Exploration Through Process: *Crowded Spaces*

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ABSTRACT

Technological advances in computing and communication have opened many new avenues for composition and sonic exploration. They have modified the method by which people are able to participate in music, the 'spaces' in which we listen to music, and granted us the ability to be connected to others at virtually every moment of our day. But what happens when our connection with other people is severed? Can a composer create and control new 'spaces' and use sound to provide alternate experiences? If so, what is the process? Is it worth pursuing? To explore these questions I constructed a study of electro-acoustic and modern compositional elements, and, through the examination of four relevant pieces of art, Dennis Smalley's 1997 *Spectromorphology: explaining sound-shapes,* indeterminate composition, source bonding, and reduced listening, I developed a compositional process that allowed me to compose a piece of music, entitled *Crowded Spaces,* that challenged my own ideas of process and examined issues of 'space'. I found that it is possible to manipulate, create, and distort a variety of environments that exist both in reality and artificially, and employ them to transform situations of 'aloneness' and isolation into new personal experiences.

Keywords
Source bonding, crowd behavior, compositional process, space, indeterminacy

1. INTRODUCTION
In the last one hundred years, the many significant advances in the areas of communication and computer technology that have changed the way people communicate and create art. While a vast global audience and unprecedented artistic freedoms have been created for composers through the availability of technological advances like digital audio recording, complex sound manipulation tools, and social networking, a variety of related challenges and obstacles have arisen in tandem. Among the advances, are new listening areas, or 'spaces', where music is experienced and consumed, and an ever-changing social atmosphere where virtually everyone in the developed world is connected to one another at all times. While an in-depth is beyond the scope of this paper, it is possible that the increasing desire for artistic progress has created an environment where compositional/creative process is as important to the audience as the actual music itself. New forms of listening, that would

have been impossible prior to the introduction of recorded sound, have been defined and established, as has a new vocabulary that can describe the properties of electro-acoustic music and new 'spaces' in which music can be experienced.

Crowded Spaces aims to investigate the real and imaginary 'spaces' and situations that are created by the modern world as a result of mass communication and advanced technologies. By attempting to establish a method of invoking new, meaningful spaces through a musical experience or composition, I will attempt to answer the question of whether or not it is possible for a composer to create and control new, artificial 'spaces' within an existing space. Additionally, if it *is* possible to manipulate new spaces, I want to determine what a potential process may be, and if it is an area worth pursuing.

2. THE NATURE OF COMPOSITION
The act of composition is both incredibly simple and incredibly complicated, - the only true requirement being that, through whatever means is chosen, something new is created. While there have been many different approaches to the compositional process of music, particularly in the last century with the work of John Cage and Pierre Boulez, modern technologies and ideological perspective have allowed for a multitude of previously unavailable avenues of pursuit. Elements of improvisation are inherently present in composition, but where they intersect and to what degree varies from process to process.

2.1 Definitions
The distinction between composition and improvisation is relatively clear, and, in *Composition Versus Improvisation* (Larson 2008), Steve Larson provides a somewhat acceptable definition of both, stating that composition is "traditionally regarded as a process in which a composer, with pen and paper, outside of "real time," uses revision and hard work to eliminate or avoid mistakes; the composition builds on tradition, imposes constraints, and relies on training in a time-consuming process that involves rational reflection and intellectual calculation to create complex, sophisticated relationships," and that improvisation is "traditionally regarded as a process in which performers, with their voices or instruments, in "real time," use luck or skill to respond to or incorporate mistakes; the improvisation grows, out of innovation, exploits freedom, and relies on talent in an instantaneous process that involves emotional invention and intuitive impulse to create simple, direct expression" (Larson 2008).

2.2 Composition/Improvisation Connection
While this is a somewhat satisfactory definition, Larson does not address the *reactionary* element of improvisation, or the notion that reaction is inherently inseparable from improvisation. Any decision made in "real time" is made in direct response to the presence, or lack, of an event, person, sound, environment, or similar. The instigator of a reaction may

include anything from silence, a particular lighting, the action of another performer, or more abstractly, a score.

