innovation are the prerequisites for development in today's knowledge society. Moreover, this formulation defines public libraries as adaptive institutions that afford patrons exciting and inspiring intelligent spaces. These creative spaces, according to the passage above, function as places where one can partake in a variety of cultural experiences; they inspire and support the development of skills and creativity among individuals. The passage draws the analogy of public libraries functioning as public living rooms and garage. The ensuing section defines library makerspaces as places designed to promote explorations that unite technology, arts, and craftsmanship. In addition, these spaces also encourage the notion of playful tinkering, and cultivate innovation through various interdisciplinary cooperation. These discursive constructions on makerspace portrays more of a vision rather than a concrete characterisation of library makerspace functions: a feature inherent in DS1 samples. The formulation of an institutional role, that links the concepts of *creativity* and *innovation* with the notion of furthering the development of knowledge economy, sounds rather extensive for one institution to undertake. However, the ensuing sentence implies that by honing the affordances of today's digital age, and by adapting a mouldable and intelligent institutional identity, the library is able to concretise and anchor this vast mission. A maker-oriented space symbolises that anchor, by functioning as an exciting and inspiring environment that supports the development of skills and creativity. Mattern (2014) observes that this outlook is echoed by various sources that glorify public library makerspaces unquestioningly. While she agrees that the provision of maker-oriented services has provided libraries new ways of servicing the masses, she exhibits some serious qualms about the tendency of accepting the idea that "making new stuff" equates to "producing knowledge" (Mattern, 2014, n.p.).

Mattern (2014) foregrounds that vital role of librarians in this matter. She expresses that while the notion of advocating the free and democratic access to information, constitutes the core ethos of librarian praxis, a new professional mind-set that centres around helping patrons to cultivate a critical perspective on making and innovation, must be in place. In a similar vein, Barniskis (2016) introduces the concept of librarians as enzyme. She explains that the librarian's enzymatic role centres around the notion of:

> bringing people together, introducing people to tools and offerings, and creating a culture of "diving in" […] Without this enzymatic role, creative spaces and tools may exist, but few may use them (Barniskis, 2016, p. 121).

This contemplation inhabits an unexplored area of study, with regards to research on library makerspaces. Accordingly, none of the data samples included in this study, represent discursive formulations indicating or acknowledging the role of library professionals, in facilitating and constructing maker-oriented initiatives. DS2 and DS3 samples that denote a specific making-activity organiser, refers only to externally sourced guest facilitators. For example, guest animators, authors, painters, jewel makers, etc. To put this in a larger social context, the current Swedish Library Act (2013:801) does not denote a specific bill that focuses on the importance of competent staff in libraries. However, during the parliamentary reading of the new government act, several proposals were handed in, delineating this specific provision. These

[21] See Excerpt 5. in the Appendix for the original version.

proposals were rejected, but the members of the Swedish Committee of Cultural Affairs clarify that:

> […] the proposed Library Act places demands on public libraries that can hardly be met without staff with the relevant training. It must be considered a necessary precondition for upholding the legal requirements that public libraries are staffed with personnel that have adequate qualifications. [...] The responsibilities of municipalities must be considered to include making sure that the staff has the necessary qualifications for meeting the demands on public libraries formulated in the Act (Swedish Library Association, 2015, p. 43).

The implementation of makerspaces in public libraries is yet another institutional function that requires specific knowledge and professional skill-sets. Current or future library makerspace facilitators rarely enter this role with "full knowledge or background in making, hacking, inventing, crafting, or 3d printing" (Moorefield-Lang, 2015a). The lack of maker-related professional in-service training and educational programmes entails that library makerspace facilitators must rely on peers in the field and online resources to hone the skills needed for these types of services. Nevertheless, library professionals play an invaluable role in the construction, facilitation, and maintenance of maker-oriented spaces and services. As was explained by Barniskis (2016), librarians are the very enzyme of library institutions; they are the catalyst that bring about change and progress. If professional discourse can be honed as a tool to accentuate and promote the advantages of linking the tenets of the Maker Movement with the values of public libraries, they can also function as means of raising awareness. The idea of *talking about making*, must be expanded to include discourse on *librarians as makers*.

The discussions above present some similarities and differences in the types of information conveyed in the three data sets. The differences may be attributable to the intended purpose(s) of each communication. For instance, institutional development plans are primarily constructed for internal use within the institution. They "define the overall purpose and mission" of an organisation (Armstrong, 2014, p. 66). These missions are then turned into detailed subsidiary objectives, guiding institutional decisions that prompt the development of the institution. Accordingly, the DS1 samples, included in this study, provide a more sweeping description of the functions and values of public library makerspaces, and of public library institutions in general. The concept of *making* within this framework, is thus, often aligned with broader institutional values and functions. In some of these cases, the notions of *self-expression, participation, collaborative learning, creativity* and *innovation,* become interlaced, and are often related to the public libraries' vision of empowering the community they serve. At cross purposes, webpage information and online activity advertisements are essentially constructed for external consumption. Their function is to advertise or market maker-oriented services to the public. Marketing communication is, among others, concerned with "effectively and efficiently providing information about [the organisation, and its services] to chosen [users]" (Varey, 2001, p. 4). With regards to DS2 and DS3 samples, the abovementioned concepts take more obscure but niched personas. A person's ability to create often comes down to how well he or she can hone the skills needed to digitally produce media. Thus, discursive formulations that often reiterate tools and skill-specific purposes, are more common in these instances. Regardless of the purpose of each communication, the fact remains that for public library makerspaces to achieve success and longevity, an ample amount of time, knowledge, skill, and effort, must be set aside to identify the unique mission and purposes of maker-oriented services. As Johnston (2017) explains, the Maker Movement itself is slippery, and is easily prone to changes, due to the continuous development of new technologies. He believes that the establishment of a cross-institutional discussion about public library makerspaces, can aid in identifying guiding principles that would apply to any library institution. These principles must be decisively anchored in the public library missions and values.

6.2. The Genre of Making in Swedish Public Libraries

A rhetorical genre view on discourse focuses on contextualising discursive productions based on the messages they are imbued with, that is, the forms of activities they represent, the types of people they refer to, and the communities of practice they adhere to. Along almost similar lines, the second level of SDA requires the researcher to provide a detailed description of the space in which discourse has emerged and in which it acquires meaning (Ruiz, 2009). The type of analysis that merges the tools of SDA's contextual analysis with the methodological perspective of rhetorical genre theory, allows the researcher to understand the meaning conveyed by discourse, from the perspective of those directly engaged in the discursive practice that it is attributed to. In the context of this study, this analytical framework is utilised to build an understanding of how the concepts of *making*, *makers*, and *makerspaces* are typified in current library professional discourse. The overarching idea is to elucidate how these concepts paint a particular perception of library makerspaces, by identifying discursive constructions that can potentially constitute a general view on the genre of making germane to public libraries in Sweden. Halverson and Sheridan's (2014) model of identifying the three components of the Maker Movement affords a pragmatic approach to this analysis.

