DESIGNING WITH URBAN SOUND

EXPLORING METHODS FOR QUALITATIVE SOUND ANALYSIS OF THE BUILT ENVIRONMENT

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Licentiate Thesis

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“(...) there are sceientific reports that a completely silent world can have harmful effects, because of sensory deprivation. Thus, both too little and too much sound can be harmful. For this resason, people should have the right to decide for themselves the quality of the acoustical environment they live in.”

World Health Organization WHO, Geneva

Guidelines for Community Noise (2000)

“Let us listen to our cities. is it not the very nature of the urban environment to make us hear, whether we like it or not, the mixing of sounds? Dull murmurs, machine noise, the shifting and familiar acoustic racket created by people - every urban momente has a sound signature, ususally composed of many sounds together.”

Jean-Francois Augoyard, Henry Torque

Sonic Experience - A Guide to Everyday Sounds (2005)

S a m m a n f a t t n i n g

Licentiatavhandlingen ***Designa med stadens ljud*** undersöker det urbana ljudrummets konstitution och kvalitativa egenskaper utifrån ett designorienterat och praktiknära perspektiv. Avsikten med arbetet är att utveckla verktyg och metoder för representation, kommunikation och analys av stadens exteriöra ljudmiljö genom att synliggöra interaktionen mellan arkitektur, ljudbildning och upplevelse. Genom att visa exempel på andra sätt att kommunicera och analysera ljud i staden än dagens vedertagna metoder, är syftet är att bidra till kunskapsutvecklingen inom fältet för urban ljudplanering- och design.

Ljud i staden är ett komplext fenomen som påverkar oss på en rad plan t.ex. hälsomässigt och socialt samtidigt som ljud har en kulturell och funktionell betydelse kopplat till identitet, säkerhet och rumsliga orientering. Tyvärr är dagens kvantitativa metoder inte tillräckliga för att beskriva, analysera och hantera stadens ljudmiljö med hänsyn till denna komplexitet. Representations- och analysmetoder behöver därför utvecklas som sammanför och synliggör viktig information kring det urbana ljudrummet och som är möjliga att använda som komplement till dagens beräknings- och mätningsbaserade metoder inom exempelvis arkitetur- och stadsbyggnadssektorn.

Arbetet utgår från arkitektens analoga verktygslåda och vedertagna arbetsmetoder såsom olika former av dokumentations- och skisstekniker, platsanalyser, inventeringar och kartläggningar. Initialt blandas dessa med mer konstnärligt orienterade angreppssätt för att fånga och beskriva ljudmiljöns kvalitativa konstitution. Utöver att undersöka verktyg och strategier presenterar arbetet en generell modell för kvalitativ ljudmiljöanalys av ett problematiskt men samtidigt välanvänt urbant ljudrum; den långa och vältrafikerade Hornsgatan i Stockholm.

Licentiatarbetet omfattar i sin helhet både en tryckt och en digital version vilka kompletterar varandra och därför bör läsas, studeras och lyssnas på parallellt. I den digitala versionen som återfinns på https://www.researchcatalogue.net/view/264750/264751, ingår allt visuellt och auditivt material som varit en del av metodutvecklingen och är den plats där man kan zooma och röra sig igenom det bild- och textmaterial som utgör själva avhandlingen men som av utrymmes- och tekniska skäl inte kan presenteras här i sin helhet.

A b s t r a c t

The licentiate thesis ***Designing with urban sound*** explores the constitution and qualitative characteristics of urban sonic space from a design-oriented and practice-based perspective. The act of lifting forth and illuminating the interaction between architecture, the creation of sound and a sonic experience aims to examine and develop useful tools and methods for the representation, communication and analysis of the exterior sonic environment in complex architectural spaces. The objective is to generate theoretical and practical knowledge within the field of urban sound planning and design by showing examples of different and complementary ways of communicating and analyzing sound than those which are commonly recognized.

Sound in the city is an intricate phenomenon that affects us at several levels, both health-wise and socially. At the same time, sound has cultural and functional implications by mediating important information connected to identity, security and spatial orientation. Unfortunately, current quantitative methods are not sufficient for describing, analyzing and managing urban sounds in regard to this complexity. Complementary methods of representation and analysis need to be developed that will bring out important information - gathering it and making it visual - about the constitution, character and quality of urban sonic space that is possible to utilize alongside today's calculation and measurement-based methods within such areas as architecture and urban planning practices.

The licentiate thesis has its foundation in the analogue and well-recognized tool-box of the architect, such as various forms of documentation and sketching techniques, mapping, inventory and site-analysis, etc., when exploring tools and strategies for the communication and analysis of the exterior urban sound environment along the long and busy street Hornsgatan in Stockholm.

In addition to exploring various methods for capturing and describing the qualitative constitution of the exterior sonic environment and some of the basic factors affecting it, this thesis sets forth a general model for qualitative sound analysis of a problematic, yet well-utilized, urban sonic space.

The licentiate thesis exists as both a print and a digital version that complement each other and thus should be read, listened to and scrutinized in parallel. In the digital version found at https://www.researchcatalogue.net/view/264750/264751, all visual and aural material that was crucial to method development is included. It is possible to zoom in and move through all the visual and textual material that constitutes the thesis at this site that cannot be presented here, due to spatial and technical issues, in its entirety.

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A c k n o w l e d g e m e n t s

This licentiate thesis is the outcome of several years of hard work, a work which would not have been possible without the support of certain people, funding organizations and academic institutions. The research work was particularly concentrated during a few years, a time- period that was spent in the growing research-cluster of artistic research at Konstfack University College of Arts, Crafts and Design.

I am forever grateful to the following people's firm support during times of struggle, despair and resistance as well as in times of creative force, conviction and inspiration.

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My life companion, Markus

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Thank you!

1. Point of departure

22/6 ~ 16:15

1.1 Introduction

We live in a globalized and quickly urbanizing world. Problems we encounter in one corner of the world are often transposable to similar situations in other cultural and geographical contexts, presenting us with universal and shared challenges. The problem of too much, too monotonous and too intense sound qualities in dense urban environments can be regarded as one such universal issue. On the other hand, too little, too unvariegated or simply uninteresting sounds in urban settlements can also constitute a problem that requires serious attention. As WHO states in the passage quoted on page 3, sensory deprivation can also cause serious problems to human health. Balance in regard to sound exposure and sound content is therefore crucial and this requires the existence of variegated urban spaces in terms of sound quality as well as conscious planning of these qualities. How such a balance may be defined and practically achieved requires consciously initiated and shared discussions from several interacting disciplinary angles. This is necessary to obtain an awareness with regard to urban sonic space, as the act of *listening* cannot be approached from a universal level; *"every individual, every group, every culture listens in its own way."* [1] To provide an enhanced transdisciplinary exchange of knowledge on what constitutes a sustainable urban sonic environment, it is therefore necessary to initiate discussions across disciplinary borders among practitioners involved in the creation of urban space, that will take the entire complex of meanings and effects of sound into account and put this information in relation to the unique geographic, social and cultural conditions of each specific case. A lingering idea among many professionals working with the physical creation of urban life environments is that urban sounds are equivalent to problems that are equivalent to noise that we need protection from through defensive strategies. This is unfortunate, as the urban sound environment is so much more than problems; it should be regarded accordingly and instead treated as a rich resource to work with in a creative and strategic way throughout all stages of the planning process. Professionals in the fields of architecture, landscape architecture, urban planning and design, along with other concerned parties, are therefore highly important to address and involve in this emerging field of knowledge and practice, so that relevant strategies can emerge and be implemented as early as possible in the planning process. It is vital to develop tools, techniques and strategies for representing and communicating variations of sound existing in the built environment, as the current ones do not deal with the complexity of urban sounds from a holistic and integrative perspective.