Firstly, the concept of *making* represents the activities performed in maker-oriented spaces (Halverson & Sheridan, 2014). Many library-related publications on makerspaces foregrounds constructions of making that are inherent to digital production. Barniskis (2017) emphasises that such publications often ignore or dismiss more traditional types of *making*. A similar attitude is found on the data samples included in this study. Concepts relating to programming and digital production are chiefly indicated. Moreover, processes inherent to a somewhat manufacturing vernacular are also textually represented (e.g. experimentation, innovation, finding technical solutions, tinkering, etc.). Webpage information on maker-oriented services and making-activity advertisements published online, predominantly endorse a more digital-centric model of *making*. These sources share two common denotative and connotative features. One, they typically delineate the types of equipment and materials used in the makerspace. Two, they also include specific information about who will facilitate the activity. The first feature distinctly connotes the abovementioned digital-centric outlook. Sources constructed to endorse digital making activities often clarifies that all materials and equipment are available at the public library, and can be used free-of-charge. The few samples that depict activity-advertisements relating to traditional crafts (e.g. knitting, embroidery, spinning, etc.) often invite members to bring their own materials from home. The second feature conveys the outlook in a more covert way. Webpage information and activity advertisements focusing on makerspace, often denote the library professional(s) in-charge of a digital-centric making event. Sources that inform patrons of traditional crafting activities, on the other hand, frequently connote a more group-based type of participation. Conveying the availability of staff at a digital-centric making event, may be an effective way of signalling that the type of *making* activity, and the compatible equipment employed in the process, requires more supervision. This allocation of resources (i.e. expert staff, equipment, and materials) exemplifies the library's goal of servicing all interested patrons,

regardless of their level of experience. The same attitude is, however, not conveyed in samples that advertise traditional crafting activities. First, these types of activities are rarely, or if at all, mentioned in library webpage information on maker-oriented services. In the case of online activity advertisements, crafting-centric initiatives are mostly facilitated by the group itself, meaning, there are no library professional(s) present during the actual event. Moreover, the discursive constructions enveloped in these DS3 samples, often denote that patrons who wish to partake in crafting activities (e.g. knitting, crocheting, embroidery, etc.), must bring their own materials to the event. In short, the amount of resources allocated to traditional crafting events are not as numerous as those of digital-centric making initiatives. This distinction can be prospectively problematic. As Barniskis (2017) asserts, some discursive constructions tend to:

> exclude some socioeconomic groups from the emerging makerplaces, including women, older adults, or those who have little prior life context to make sense of the technologically advanced making involved in digital production, or little desire to do that type of making (n.p.)

In relation to the discussions presented in section 6.1., this type of discursive practice presents yet another challenge in trying to textually represent the natural link between makerspaces and the foundational values of public libraries in Sweden. In some way, the dominant discursive representation of digital-centric making, in library professional discourse, deemphasises the decisive public library principle of providing every patron equitable access to knowledge and resources. Nevertheless, characterisations of making that denote and connote access or non-access to equipment, materials, and expert staff, disclose the dominant perception of making among library professionals. These discursive constructions inadvertently situate digital-centric making as the activity of choice in many maker-oriented spaces in Sweden.

While most of the samples mimic the expressions and sentiments foregrounded by various library-related literatures on makerspaces, some unique discursive formulations still manage to emerge. For instance, one sample mentions recycling as a process included in *making*. According to Sweden.se[22], Swedes are adamant recyclers; recycling is practiced so religiously in the country that in 2015, Sweden had to import 2.3 million tonnes of waste from other countries, to supplement their supply of energy. Against this backdrop, it can be inferred that the concept of recycling might be taking a more significant place alongside *making* soon. Some other activity advertisements focus on promoting making alongside incentives such as *fika*. This concept is inherent to the Swedish culture; it refers to the practice of socialising while consuming coffee and pastries. This notion occurs in many social spaces; thus, it is only natural that it is also discursively represented in relation to the context of *making* in public libraries. Also, other advertisements focus on promoting making activities specially designed to optimise the expertise of local Swedish artists, animators, authors, handicraft businesses, etc. The discursive features highlighted above, exemplify how a perception of making can be anchored to a distinct Swedish outlook.

Secondly, the concept of *makers* represents the identities of individuals involved in *making* (Halverson & Sheridan, 2014). In non-library related publications on makerspaces, maker-identity is framed as passionate amateurs (Dougherty, 2016), artisan entrepreneurs (Anderson, 2013), and tech-savvy innovators (Hatch, 2013). However, in literature written by library professionals on the subject, *makers* are described as tinkerers, curious figures, leisure learners, etc. The latter viewpoint resonates with the characterisations of *makers* depicted in Swedish library professional discourse on makerspaces. Concepts like amateurs, non-experts, innovators, and inventors occur in many of the data samples. For instance, many of the data samples included in DS1, assertively connote *makers* as producers of knowledge and culture, in general. Contrariwise, DS2 and DS3 sources often denote quite specific forms of identities. As a case in

[22] An online, official source that informs readers of some facts about Sweden.

point, some activity advertisements explicitly label the types of makers a particular making activity is intended for. Age and gender are the two main denotative features employed in such discursive constructions. Most of the activity advertisements included in this study are primarily directed towards children and young adults (approximately patrons from ages 6-18). As mentioned before, the bulk of these advertisements promote digital-centric making activities. Halverson and Sheridan (2014) explains that some library makerspace facilitators align the functions of makerspaces with the goals of STEM-education. Thus, discursive constructions that align digital-centric making with children and young adults, can be regarded as a way to textually represent the library's goal of engaging these patrons by yielding more interest in "science and engineering, and more active stance towards learning" (Sheridan, et.al., 2014, p. 506). Yet, this delimiting stance is further emphasised by some advertisements that focus on programming activities. Some samples denote gender-specific terminologies with regards to typifying who a maker-initiative is intended for. Below is an example of activity advertisement from Bro Library in Stockholm:

> Learn programming in Scratch and create your own game!
> Try-out event only for girls!
> For beginners to more advanced makers, with [facilitator name]
> Learn the basics of programming, or more advanced techniques for those who joined the last course. No experience needed. You can take you own computer with you, or borrow one of the library's. There is fika available, but take a light snack if you feel like you will be hungry. Limited number of places.
> From ages 10-14 years old (Upplands-Bro kommun, 2017, n.p., own translation[23]).

To put this in context, we need to consider how *making* is characterised in Upplands-Bro Municipality's library institutional development plan (Upplands-Bro kommun, 2016). The plan outlines some of the cultural policy objectives the library aim to achieve. Among others, the plan mentions the goal of promoting equitable access to cultural experiences, learning, and the prospect of developing every individual's making skills (Upplands-Bro kommun, 2016). There are no specific references to gender-oriented library initiatives in the institutional plan; there are parts where allusions to children and young adult patrons are denoted. From this perspective, it is hard to apprehend why the library opted to host a 'girls-only' making activity. Nevertheless, the type of discursive formulation indicated in the activity advertisement, to some level, effectuates Johnston´s (2017) point of clearly demarcating the functions and purposes of a library makerspace. However, these types of iterations can potentially foreground the types of makers that are efficaciously excluded in library maker-oriented spaces. For instance, there are no Swedish-based making initiatives primarily constructed for LGBTQ makers, or makers with various disabilities, included in the data collection. Accordingly, this is also a barely examined topic in library-related publications on makerspaces. Brady, et.al. (2014) explores various ways of adapting making to the needs of makers with disabilities. The authors argue that making out of necessity, curiosity, and out of the desire to create something tangible is a universal experience, and a familiar mind-set known to all types of makers, thus:

> creating an accessible library makerspace fosters a more inclusive institutional environment and invites the participation of individuals with disabilities, which benefits the community as a whole (Brady, et.al., 2014, p. 332).

The notion of inclusivity is one of the key public library values implied in the current Swedish Library Act (2013:801). Yet, the present image of the maker-identity, portrayed in library professional rhetoric encircling library makerspaces, concentrates on children and young adult patrons, with orientation to and skills building on digital-centric processes of production. Library

[23] See Excerpt 6. in the Appendix for original version.

professional discourse, with the sole purpose of marketing and promoting the functions of library makerspaces, need to be formulated mindfully. When constructed right, these messages can be used as an effective tool which can advance the library's status as an inclusive, convivial space.

Lastly, the term *makerspace* refers to communities of practice. They function as informal sites where makers can engage in practices of creative production that blends the use of digital and physical technologies to "explore ideas, learn technical skills, and create new products" (Sheridan, et.al., 2014, p. 505). The data samples characterise makerspaces in two ways: (a) as performative spaces; and (b) as informal learning spaces. These characterisations bear some resemblance with the four-space model introduced by Jochumsen, et.al. (2012). This model delineates four overall objectives for public libraries: experience, involvement, empowerment, and innovation. These objectives were then explored to find which overlapping themes can constitute a specific space-aspect. Inspiration space is defined as a space for meaningful experiences; that is, "experiences that transform our perception" (Jochumsen, et.al., 2012, p. 590). Learning space is associated with the concepts of experience and empowerment; it is a space constructed to nurture explorations and skill development among patrons. Meeting space relates to an open, public space dislocated from home and work, where citizens of both similar and varying interests can interact with each other. Performative space underscores the concepts of involvement and innovation:

> In the performative space the users, in an interaction with others can be inspired to create new artistic expressions in the meeting with art and culture (Jochumsen, et.al., 2012, p. 593).