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1.1.1 Topic of inquiry

So, more precisely, what is the topic of inquiry at stake here? In times when new cities emerge like mushrooms from the ground and existing ones get all the more congested in terms of people, buildings, services and traffic, finding solutions is becoming an urgent matter to enable us to provide life-friendly environments for half of the world's population now living in cities in regard to urban sound quality. After all, what is a sustainable city in terms of sound? Is the solution a perfectly quiet city where no one is ever disturbed? Or is it a city where a balance between co-existing sound intensities and sound agents prevails? Is it a place where multilayered functions, usages, and intentions generating various sound qualities are in tune in regard to the user's perspective? And which criteria are crucial to pay attention to, and to utilize as guidelines when planning and designing complex sonic spaces for urban dwellers, and what parameters affect those criteria? How can we describe and understand these crucial aspects? These are questions this thesis explores.

One commonly shared perception is that sounds in the urban environment should at least not be harmful and hazardous to human health.[2] We know more or less what to do to mitigate or extinguish such situations, and we utilize well-recognized strategies of restriction and defense to manage these situations in a timely fashion in order to attain acceptable threshold values as defined in legal documents and guidelines. Other basic and important effects, meanings and impacts that the quality of environmental sound exerts on us that are not as easy to measure and define include:

[1] Augoyard, J.F/Torgue, H. (2009), *Sonic Experience – A Guide to Everyday Sounds*, p. 4.

[2] *Guidelines for Community Noise,* (2000). World Health Organization, Geneva.

- **Orientation in space** (way-finding, spatial localization and detection)
- **Bearer of information** (events taking place in space, security, cultural and social meaning linked to sounds coming from close or distant activities)
- **Communicability** (exchange of information, sociability, talkability)

All of the above-mentioned aspects of sound in urban space require a broad and inclusive approach to sound management in complex architectural environments. Simply talking about what sounds are loud or not loud, or disturbing or not disturbing, or about how we best can protect ourselves from hazardous and annoying sounds by way of legislation or by building protective noise-barriers is not enough. Instead, it is relevant to ask what qualities are inscribed in the various sonic environments we encounter in our everyday lives and to be highly aware of the active parameters that affect these qualities.

The challenge of finding viable solutions to the question of problematic sound qualities in cities is an urgent topic among national and international commissions, organizations, policy makers and other stakeholders worldwide; one that has gained increased attention in later years due to the rapid urbanization processes. This quest for sustainable action plans is beneficial and necessary in every respect. Yet too little is done in terms of action plans that go beyond the ordinary negative connotations and defensive attitudes with regard to cityscapes and sounds – a bias that unfortunately dominates the field of urban planning practice today. Identifying and developing useful and applicable strategies that take into account the harmful effects of sound on human health, such as cardiovascular and stress related diseases, and what can be done to prevent these poorly functioning situations, along with the positive implications of sound, is therefore crucial.

The phenomenon of **site-specific contextual sound**, the main focus of this study, is bound to a **spatial context** (architecture, the built environment, topography, materiality, etc.) and the **events and actions** taking place there (actions and activities generating sound from human nature animal or mechanical sources) connected to **temporal aspects** (emergence and propagation of sonic vibrations, the physical movement/ replacement of a listener/receiver/producer in relation to sound sources, time of day, week and season etc.). It is not difficult to understand that to work with the complexity of sound in situational and physical contexts requires a broad and inclusive approach that brings in an enhanced focus on the user's perspective by highlighting the importance and potential of our everyday sonic experiences.

1.1.2 Current situation

So, why are such creative action-plans needed and how can these be modelled? Alternative and qualitatively based strategies for describing and understanding sound in urban space do exist already to some extent, but they have trouble reaching those who really need to have that knowledge, i.e. the practitioners. Thus, it is interesting to ask why this particular field has trouble reaching the practitioners responsible for planning and managing urban space, and consequently ask *why* this field has not been more developed and implemented in the operative work of design-oriented professional disciplines than it is today.