The concept of performative space, defined above, is directly denoted in some of the DS1 data samples. These sources frequently link *making* with notions of performativity and sharing. For instance, the Höörs Municipality library institutional development plan mentions this:

> Room for making
> Today's society puts an increased demand on participation and self-expression. Accordingly, the performative or creative space at the library is a place where users can get inspiration and support in becoming producers of culture. UNESCO's School Library Manifesto and Public Library Manifesto emphasise the library's task of stimulating the imagination and creativity of children and young adults, therefore, our library focuses specifically on the creative process of children and young adults (Höörs kommun, 2016, p. 15, own translation[24]).

The excerpt above demarcates the notions of participation and self-expression, as preconditions of today's society. Makerspace, in this framework, is denoted as 'performative or creative space'. Its main functions are to inspire patrons, and to support and encourage them to become active producers of culture. Höörs Library relates this mission to the intended role of the institution, stated in UNESCO's library manifestos for school libraries and public libraries. This reference is utilised to give grounds for the library's decision to focus on the development of making-activities, specifically designed for children and young adult patrons. Some of the viewpoints, conveyed in the excerpt above, somewhat personifies Hatch's (2014) claim that one cannot make and not share. He believes that every individual is wired to show-off what they were able to make. Hatch (2014) frames sharing, within the makerspace context, in a two-fold manner. First, sharing gives existential validation to the crafted artefact, as it allows other makers to experience and evaluate it. Second, sharing connotes the giving or the passing-forward of knowledge. In this framework, the artefact is used to validate the identity of the *maker*, as it epitomises the knowledge and skills gained from undertaking certain procedures of creation. The artefact then becomes the emblem of success, marking the evolution of the *maker*, from being an amateur to becoming a semi-expert, in that exact mode of *making*. Apropos to this, several of the data samples included in this study, denote various forms of performance-related information, such

[24] See Excerpt 7. in the Appendix for the original version.

as the time and place allocated for the exhibition of artefacts produced *makers* engaged in a certain *making* activity.

Some of the data samples characterise *makerspaces* as places that cultivate informal learning. The concept of learning, in the context of public library makerspace, often connote meanings disassociated from the strict pedagogical models found within the educational sector. As a case in point, several of the data samples utilise makerspace-related discursive constructions that denote the concept of *learning* alongside terms such as *fun*, *exciting*, *playful*, *inspiring*, *imaginative*, etc. Moreover, the process of *learning*, signified in these sources, seldom connotes a forced individual action, instead, it is depicted as something a person willingly does with others.

> DigiLabb is a digital meeting place, located at Stenbacka Library in Asarum, where visitors can come in order to create, build, and develop their digital skills together.
>
> We believe that you learn when you are having fun - we have therefore equipped DigiLabb with new technology that is exciting, and that many people do not have at home. At DigiLabb you can print using a 3D printer, create a Banana Piano using MakeyMakey, build a robot with LittleBits, or learn the basics of programming.
>
> This should not be too hard either. DigiLabb is not made for experts. We have chosen technology that has a low learning threshold, and is quick to get started with. On Thursdays, we have an open lab, where there is always someone there to help you with your project (Biblioteken I Karlshamn, n.d., n.p., own translation).

Willet (2016) examines the outlook of associating makerspaces with the notion of informal learning, relating it to some learning theories found in the field of pedagogy. She refers to Gee's (2004) concept of affinity spaces, and Lave and Wegners's (1991) perspectives on situated learning and communities of practice. To put simply, the concept of affinity spaces, refers to physical or virtual spaces that accommodate people with "common interests, goals, or practices" (Gee, 2004, p. 67). Affinity spaces function as forums that invite the participation of highly-motivated individuals, with specialised expertise, in sharing knowledge, solving problems, and developing new knowledge (Willet, 2016). Lave and Wegner's (1991) concept of situated learning, regards learning as a form of social interaction. In this framework, member of a specific community of practice are "brought together by a common activity centering on an area of knowledge" (Willet, 2016, p. 316). This constitutes a form of learning that is focused on building relationships, the construction of community-centred identity, and the development of shared practices. Both perspectives permeate the concept of learning associated to public library makerspaces. Willet (2016) explains that many library-related articles frame makerspaces as good learning spaces, in contrast to spaces that exercise a more formal style of pedagogy. Many makerspace initiatives in public libraries endorse a form of learning that merges pedagogy with leisure and entertainment. Accordingly, Willet (2016) foregrounds that library-related articles on the topic, often advocate characterisations of public library makerspaces that centres on its function of supporting the goals of current school curriculums.

A similar mind-set has emerged in Sweden. The Swedish National Agency for Education (*Skolverket*) has recently added programming as part of the national elementary school curriculum. Consequently, many public libraries in Sweden have embraced this pedagogical mission, offering programming activities for young library users. This is a discernible feature of current library professional rhetoric on makerspaces. Most of the data samples included in DS2 and DS3 refer to making-activities that centres around programming, and are primarily developed for young patrons. The notion of didacticism, in this case, connotes a more learning-by-doing outlook. For instance, terms like DIY and DIWO are even mentioned in some of the sources. The primary goal conveyed in such formulations can be aligned with the idea of

equipping young patrons with enough technology-based knowledge, so that they themselves can become active producers of the type of content they wish to consume. However, it is important to understand that these making activities still exists outside the walls of the school. On one hand, this connotes a non-mandatory, and more leisure-and-play-based setup. On the other hand, school policies and criteria that help regulate content quality and participation, have the tendency to dwindle within these *making* contexts. The content produced does not necessarily fulfil any particular subject-based requirements. In many cases, the idea is to simply allow the child to tinker and play with the functions afforded by a specific programming software (e.g. Scratch). The content quality of each project (e.g. programmed stories, games, animations, etc.) can therefore vary depending on the participant's knowledge, digital skills, and ambitions. Additionally, the development of library professional discursive outputs that directly address young patrons, shows progress in relation to the idea of tailoring maker-oriented library services to the specific needs and preferences of a specific maker group. Yet, defining the needs and interests of this intended audience might not be as straightforward. In some instances, guardians are the ones to decide on the value of a specific making-initiative. Some guardians might recognise the value of partaking in programming-focused workshops for children, as an opportunity for them to gain basic technology-based knowledge, which they can later use to aid their children in programming-related school tasks. Others might find the technology itself intimidating, therefore withdrawing participation whether their child is interested in the activity. These types of contemplations can be helpful in developing library professional communications that are aimed to market maker-oriented services to young patrons.

The analysis and discussions presented above concentrate on epitomising the Genre of Making represented in Swedish library professional discourse on makerspaces. This idea was effectuated by exploring the various ways discourse typify the concepts of *making*, *makers*, and *makerspaces*. Current library professional rhetoric conveys *making* as a mode of self-expression, associated with digital production and the use of new fabrication technologies. Accordingly, children and young adult patrons constitute the predominant *maker-identity* foregrounded in discourse. Lastly, Swedish public *makerspaces* are characterised as environments imbued with the functions of performative and learning spaces.

6.3. Public Library Makerspaces as Sociotechnical Systems

A sociotechnical approach, combined with the analytical tools of the interpretation level of SDA, considers discourse as forms of social information, as a conveyor of ideologies, and as type of social product. The addition of the methodology of sociotechnical perspectives, focuses the analytical lens on inspecting discursive constructions that signify the relationships between people, society, and technology — the main foundations that constitute a sociotechnical system. A pragmatic way of approaching this theoretical objective is by identifying the social imaginaires that are embedded in discourse, that is, connotations that characterise any "socially-valuable ends

that public library makerspace services are expected to achieve" (Barniskis, 2017, n.p.). Contemplating on such discursive significations, can also help build an understanding of how each imaginaire relates to broader social factors, that urge the progression and construction of various institutional development strategies. For purposes of this paper, the term technology refers to both digital and non-digital tools used to supplement the processes of *making*.

6.3.1. Libraries as Technology and Creative Community Hubs

The concept of *library faith* refers to the public library's overarching institutional goal of serving the needs of all patrons, and advancing the notion of providing equitable access to information and resources (Brady, et.al., 2014). This idea, as Barniskis (2017) elucidate, has evolved throughout history, gradually expanding to accommodate modifications of library institutional functions, brought over by social metamorphoses. One such example is the assimilation of maker-oriented spaces and services within the public library institutional fold. Barniskis (2017) highlights how current library-related literatures on makerspaces aligns makerspace functions with public library's larger technological vision. She explains that these publications instantiate the idea of library faith, to discursively connote social benefits attributable to democratic access to digital or electronic tools. Barniskis (2017) further explains that this version of library faith advocates self-training oriented to honing economically-desirable skills. Reasoning from this observation, let us construct a hypothetical form of library faith applicable to the examination of the data samples included in this study.

Several of the data samples seldom link makerspace services to one of public libraries core functions: as repositories of knowledge and information, with respect to affording patrons access to books, and other types of documentary sources and media. Instead, discursive formulations describing the values and purposes of library makerspaces, found in the data collection, often depict public libraries as centres for functional odds and ends, in short, as hubs. Simply put, the term hub refers to an effective centre of an activity (OED, 2018). For instance, the Malmö City Library institutional plan (Malmö stad, 2015) maintains that public libraries should inhabit the role of "centres for creative production and the provision of self-produced media" (n.p., own translation). This formulation conveys a message that echoes Lankes (2012) view on the current role of public libraries. He uses the Syracuse University Library as an example of a case where libraries modify spatial design and institutional mind-sets to increase the use of the library. Lankes (2012) describes that the library was being used more through the provision of several meeting spaces, a café, power stations, and other services. However, in order to provide space for these new services, the Syracuse University Library had to relocate low-used books to a warehouse. Lankes (2012) concludes that libraries today do much more than simply collect books; they are on a mission to "improve society through knowledge creation" (p. 39). Nevertheless, how exactly do public libraries intend on achieving this mission? In the case of this study, two distinct imaginaires emerge during the review of the data samples: (a) the public library as a technological hub; and (b) the public library as a creative community hub.

The imaginaire of the public library as a technological hub echoes the discussions of Barniskis (2017), with regards to the perception of library faith oriented by an overarching technological vision of libraries. This imaginaire is exhibited by several of the data samples, through formulations denoting the role of public libraries in today's information society and digital age. As a case in point, Malmö City Library's (Malmö stad, 2015) institutional development plan declares that today's information society situates the public library as a natural space for meeting, making, and learning, thereby allowing the institution to support the development of knowledge, in all its various forms. Accordingly, Malmö City Library launched *MediaLab*: a makerspace

initiative specifically designed to support digital creative work. The space is equipped with six Apple iMacs and a large-scale (A2) colour printer. Each of the iMacs is programmed for specific digital making-tasks, depending on the affordances of the software or programmes embedded into each computer system. One iMac, for instance, is primarily allotted for digital music production, while another is specially designated for digital t-shirt designing. Unlike most public library makerspaces in Sweden, *MediaLab* is not necessarily place-bound. The makerspace, is in a way, extended to encompass virtual learning, affording patrons remote access to online maker courses through an online platform called *Moderskeppet*. This platform includes a wide variety of instructional digital-making videos, categorised by the type of digital production software employed in the making process (e.g. how-to design posters on Adobe InDesign, or how to edit pictures on Adobe Photoshop, etc.). The platform also provides different course guides, tailored to the specific needs of a variety of patrons and levels of expertise. The virtual feature of the *MediaLab* makerspace initiative, allows patrons to fulfil the learning aspects, inherent to *making*, from the comforts of their homes.

Virtual-making, that is, making done (or commenced) online, using platforms that afford users remote access to digital production resources, can be an effective way of expanding the reach and functions of Swedish library makerspaces. First, it can encourage other *makers*, who prefer doing their *making*, in solitude, to still engage in cultural production. Second, it promotes a more open perception on the notions of collaboration and participation, as it allows *makers* to share their creation on their own time and capacity. Yet, this virtual-making feature, can potentially stand in contrast to the image of public library makerspaces as conducive to notions of collaborative learning (Moorefield-Lang, 2015a), and sharing-giving (Hatch, 2014). The type of digital makerspace service, promoted at *MediaLab*, to some extent, deemphasises the need for collaboration, and exchange of knowledge and experience required in traditional makerspaces. This can be attributed to the flexibility of the creative space, meaning, creation is not locked within the physical walls of the library (or more specifically, of the makerspace). This set-up might befit the preferences of makers, who already have some level of expert-knowledge in the processes of making they engaged themselves with, and in the proper use of, and access to, digital fabrication tools required to supplement their respective *making* activities. Moreover, the notion of sharing for these solitary *makers*, might exist mainly within the virtual realm, especially in cases where the *making* project primarily leads to the production of virtual artefacts (e.g. music mixes, app design, digital photo editing, etc.). In the same vein, the *MediaLab* initiative also meets the needs of other unsure *makers*, who prefer to get face-to-face expert guidance from the makerspace facilitators. These *makers* can also take advantage of the space and equipment provided at the library, and in so doing, meet like-minded peers whom they can interact with, opening the possibility for collaboration and free exchange of ideas. Nevertheless, as Johnstone (2017) foregrounds, new types of makerspaces that are still being developed, and other pre-established ones, will find their respective niches sooner rather than later. Thus, the formulation of a clear and well-defined text-based information, that accentuates the various features of a library makerspace, might ensure that users do not overlook any important aspect of the makerspace service. By extending the makerspace's physical walls, to encompass virtual outputs, the *MediaLab* initiative is able to 'improve society' by supporting one patron's need for individual or solitary making, and another's requirement of engaging in a more collaborative and space-bound mode of making, simultaneously.

This more adaptive approach to constructing makerspace services can also be applied to formulations that delineate the concept of community empowerment as the end-goal of library makerspaces. Willet (2016) criticises library-related articles on makerspace for alluding to the idea of community empowerment, without attempting to clarify how this empowerment manifests itself. She explains that a similar practice is exercised in formulations that mention the

power of becoming an active producer. A comparable attitude is depicted in several of the data samples. For instance, Höör's Library (Höörs kommun, 2016) institutional development plan, explicitly denote the English term empowerment, in the text. Yet, the term is arbitrarily translated to Swedish as "möjliggörande" (p. 9), which roughly means the ability to enable something. The plan does not expound upon, or build any further discussions, regarding what exactly does the library enable in circumstances related to the *makerspaces*. Furthermore, the idea of patrons taking on the role of active producers of culture, is also signified in the institutional development plan, but like the term empowerment, it is never clearly explained what this notion amounts to. In reference to the case of *MediaLab*, a more straightforward approach to defining the purpose and affordances of the makerspace service seem to be a more effective way of conveying the value of library makerspaces in 'improving the society'. As I have elucidated, in the earlier discussions of this chapter, the 'self' has been perceived as vital component of the Maker Movement. There would be no movement at all, if no one pursued the idea of using digital production tools to provide and output for self-expression. The maker-mindset, adapted in public libraries in Sweden, align makerspace values with institutional objectives that centres around advancing the notions of collaborative learning and cultural participation. However, as was exemplified by our prior discussion on the *MediaLab* initiative, constructions that deemphasise the collaborative aspect of makerspaces can yield some benefits. First, it lessens expectations regarding the type of *making* a patron must engaged in, which in turn restricts the type of artefact produced within a particular makerspace. Second, by arranging the lens to slightly focus on the individual, rather than on restrictions applied to the means of sharing and participation involved in making, discourse on makerspace can once again re-strengthen the value of the 'self' as an active producer of culture. In this manner, community empowerment can be anchored to the more concrete entity of the 'self', which is the very building block of democracy, underscored by the Swedish Library Act (2013:801). Commencing the mission of public library makerspaces with references to a well-defined concept of self-development, connote a more accessible and adaptive institutional goal, as it pronounces a high dependence on the aspirations and intentions of each patron. In this manner, constructing professional rhetoric that aligns the tenets of library makerspaces with attributes related to the self-development, can provide space for an open dialogue that can result in the development of a wider, more diverse spectrum of making at the library. In this vision, the library can improve the society by allowing the 'self' to once again take centre stage. The idea of community empowerment can instead be epitomised through formulations that marries the discursive powers of notions such as the 'self' and a producer of culture, makerspace as a convivial space, and making as an open concept.