The prevailing lack of concern from design practitioners with regard to dealing with sound in cities from an extended creative perspective has many explanations. One has to do with education, or the absence of such. A long tradition within the educational system of focusing on the visual, formal and functional aspects of architecture has unfortunately resulted in professionals who are not confident about working with the ephemeral and non-visible matter of sound as a qualitative resource in design and urban planning processes. The fault does not lie with the architects or urban planners and designers alone, but with the system as a whole, where priority is given to technocratic sciences and reductionist explanations and solutions that revolve around how to evaluate and handle urban sonic space at a descriptive, operative and strategic level. This is puzzling, as an extensive bank of knowledge has emerged in recent decades as to how it is possible to discuss and handle the complexity of sound in space. It is possible to claim that existent qualitative and design-oriented knowledge has not been sufficiently *tuned in* to the specific needs and conditions of creative urban practices. Evidently, non-quantifiable ways of approaching sound in the environment have not yet reached the practitioners working with constrained time tables, economic restraints, regulations and legislations on an everyday basis. Nor do existing tools techniques and strategies, both quantitative and qualitative, function sufficiently well at an intermediate level of knowledge exchange between experts as well as non-experts engaged in, or striving to be engaged in, these matters.

One reason for this unfortunate situation is that current methods for describing and handling urban sonic space are often too technical, quantitative, theoretical, judgmental, disciplinary focused and inflexible to work with easily at an

intermediate and transdisciplinary level of communication and interaction. Often, terminology, focus and methods are too specific and disciplinary-bound to act at a more general level of description that would enable direct and easy interaction between various disciplines and enrich the dialogue. Questions of transferring qualitative and quantitative knowledge and data between disciplinary fields are therefore crucial to the development of methods for qualitative sound analysis. The quantitative and the qualitative way of approaching sound in space have advantages and strengths that need to be taken care of, adjusted and reorganized according to the needs and requirements of the design practitioners to be made useful in their everyday professional practices.

To be able to address and involve individuals in practice-based disciplines such as architects, urban planners, landscape architects and other environmental specialists and interested stakeholders, it is important to enhance the capabilities for the description and analysis of complex sonic environments through the development of new modes for representing and communicating urban sonic space.

1.1.3 Hypothesis and research query

Sound is about activity, movement and life. This means that working with matters of sound quality within urban planning and design practice is about organizing and planning life in relation to spatial and functional, social and health-related, aspects of a given geographic and cultural context. Through awareness of these interacting features it is more likely that we can achieve healthy, socially inclusive and supportive living in dense urban settlements in the future.

My thesis asks: how is it possible to communicate the complexity of urban sonic space and its active conditional agents from a practice-based and design-oriented perspective with the intention to expand the creative and operative space of urban sound planning and design?

1.1.4 Intersecting disciplinary fields and practices

This process takes place in the fluctuating interface between separate, but interconnected, research contexts, practices, and discourses - the architectural and the artistic; the qualitative and the quantitative; the theoretical and the practical; the visual and aural; the defensive and the offensive; the descriptive and the operative.

To be precise, the research material itself - sonic space - has caused the research process and its contents both troubles and possibilities. The intermediate position of the phenomenon and implications of sound between various academic fields like architecture, physical acoustics, psychoacoustics, phenomenology, philosophy, sociology, art, sound-art, music, musicology etc., has made limitations of the project as well as the identification and definition of viable methods and strategies for approaching the research challenge, into a difficult nut to crack. This circumstance can obviously be considered positive, as an advantageous position for exploring the new and open-ended research field of urban sound planning and design, as it has not yet been restrained to a fixed academic framework, even though it has taken a considerable amount of time to advance in the research process.