The imaginaire of the public library as a creative community hub, contemplates on a library faith contingent on the idea of the library as a "Third Place." This concept was introduced and developed by Ray Oldenburg (1989) in his book, *The Great Good Place*. He characterises Third Places as informal gathering places, dislocated from one's own home or work. These places are "where individuals may come and go as they please, in which no one is required to play host, and in which we all feel at home and comfortable" (Oldenburg, 1989, p. 22). Other characteristics of a Third Place is as follows:

- a place that is a leveller: it is neutral and inclusive
- a place that supports conversations and interactions among its members
- a place that is intellectually and socially stimulating
- a place that is accessible to anyone, and can accommodate the needs of a variety of users, but are typically plain in terms of physical structure
- a place where "joy and acceptance reign over anxiety and alienation" (Oldenburg, 1989, p. 38)

Oldenburg (1989) elucidates how the concept of Third Places can be applied to institutions, such as pubs, bookstores, cafés, coffeehouses, etc. Some library-related literature on makerspace often align the features of Third Places to public library values (e.g. Jochumsen, et.al., 2012; and Willingham & de Boer, 2015). In the context of this study, the concept of Third Places is not directly denoted in most of data samples; however, a metaphor that echoes the same viewpoints, is delineated in many of the sources. Many of the data samples refer to the concept of public libraries as community living rooms:

> We want the public library to be a place that stimulates creative interactions among various people, cultures, and ideas. The library aspires to become the community's living room, a place for social interaction and exchange of thoughts and ideas (Sölvesborgs kommuns kommunikationsavdelning, 2016, p. 16, own translation[25]).

The excerpt above embodies some of Oldenburg's (1989) characterisations of a Third Place. For instance, it refers to a stimulating place that encourage interactions among different people, cultures, and ideas. This formulation connotes a notion of inclusivity, anyone is welcome to the space, regardless of their background and ideologies. However, the concept of creativity is inserted in this message. The idea of creative interactions can potentially debunk some of the attributes of the Third Place. First, Oldenburg (1989) emphasises the idea that Third Places are devoid of social expectations and restrictions, instead, they are places that primarily embody a playful and free spirit. Second, he describes that these places are typically plain, in terms of physical structures. These two views stand in contrast to some outlooks found in the data samples, that often align the community living room metaphor with notions of creative expression and *making*. For example, the Håbo City Library (Håbo kommun, n.d.) institutional development plan, denotes the vision of developing the library as a part community living room, and a part garage or workshop. The plan further clarifies that this mission can be enacted by redesigning the spatial design of the library, to accommodate space for tools that can afford users the opportunity to try out, and tinker with unfamiliar fabrication technologies. This broad mission combines two rather contrasting sides of a coin.

The idea of the library functioning as a community living room, in relation to Oldenburg's (1989) perception of Third places, somewhat personifies what Audunson (2005) refers to as a low-intensive meeting place. The concept of low-intensive meeting place refers to arenas where individuals can meet and interact with others with quite different values and interests. Audunson (2005) argues that this type of meeting-place is beneficial in today's society, as they make each individual visible to one another across "social, ethnic, generational, and value-based boundaries" (p. 436). Inclusivity is the main mission featured in this type of meeting-place. Furthermore, it values the notion of non-mutual interactions among a variety of individuals, that is devoid of performative expectations. Instead the core objective is to cultivate tolerance among patrons of dissimilar views and interests. Contrarily, high-intensive meeting places provide individuals the opportunity to interact with like-minded peers, and thereby encouraging collective engagement in similar activities and interests. This type of involvement, according to Audunson (2005), provides individuals with meaning and purpose in their lives, and a sense of belonging. The core mission of this type of meeting-place, rest in the idea of integrating every individual into an established system of participation. To some extent, this outlook can help combat the tendencies of isolation and fragmentation that besets today's modern society (Audunson, 2005).

In the case of Håbo City Library, the idea of developing the institution to accommodate the affordances of both high-intensive and low-intensive meeting places, can yield significant benefits. First, this contemplation showcases the institution's awareness with regards to

[25] See Excerpt 9. in Appendix for original version.

accommodating the needs of a variety of patrons. Providing individuals access to a community living room, can help encourage patrons, of dissimilar interest and views, to interact with each other on a neutral ground. It also reduces the prominence given to ideas that typically align library visitations with predetermined goals and purposes. In terms of assimilating aspects of low-intensive meeting place in public library makerspaces, Audunson (2005) claims that circumstances that prompt patrons, of dissimilar backgrounds and interest, to interact each other and share access to the same resources, can help two dissimilar patron groups to realise that they have "a kernel of common interests" (p. 438). This meeting-situation commences a dialogue between both parties, which in turn instantiates one of the library's core missions of providing individuals with good social conditions that drives "free exchange of opinions and […] discussions about common affairs" (Swedish Library Association, 2015, p. 7). Second, adapting the fundaments of high-intensive meeting place, in public library makerspaces can strengthen the role of maker-oriented services as instruments of inclusivity and integration. This outlook is particularly interesting from the perspective of *makers* with disabilities, or those of non-Swedish background. *Makerspaces*, tinged with the characteristics of high-intensive meeting places, can function as a catalyst for the development of an open discursive platform, that can help amplify the collective voices of *makers* that may typically be marginalised. Yet, as Brady, et.al. (2014) point out, traditional makerspaces often offer access to hand and power tools that may be hard for a person with disability to use without assistance, if accommodations are not made. While this might be the case in most established, or up-and-coming library makerspaces, the initial interaction between a like-minded facilitator and a *maker* can help trigger ideas as to how the makerspace can be further developed to accommodate the needs of patrons with disabilities. This initial interaction can function as the enzyme for constructing specifically maker-oriented initiatives, that invites the participation of other patrons with disabilities, who are interested in the idea of *making* at the library. A constant and lasting interaction between empathic facilitators and motivated *makers* with disabilities, can disclose necessary changes that the library institution need to effectuate. These changes, in the long run, may even help in the establishment of a cross-institutional discussion about public library makerspaces, resulting in the identification of guiding principles that would apply to any library institution.

Chapter 7. Conclusion

Welcome to makers' utopia? This question is denoted as the title of this thesis. The main idea behind it, I must say, is to provoke any reader to question the reliability of the thought. To claim that something has reached a utopic state, is never really the safest bet in the world of academia. However, for the purposes of this study, I needed something that I can lean on, a dream or a vision of how the concept of *making* can take roots in the world of Swedish public libraries, and bloom into a crucial instrument for change. As I hope I have exemplified in the discussions presented in this paper, the idea of a makers' utopia in Sweden, remains to be established. Swedish-based research on public library makerspaces persist today in the most nominal of stages. We as future researchers and practitioners in the field of LIS, Archival Science, and Museology, need to start a dialogue that highlights making as a process integral to the development of our respective institutions and professional praxis.

Focusing on text-based, professional communications about makerspace initiatives in Swedish public libraries, this research examined how library professional discourse on makerspaces represent and connote certain institutional values, functions, and development strategies. This inquiry was effectuated using a theoretical framework that merges the tools of sociological discourse analysis, with the methodologies of three subsidiary perspectives (i.e. semiology, rhetorical genre theory, and sociotechnical perspective). The textual level of analysis focuses on the overt and covert messages embedded in professional discourse on library makerspaces, with the purpose of examining the tensions that arise with regards to relating these messages with the intended role of public libraries in Sweden. This revealed that the current depiction of public library makerspaces in library professional discourse, bear constructions that can potentially raise questions about who is prioritised and who is excluded in these types of services, thus contradicting the intended role of public libraries, stated in the Swedish Library Act (2013:801). The contextual level of analysis concentrates on epitomising the Genre of Making, represented in Swedish library professional discourse on makerspaces. This idea was effectuated by exploring the various ways discourse typify the concepts of *making*, *makers*, and *makerspaces*. Current library professional rhetoric conveys *making* as a mode of self-expression, associated with digital production and the use of new fabrication technologies; the *maker-identity* is attributed to children and young adult patrons, and makerspaces are portrayed as communities of practice connected to collaborative learning spaces and the notion of performativity. The final level of interpretation analysis concentrates on exploring the types of social imaginaires embedded in library professional discourse on makerspaces, and relating them to wider visions of the social role of public libraries in Sweden. The data samples reveal two imaginaires that represent library professionals' collective visions, on the value of makerspace services in public libraries, and within a wider social context. Libraries, in connection to the idea of an information society, inhabit the role of technological hubs. Makerspaces afford users access to new fabrication technology, helping patrons hone digital-centric skills that can further their self-development. To function as technical hubs, public library professionals must expand their perceptions of what can constitute *making* in today's modern setting. Lastly, public libraries also function as creative community hubs. This outlook situates the public library as the ideal setting for various types of interactions among individuals in the society. These interactions are vital in furthering the social role of public libraries as inclusive spaces that supports knowledge production and nurtures the free exchange of ideas among members of similar and dissimilar interests.

7.1. Recommendations for Future Research

In general, studies focusing on library makerspaces in Sweden, is a subject area that still requires substantial research initiatives. Future research should consider foregrounding the importance of discursively representing library makerspaces, in a thoroughgoing manner, in various library professional communications aimed internally and externally. Accordingly, the study I have conducted here, is not free from limitations, and can be expanded upon in a variety of ways. Designing and performing several on-location observations, as well as one-on-one interactions with library professionals and makerspace participants, can result in new insight into the subject of Swedish public library makerspaces. Both methods can help anchor the analysis to a specific time and place setting, providing concrete parameters that can highlight the practical aspects of makerspace in a specific library context. Furthermore, this research can be developed to encompass not only professional communications, but also academic publications, that centre around makerspace in libraries, or other types of institutions situated within the Swedish public sector. In addition, discussions regarding the potential role of Swedish public library makerspaces, as instruments for advancing the principles of integration and inclusivity, should be considered in future research. Also, there has been little research done on the vital role of librarians (or other library professionals) in constructing and designing library maker-oriented spaces and services. Further research is needed in this area. Lastly, a dialogue, between current and future researchers and library practitioners, has to be established, to advance the development of suitable in-service training and educational programmes, specifically oriented on the skill-sets needed in developing, facilitating, and maintaining public library makerspaces.

References

Anderson, C. (2013). *Makers: The New Industrial Revolution*. London: Random House.

Andersen, J. (2015). (ed.). *Genre Theory in Information Studies*. Bingley: Emerald Group Publishing Limited.

Audunson, R. (2015). "The Public Library as a Meeting-place in a Multicultural and Digital Context: The necessity of low-intensive meeting-places." *Journal of Documentation*, vol. 61(3), pp. 429-441: Available via: https://doi.org/10.1108/00220410510598562. Accessed: 15 February 2018

Barthes, R. (1988). *The Semiotic Challenge*. Oxford: Basil Blackwell Ltd.

Barniskis, S. C. (2016). "Access and Express: Professional Perspectives on Public Library Makerspaces and Intellectual Freedom." *Public Library Quarterly*, vol. 35(2), pp. 103-125. Available via: http://dx.doi.org/10.1080/01616846.2016.1198644. Accessed 03 December 2017.

Bijker, W., & Law, J. (1992). (eds.). *Shaping Technology/Building Society: Studies in Sociotechnical Change*. Cambridge: The MIT Press.

Borgman, C. L. "Designing Digital Libraries for Usability." in Bishop, Van House, & Buttenfield. (eds.). (2003). In *Digital Library Use: Social Practice in Design and Evaluation*. Cambridge: The MIT Press, pp. 84-118.

Bowker, G. C., Baker, K., Millerand, F., & Ribes, D. "Toward Information Infrastructure Studies." In Hunsinger, J., Klastrup, L., & Allen, M. (ed.). *International Handbook of Internet Research*. (2010). London: Springer, pp. 97-118.

Brady, T., et al. (2014). "MakeAbility: Creating Accessible Makerspace Events in a Public Library." *Public Library Quarterly*, vol. 33(4), pp. 330-347. Available via: https://doi.org/10.1080/01616846.2014.970425. Accessed: 15 February 2018.

Britton, L. (2012). "A Fabulous Laboratory: The Makerspace at Fayetteville Free Library." *Public Libraries*, vol. 52(4), pp. 30-33. Available via: Library, Information Science & Technology Abstracts with Full Text, EBSCO*host*. Accessed: 15 February 2018

Bui, Y. (2014). *How to Write a Master's Thesis*. 2nd ed. London: Sage Publications Ltd.

Burke, J. (2014). *Makerspaces: A Practical Guide for Librarians*. Lanham: Rowman & Littlefield.

Christensen H. D. (2010). "Roland Barthes: On Semiology and Taxonomy." In Lecki, G., et.al. (2010). (eds.). *Critical Theory for Library and Information Science: Exploring the Social Form across the Disciplines*. Oxford: Libraries Unlimited.

Claesson, L., Grenholm, E., & Östman, A. (2015). *Skaparbibblan*. Lund: BTJ Förlag.

Code, L. (2006). *The Politics of Epistemic Location*. New York: Oxford University Press.

Curry, R. (2017). "Makerspaces: a beneficial new service for academic libraries?" *Library Review*, vol. 66 (4/5), pp. 201-212. Available via: https://doi.org/10.1108/LR-09-2016-0081. Accessed: 15 February 2018.

Davies, S. (2017). *Hackerspaces: making the maker movement*, Cambridge: Polity Press.

Dougherty, D. (2016). *Free to Make: How the Maker Movement is Changing Our Schools, Our Jobs, and Our Minds*. Berkeley: North Atlantic Books.

Erdogan, N., et.al., (2013). "Defining Innovation Literacy: Do Robotics Programs Help Students Develop Innovation Literacy Skills?" *International Online Journal of Educational Sciences*, vol. 5(1), pp. 1-9. Available via: http://www.acarindex.com/dosyalar/makale/acarindex-1423904248.pdf. Accessed: 20 May 2018.

Fairclough, N. (1993). *Discourse and Social Change*. Cambridge: Polity Press.

Fourie, I., & Meyer, A. (2015). "What to make of makerspaces." *Library Hi Tech*, vol. 33(4), pp. 519-525. Available via: https://doi.org/10.1108/LHT-09-2015-0092. Accessed: 15 February 2018.

Gierdowski, D. & Reis, D. (2015). "The MobileMaker: an experiment with a Mobile Makerspace." *Library Hi Tech*, vol. 33(4), pp. 480-496. Available via: https://doi.org/10.1108/LHT-06-2015-0067. Accessed: 15 February 2018.

Hatch, M. (2013). *Maker Movement Manifesto*. New York: McGraw-Hill Publishing.

Herron, J., & Kaneshiro, K. (2017). "A University-Wide Collaborative Effort to Designing a Makerspace at an Academic Health Sciences Library." *Medical Reference Services Quarterly*, vol. 36(1), pp. 1-8. Available via: http://dx.doi.org.ludwig.lub.lu.se/10.1080/02763869.2017.1259878. Accessed: 15 February 2018.

Johnson, E. (2017). In Kroski, E. (ed.). (2017). *The Makerspace Librarian's Sourcebook*. London: Facet Publishing.

Koh, K., & Abbas, J. (2016). "Competencies Needed to Provide Teen Library Services of the Future: A Survey of Professionals in Learning Labs and Makerspaces." *The Journal of Research on Libraries and Young Adults*, vol. 7(2), pp. 1-22. Available via: http://www.yalsa.ala.org/jrlya/. Accessed: 03 December 2017.

Kroski, E. (ed.). (2017). *The Makerspace Librarian's Sourcebook*. London: Facet Publishing.