This licentiate thesis has been conceived at two academic affiliations; the KTH School of Architecture as the primary site of belonging, and Konstfack University College of Arts, Crafts and Design. By way of this intersecting position, this study melds architectural and artistic means and methods in the overall plan for the project of getting from here to there, i.e. the research design, in order to explore and answer initial research questions and challenges. The exploration, for example, of tools, techniques and strategies for grasping and understanding qualities of urban sonic space began by emphasizing an artistic approach, as towards the middle and final stages of the method development process, the emphasis was mainly on a more structural and instrumental approach, exemplified by utilizing the making of experiments/ models/ prototypes as a means to push the project forward.

"Because the practice of architecture requires knowledge of a vast array of phenomena – from the physical properties of materials, to principles of visual perception – it is hardly surprising that the research subdisciplines within architecture bring with them a broad range of paradigms." [3]

[3] Groat, L., Wang, D (2002), *Architectural Research Methods*, p. 24.

1.2 Site-specific explorations

1.2.1 Limitations of the study

The research study focuses upon exterior and contextual sounds that are naturally evoked in an urban environment by human, animal, nature, or mechanical sources through the unfolding of everyday actions and activities. The study does not discuss added sounds such as site-specific sound-art installations or active sound design in urban contexts. Neither does it deal with identification and proposing of sound abetment strategies such as green roofs and walls, quiet asphalt or urban furniture, which affects the spreading of sound waves. Instead the study deals with how to communicate and discuss various urban sound qualities from a relational and comparative perspective by exploring methods for qualitative sound analysis of the built environment. This means that the study has a descriptive and communicative focus striving towards future strategic predictions and operations of urban sound planning and design.

In all of the explorations and inventories performed in this study, the researcher is the same as the writer of the thesis. Thereby, it is only *one* single perspective that shines through in produced text, sound, images, compilations and analyses. However, this is not regarded as a limitation, but instead as possibility. Obviously, a possible continuation of the work presented in this licentiate involves the integration of critical voices coming from other professional perspectives to be further refined and adjusted to the needs and requirements of concerned practitioners.

The time aspect is another important feature affecting how the inventories have been accomplished and consequently analyzed. A choice was made during the work process that all of the on-site inventories at Hornsgatan were made during weekday daytime, tempered seasons (spring and autumn). The reasons for making this choice were two-fold; functional and pragmatic. Pragmatic, as the intent does not affect the ambition to describe and understand the full complexity of urban sonic space throughout its changing phases of a day or year, but instead to focus on the basics of understanding and communicating the sonic phenomenon and its effects on a complex architectural situation. Yet also functional, as this is the hour of the day, week and season when the street is most frequented by traffic, pedestrians and other users of public urban space and therefore provides the best possible circumstances for making this study as the sonic output from all those ongoing everyday events, is the most prominent at this time.

1.2.2 Mixed methods and architectural thinking

From a methodological point of view, this work is a fusion, a blend that lends tools, techniques and strategies from several knowledge fields as well as research practices. It is a mosaic of perspectives and approaches, mostly qualitatively oriented but some are also quantitatively grounded, aiming at expanding the understanding and communication of urban sonic space and its complexities. Precisely what research methods to make use of was not self-evident from the start of the project as these have emerged gradually and responded to particular questions, needs and requirements at various moments of the research process. Among these, mapping as a research method stands out as it has been utilized in various forms and manners during the different explorations and case studies of this work. Utilizing techniques such as sketching, video, photo and sound recording for mapping urban sonic space, have enabled comparison between gathered and organized elements of representation and description making correlation and analysis of the integrated elements possible to obtain.

The overall methodological home of the thesis is within the sphere of qualitative research. The research approach is grounded in architectural thinking and practice and actively utilizes art-based and design-oriented research methodologies as a way to answer certain questions of the multilayered knowledge field of urban sound planning and design. It is possible to claim that the mosaic and patchwork-like techniques and methods of the researching process corresponds both to the particularities of architecture as a field of knowledge and practice as well as to the heterogenic character of the research material itself; urban sonic space.