Lankes, D.R. (2012). *Expect More: Demanding Better Libraries for Today's Complex World*. [e-Book]. R. David Lankes, Available via: https://davidlankes.org/wp-content/uploads/2014/01/ExpectMoreOpen.pdf. Accessed 18 February 2018.

Lecki, G., et.al. (2010). (eds.). *Critical Theory for Library and Information Science: Exploring the Social Form across the Disciplines*. Oxford: Libraries Unlimited.

Lille, M. (2016). "Evaluating the success of makerspaces in a public library: The case of Narva City Library MakerLab in Estonia." *New Library World*, vol. 117(9), pp. 587-595. Available via: DOI 10.1108/NLW-04-2016-0030. Accessed: 03 December 2017.

Lotts, M. (2016) "On the Road, Playing with Legos®, and Learning about the Library: The Rutgers University Art Library Lego Playing Station, Part Two." *Journal of Library Administration*, vol. 56 (5), pp. 499-525. Available via: DOI: 10.1080/01930826.2016.1179517. Accessed: 15 February 2018.

Malmberg, S. (2015). *Happenings som arbetsmetod*. Lund: BTJ Förlag.

Mattern, S. (2014) "Library as Infrastructure". *Places Journal*, June(2014). Available via: https://doi.org/10.22269/140609. Accessed: 09 June 2017.

Miller, C. (1984). "Genre as Social Action." *Quarterly Journal of Speech*, vol. 70(1984), pp. 151-167. Available via ERIC, EBSCO*host*. Accessed: 15 February 2018.

Moorefield-Lang, H. (2015a). "Change in the Making: Makerspaces and the Ever-Changing Landscape of Libraries." *Techtrends: Linking Research and Practice To Improve Learning*, vol. 59(3), pp. 107-112. Available via: http://dx.doi.org.ludwig.lub.lu.se/10.1007/s11528-015-0860-z. Accessed: 20 September 2017.

Moorefield-Lang, H. (2015b). "User agreements and makerspaces: a content analysis." *New Library World*, vol. 116(7/8), pp. 358-368. Available via: https://doi.org/10.1108/NLW-12-2014-0144. Accessed: 15 February 2018.

Noh, Y. (2017). "A study of the effects of library creative zone programs on creative thinking abilities." *Journal of Librarianship and Information Science*, vol. 49(4), pp. 380-396. Available via: https://doi.org/10.1177/0961000616650933. Accessed: 30 November 2017.

Nygaard, L. (2017) *Writing Your Master's Thesis: From A to Zen*. London: Sage Publications Ltd.

O´Day, V. L., & Nardi, B. A. "An Ecological Perspective on Digital Libraries." In Bishop, A.P., Van House, N.A., & Buttenfield, B.P. (ed.) (2003). *Digital Library Use: Social practice in design and evaluation*. London: MIT, pp. 64-82.

Oldenburg, R. (1989). *The Great Good Place*. New York: Paragon House.

Pomerantz, J., & Marchionini, G. (2007). "The digital library as place." Journal of Documentation, vol. 63(4), pp. 505-533. Available via: https://doi.org/10.1108/00220410710758995. Accessed: 09 June 2017.

Ruiz, J. R. (2009). "Sociological Discourse Analysis: Methods and Logic." *Forum: Qualitative Social Research*, vol. 10(2), art. 26, paragraphs 1-71. Available via: Directory of Open Access Journals, EBSCO*host.* Accessed: 01 January 2018.

Shaftoe, H. (2008). *Convivial Urban Spaces: Creating Effective Public Places*. London: Earthscan.

Sheridan, K., et.al. (2014). "Learning in the Making: A Comparative Case Study of Three Makerspaces." *Harvard Educational Review*, vol. 84(4), pp. 505-531. Available via: ERIC, EBSCO*host*. Accessed: 15 February 2018.

Skolverket. (2017). "Tydligare om digital kompetens i läroplaner, kursplaner och ämnesplaner." *Skolverket*. Available via: https://www.skolverket.se/skolutveckling/resurser-for-larande/itiskolan/styrdokument. Accessed: 15 February 2018.

Slatter, D., & Howard, Z. (2013). "A place to make, hack, and learn: makerspaces in Australian public libraries." *The Australian Library Journal*, vol. 62(4), pp. 272-284. Available via http://dx.doi.org/10.1080/00049670.2013.853335. Accessed: 15 February 2018.

Van House, N. A., Bishop, A. P., & Buttenfield, B. P. (2003) "Introduction: Digital libraries as Sociotechnical Systems". In *Digital Library Use: Social practice in design and evaluation.* A.P. Bishop, N.A. van House, & B.P. Buttenfield. (eds.). London: MIT.

Willingham, T., & de Boer, J., (2015) *Makerspaces in libraries*, Lanham: Rowman & Littlefield.

Willet, R. (2016). "Making, Makers, and Makerspaces: A Discourse Analysis of Professional Journal Articles and Blog Posts about Makerspaces in Public Libraries." *Library Quarterly: Information, Community, Policy*, vol. 86(3), pp. 313-329. Available via: Library, Information Science & Technology Abstracts with Full Text, EBSCO*host*. Accessed: 01 January 2018

Willett, R. (2017). "Learning through making in public libraries: theories, practices, and tensions." *Learning, Media and Technology*: pp. 1-13. Available via: https://doi.org/10.1080/17439884.2017.1369107. Accessed: 15 February 2018.

Van House, N. A., Bishop, A. P., & Buttenfield, B. P. "Introduction: Digital libraries as Sociotechnical Systems". In *Digital Library Use: Social Practice in Design and Evaluation*. Cambridge: The MIT Press, pp. 1-21.

Varey, R. J. (2001). *Marketing Communication: Principles and Practice*. London: Routledge.

References for Data Samples

To adequately protect the individuals involved in constructing the document sources utilised in the analysis, references to any data sample are primarily presented using the name of the institution as the source. However, to adhere to the writing requirements of the thesis, direct links are provided below for data samples that were directly quoted in the thesis. Moreover, to minimise harm or the abusive reuse of any of the materials used in the study, the data collection for this thesis will not been published and will remain privately archived. The folder containing all the archived materials can be made available upon valid request.

Biblioteken i Karlshamn. (n.d.). “DigiLabb @ Stenbacka bibliotek.” Available via: https://bibliotek.karlshamn.se/web/arena/digilabb. Accessed: 27 February 2018.

Folkbiblioteken Lund. (2018). “Stadsbiblioteket i Lund program: Med kalendarium för stadsbiblioteken.” Available via: https://biblioteksportalen.lund.se/documents/3214865/3921157/Stadsbiblioteket.webversion.pdf/da959bb5-fab3-403f-9205-5bcbe5deeb5d. Accessed: 27 February 2018.

Göteborgs stadsbiblioteket. (n.d.). “Dynamo (13–25 år).” Available via: http://goteborg.se/wps/portal?uri=gbglnk%3a2015825102624136#htoc-4. Accessed: 27 February 2018.

Helsingborgs stadsbibliotek. (n.d.). “Skapa”. Avialable via: https://digidel.helsingborg.se/hos-oss-kan-du/skapa/.” Accessed: 27 February 2018.

Håbo kommun. (n.d.). ”Kunskap, demokrati, bildning - biblioteksplan för Håbo kommun 2016 - 2019.” Available via: http://biblioteksstatistik.blogg.kb.se/files/2011/09/03-H%C3%A5bo-2016-2019-Biblioteksplan.pdf. Accessed: 27 February 2018.

Höörs kommun. (2016). “Biblioteksplan: Höörs kommun 2016–2020.” Available via: http://biblioteksstatistik.blogg.kb.se/files/2016/06/12-H%C3%B6%C3%B6r-2016-2020-Biblioteksplan.pdf. Accessed: 27 February 2018.

Landskrona stad. (2017). ”Makerspace = plats för kreativitet!” Available via: https://www.landskrona.se/se-gora/kultur-noje/ung-kultur/makerspace/. Accessed: 27 February 2018.

Luleå kommun. (2015). “Biblioteksplan för Luleå kommun 2016–2020.” Available via: http://biblioteksstatistik.blogg.kb.se/files/2017/12/25-Lule%C3%A5-2016-2020-Biblioteksplan.pdf. Accessed: 27 February 2018.

Karlshamns kommun. (2017). “Biblioteksplan för Karlshamns kommun 2016–2020.” Available via: http://biblioteksstatistik.blogg.kb.se/files/2017/05/10-Karlshamn-2016-2020-Biblioteksplan.pdf. Accessed: 27 February 2018.

Malmö stad. (2015). ”Biblioteksplan 2016 - 2020: Malmös folk-och skolbibliotek.” Available via: http://biblioteksstatistik.blogg.kb.se/files/2016/06/12-Malm%C3%B6-2016-2020-Biblioteksplan-skolbibliotek.pdf. Accessed: 27 February 2018.

Malmö stad. (2018). ”Medialab.” Available via: https://malmo.se/Kultur--fritid/Biblioteken/Vara-bibliotek/Stadsbiblioteket/Pa-Stadsbiblioteket-kan-du.../Malmo-larcentrum/Medialab.html. Accessed: 27 February 2018.

Stockholm Stad. (2017). “Indesign intro.” *Stockholms stadsbibliotek*. Available via: https://biblioteket.stockholm.se/kalender/indesign-intro. Accessed: 20 September 2017.

Stockholms stadsbibliotek. (2018). “Stickcafé på Farsta bibliotek - Sticka, virka, brodera och bli inspirerad!” Available via: https://biblioteket.stockholm.se/kalender/stickcaf%C3%A9-p%C3%A5-farsta-bibliotek-sticka-virka-brodera-och-bli-inspirerad-0. Accessed: 27 February 2018.

Sölvesborgs kommuns kommunikationsavdelning. (2016). “Biblioteksplan Sölvesborgs kommun: Så här vill vi utveckla biblioteken 2015–2018.” Available via:

http://biblioteksstatistik.blogg.kb.se/files/2016/02/10-S%C3%B6lvesborg-2015-2018-Bibliotheksplan.pdf. Accessed: 27 February 2018.

Upplands-Bro kommun. (2016). “Biblioteksplan för Upplands-Bro 2016 - 2019.” Available via: http://biblioteksstatistik.blogg.kb.se/files/2017/02/01-Upplands-Bro-2016-2019-Biblioteksplan.pdf. Accesed: 27 February 2018.

Upplands-Bro kommun. (2017). “Programmera i Scratch.” Available via: http://kultur.upplands-bro.se/portaler/kultur/evenemang/2017-12-20-programmera--i-scratch.html?eventnr=2. Accessed: 27 February 2018.

Appendix

Word Frequency Table

Terminology	Total number of reference (/137)	In percent %
Makerspace (and other labels types)	41	29.9%
Hantverk	16	11.6%
Innovation	21	15.3%
Delaktighet	52	38.0%
Eget skapande	56	40.9%
Kreativitet	28	20.4%
Producera	4	2.9%
Programmering	10	7.3%
3D skrivare	11	8.0%
entreprenörskap	5	3.6%

Original Quotations from the Data Samples

Excerpt 1.

> *Ett viktigt fokus är också demokratiseringen av kunskapsproduktionen. Biblioteken bör ta rollen som centra för kreativt skapande och tillgängliggörande av egenproducerad media* […] *I vårt nutida informationssamhälle blir biblioteket en naturlig plats för möten, skapande och lärande, där kunskap kan utveckla i nya former* (Malmö stad, 2015, n.p.)

Excerpt 2.

> *Yttrandefrihet är synonymt med folkbibliotekstanken och därför ska åsikter brytas och olika tankar utbytas i biblioteket. I folkbiblioteken finns det utrymme för användaren att skapa och att uttrycka sig själv. Eget skapande ska kunna förekomma inom olika konstuttryck och inom egna kulturambitioner, och människor ska kunna mötas i olika inspirerande kreativa forum. Biblioteken inbjuder till modern "delaktighetskultur" som är en följd av inte minst den digitala teknikens utveckling med t ex förekomsten av sociala medier. Människor skapar berättelser, delar berättelser och berättar berättelser.* (Göteborgs stad, 2013, p. 11).

Excerpt 3.

> *Tanken med makerspace är att vem som helst ska kunna komma och arbeta på sina projekt, dela med sig och bolla idéer med andra. Verksamheten formar sig efter de som använder makerspace-platsen. Det handlar kort sagt om kollaborativt lärande och problemlösning […]*

Kopplingen [mellan makerspace och] bibliotek omfattar bland annat ny digital kompetens i form av programmering (nytt "språk") och att i folkbildande tradition sprida kännedom om nya verktyg i form av 3Dskrivare och andra nya möjligheter till skapande. Makerspace kan också ses som en ny möjlighet till integration. (Region Gävleborg, 2016, n.p.)

Excerpt 4.

Bygg det, skruva isär det, fixa det, skapa det, lek med det, gör det!
[…]
Dessa lördagar dukar vi upp en massa roliga, kreativa material och prylar så att du kan testa och skapa saker. Ledorden är D.I.Y (do it yourself) och D.I.W.O (do it with others). Under tillfällena finns alltså chansen att både lära sig något nytt och dela kunskap med varandra (Landskrona stad, 2017, n. p. own emphases)

Excerpt 5.

I kunskapssamhället är kreativitet och innovation förutsättningar för utveckling […] Biblioteket i den digitala tidsåldern är ett föränderligt och intelligent rum – en miljö där det är spännande och inspirerande att vara. Där man kan ta del av kulturupplevelser och få inspiration och stöd för att utveckla sin kompetens och kreativitet (till exempel via "maker-space".)9 Biblioteket ska med andra ord vara både ett slags offentligt vardagsrum och verkstad […] Maker-space är en plats som syftar till att främja utforskande i gränslandet mellan teknik, konst och hantverk och uppmuntra lekfullt meckande och driva innovation genom interdisciplinärt samarbete (Håbo kommun, 2016, p. 9)

Excerpt 6.

Lär dig programmering i Scratch och gör egna spel!
Prova-på gång endast för tjejer!
Från nybörjare till mer avancerad med [namn]
Lär dig programmering från grunden, även fortsättningskurs för de som gått tidigare kurser. Inga förkunskaper behövs. Du kan ta med egen dator eller låna av biblioteket. Fika finns, men ta en lättare matsäck om du känner att du kommer bli hungrig. Begränsat antal platser. Ålder 10-14 år (Upplands-Bro kommun, 2017, n.p.).

Excerpt 7.

Rum för skapande

Det nya samhället ställer ökade krav på eget deltagande och eget skapande och i det performativa eller skapande rummet kan användarna få inspiration och stöd till att själva vara kulturproducenter. Unescos skol- och folkbiblioteksmanifest lyfter fram att biblioteket ska stimulera barn och ungdomars fantasi och kreativitet och därför finns särskilt fokus på barn och ungas skapande processer (Höörs kommun, 2016, p. 15).

Excerpt 8.

> *DigiLabb är en digital mötesplats på Stenbacka bibliotek i Asarum, dit besökare kan komma för att tillsammans skapa, bygga och utveckla sin digitala kompetens.*
>
> *Vi tror på att man lär sig när det är roligt - därför har vi utrustat DigiLabb med ny teknik som är spännande, sånt som de flesta inte har hemma. På DigiLabb kan du skriva ut med 3d-skrivare, göra ett bananpiano med MaKeyMaKey, bygga en robot med LittleBits eller lära dig grunderna i programmering.*
>
> *Det ska inte vara för svårt heller. DigiLabb är inte till för experter. Vi har valt teknik som har låg ingångströskel och är snabb att komma igång med. På torsdagar har vi öppet labb, och då finns alltid någon på plats som kan hjälpa dig med ditt projekt* (Biblioteken i Karlshamn, n.d., n.p.)

Excerpt 9.

> *Vi vill att folkbiblioteket ska vara en plats som stimulerar till kreativa möten mellan människor, kulturer och idéer. Biblioteket strävar efter att vara kommunens vardagsrum, en plats för sociala möten och utbyte av tankar och idéer (Sölvesborgs kommuns kommunikationsavdelning, 2016, p. 16).*