One thing is sure, an urban sonic situation is not static and therefore it needs a relational, three-dimensional and temporally oriented approach to be as correctly understood and managed as possible. When it comes to studying or dealing with a spatial situation that is changing over time, architectural thinking obviously has particular features that are useful for such a task:

“Architecture is a field that revolves around a creative practice on space and matter/materiality. It is rooted at the crossing point between art, technology and socio-cultural aspects of space. In terms of research methods it is architectural thinking that stands at the center, i.e. to basically think in three dimensions regardless of scale, and

to actively deal with complex spatial situations that are constantly changing over time. " [4]

One of the basic standpoints of this work is the fact that we exist in a world that we constantly react and relate to through our senses. It is a world of phenomena, perceptions and experiences. However, this work is not a full-stack phenomenological study in the philosophical sense of word. Instead, the applied approach has a more structural and pragmatic character, where the aim is not to represent and communicate the wide richness of sound qualities of urban contexts only from a deeper subjective understanding or by bringing in a vast array of subjective descriptions from a critical mass, but instead to focus on the question of relevancy in terms of information on space, sound and experience, including the possibilities of practical application of such knowledge. This is a central theme of the thesis. Questions of reduction and simplification of the gathered research material are therefore also part of the method development process.

However, emphasizing a structural and pragmatically oriented approach to the research topic does not deny the fact that we are human beings living in and relating to this world through our senses. This fact is the very foundation. After all, the explorative excursions and the case study of Hornsgatan presented on the following pages actively integrates and uses the subjective and experiential dimension as one of the applied methods of getting from *here* to *there*, i.e. the research strategy. On a structural level, the study is concerned with the inventory and mapping of the urban sonic environment. This is acquired by identifying, applying and evaluating tools, techniques and strategies for the description representation and analysis of urban sonic space. An assumption is that through the ability to co-read several layers of qualitative information obtained by way of these tools, techniques and strategies, it is possible to yield a deeper knowledge of the complexity of urban sonic space and how it might be communicated both internally within the project as well as externally in relation to a listener/receiver. This procedure has propelled the project further through an iterative conversation with the work material itself.

[4] Dyrssen, C. (2010), "Navigating in heterogeneity: architectural thinking and art-based research" in *The Routledge Companion to Research in the Arts,* pp.224.

1.2.3 Art-based research

Through a practice-based and design-oriented approach to urban sonic space, an explorative and process-based research strategy has emerged, also known as art-based or artistic research.[5]

"One of the strengths of artistic research is its capacity to act in an explorative and innovative manner through material forms, and thereby critically investigate, explore, uncover and deepen insights into contexts, processes, alternative interpretations or complex solutions. Artistic research develops methods that bring together interpretation, artistic insight, critical reflection and argumentation in a range of communicative and representational formats. Combining intuitive forms of understanding, pioneering and systematized artistic work and critical reflection, the research is well suited to highlighting complex and multifaceted phenomena, not only within art but also in relation to social phenomena and to highlight alternative methods of reflection, contexts and scenarios." [6]

The applied research strategy can be described as a responsive and ever-changing body of information about space, sound and experience. The chosen facets of information are put together in various manners, each facet having its own unique form, meaning and intent in the researching process. These different combinations have time and time again been evaluated, adjusted, rejected or implemented in the continuation of the research processes, where each combination of facets is different and hopefully more simple and clear than previously.

The facets of information described here are the **tools** and **techniques** used in this work for reflecting and communicating different aspects of urban sonic space; the spatial, the sonic and the experiential. These are linked and combined in various forms and patterns, occasionally overlapping, with the overall aim to create a meaningful body of knowledge that can say more together than one single separate facet can do alone.

This is the applied research strategy of this work, an interactive patchwork-like weave, created through the consistent act of "action, reflection and re-action." [7]

[5] Hughes, R., Dyrssen, C., Hellström Reimer, M., (2011), "Artistic research today and tomorrow" in Swedish Research Councils Yearbook from 2011 *Form och färdriktning – strategiska frågor för den konstnärliga forskningen,* pp. 29-35

[6]. Ibid, p. 31.

[7] A well-known expression coined by Donald Schön for describing the creative process applied by design practitioners. Schön describe design as a "conversation with the materials of a situation". Schön, D. (1985), *The reflective Practitioner*, p. 78.

In this sense, it is important to be aware of that the final physical product of this work, the licentiate thesis as well as the digital representation of the thesis online, is as much part of the crucial research activity as is the explorations made on and off site during the initial and latter investigations and inventories of the different case studies. They are all part of the creative and explorative process in which the notion of communication is crucial for propelling the research project forward towards a more structured and pragmatic outlining of its comprised parts. When hidden or forgotten relations are brought out into the light, it is possible to discuss, understand and start working with these relations at an interdisciplinary level through the exchange of knowledge and perspectives.

This idea of communication has been consistently present either at the stage of production and compilation of information and at the stage of bringing it all together in final products like posters, interactive digital presentations, as well as the thesis itself and its digital counterpart. Therefore, reflections and analyses of this project act in two directions; internally within the project and externally in relation to an audience, where the act of making visible and of lifting forth parameters affecting the quality of urban sonic space additionally has an educational function. This is also why the material contained in this thesis is communicated through a variety of media, enabling reading, hearing/listening viewing/looking, analyzing and contemplating from various points of view and through various lenses. I strongly encourage you to cross-read and cross-listen, while reading the textual and reflective side of the thesis, to another, complementary media, or go to the appendix for a more zoomed in version of the compiled facets of spatio-sonic information (p.135-162). The practice-based and design-oriented researching process, emphasizing construction and action (explorations, mappings, inventories etc.) has helped to frame and re-frame essential questions and strategies as well as theoretical discussions. Theory has not preceded practice in this work, but has instead appeared, evolved and developed in parallel. It is possible to claim that in this work, theory has emerged *through* practice, and not the other way around, that *making* has been a way of *thinking* all along this process. This is not an uncommon scenario in art and design practices but is well-known procedure within the making disciplines such as architecture, design and art and their explorative research strategies.[8]

[8] Dyrssen, C. (2008), Friedman, K. (2003), Koskinen, I. et al. (2011), Zimmerman, J./ Forlizzi, J. (2008).

1.3 Overview

This licentiate thesis is divided into four sections: Point of departure; Exploring the field; The case of Hornsgatan; and Implementation. The structure and content of the thesis closely mirrors how the explorative actions, theoretical reflections and re-actions have cross-fertilized each other and changed along the course of time. The thesis is a blueprint of that process as it describes a non-linear curve oscillating back and forth between the creative states of action reflection and re-action in the challenge of grasping and communicating the compound aspects of architectural space and sonic experience relative a situational context.

The chapter **Point of departure** presents the background to the research query and describes why and how the study has been conducted. It also explains in what manner the subject of the study; *urban sonic space* is currently managed and discussed today in general and roughly positions the thesis in this context.

The second chapter **Exploring the field** begins with a presentation of three short explorative excursions carried out at the beginning of the study. These give us a hint of how this process of searching and testing methods for qualitative sound analysis began and also explains basic questions encountered in these initial case studies.

Next section of chapter two introduces a survey of some essential theories and methods connected to urban sound research and practice that have relevance for this work. These theories and methods together with the initial explorations propose a deepened overview of the knowledge-field and explain where in the broad urban sound study-field this work belongs more specifically.

The third chapter, **The case of Hornsgatan**, is the most extensive and material-wise dense part of the thesis. The chapter begins with a thematic survey of tools, techniques and strategies utilized in the case study presented in chronological order. The chapter then continues to the phase of **Implementation,** in which the collected material on space, sound and experience at Hornsgatan are re-organized and clarified to enhance legibility, conception and communication on the sound quality of each site

Finally, the licentiate thesis discusses the outcome and relevance of explored methods and how the presented material can be further developed and extended.

In the **Appendix**, a close-up visual survey of the conducted explorations and inventories presented in the chapter of Implementation is included.