The addition of 'reaction" to Larson's definition would result in a shift in the definition of composition as well, implying that *any* choice made is improvisation, and while the case could be made that any decision made in music is a reaction to something, the context of being inside or outside of "real time" would be the determining factor.

As a result of the definition modification, composition and improvisation cannot be accepted as opposing activities, but instead as different, inseparable components intricately linked in the process of artistic creation.

2.3 The Value of Compositional Practice

It could be argued that the process by which a composer creates a composition is one of the most influential factors on the final piece, and alternately, it could also be argued that the end result is the *only* thing that matters to the average listener. It must be asked, ego of the composer aside, does compositional process actually matter? Or, if the audience is to just watch a performance or listen an audio file, and decide if they enjoy it or not, do the matters of creation come into play at all?

There are two answers to this question of process, both of which depend on the perspective from which it is viewed. The first, and most simple, answer is a resounding 'No' - With virtually any artistic output, it is not a requirement that the audience is equipped with the knowledge of the process in order to, on the lowest level, experience it. For example, an audience does not need to know the process of how a picture was painted, the conditions under which a symphony was written, or even the name of a work in order to form an opinion. It is fundamentally as simple as being presented with something, and, with whatever level of comprehension available, participating in an experience.

The second answer builds on the first, providing a 'Yes' with a caveat of 'but not always'. This perspective accepts that view of the first, in that art can be understood and/or experienced with no prior knowledge, but expands by allowing the option for the participant to gain a new depth of understanding through information –more information, more depth. Another way to look at it would be in layers, much like a cake. The unknowledgeable participant can only experience the outer layer, the icing, and, while they *can* taste the cake, nothing of the inside is known. As the person gains more knowledge, they can discover the soft white cake of the first layer, then the decadent second chocolate layer, the custard in the center, and so on.

By allowing the audience access to insight and information regarding the creative process, a new kind of relationship is created, and the meaning of the piece is changed. By knowing the inner workings of a piece of art, the audience member is allowed an opportunity to become personally invested in the work or artist, and a greater potential of emotional connection in possible.[1] While it is not the focus of this paper, it is worth noting that what information is available vs. what information is not available can have a significant impact on the reaction of the audience, and it is not always best to have every detail - creative process or otherwise, available.

2.4 Compositional Method

There have been many different approaches to composition, but 20th century technologies, ideological perspective, and similar advancements, exponentially multiplied the potential for expanded compositional techniques. Compositional technique has been a very influential factor on modern music composition, as it has allowed composers to distinguish themselves and create an artistic identity based on process alone, while also gaining the ability to generate various kinds research (Blum 2001).

2.4.1 Innovation in Process

While there are many innovators in modern compositional practice, John Cage stands as one of the most prominent. His contributions to music were vast, incorporating many new elements into the accepted musical vocabulary, offering new definitions for what could be considered music, and exploring a variety of new composition techniques that included the use of silence, chance, and planned elements of indeterminacy. Cage was one of many who established an identity via artistic process through works like *4'33"* (1952)*, Water Walk* (1960)*,* and *Child of Tree* (1975) (Pritchett 2012).

4. PIECES FOR STUDY

In preparation for *Crowded Spaces,* I examined a selection of works that feature an alternative approach to composition, establish or enhance a particular atmosphere or environment, or use sound in an manner that was decidedly interesting or relevant. The two films and two pieces of music were chosen to inform and inspire, and included Fritz Lang's *Metropolis* (1927), John Cage's *Water Walk* (1960), Witold Lutosławski's *Venetian Games* (1961), and Jacques Tati's *Playtime* (1967).

4.1 Metropolis

Metropolis was chosen for it's unique representation of a crowded, dense future world and curious social commentary. Due to the lack traditional score or audio, the film has been subject to a number of different soundtracks since it's release. As a result, several different versions of the film are available with greatly varying approaches towards how events and locations can be explored through sound. Because several versions of the film have been available since it's initial release, the recently (2010) found 'complete' cut of the original film was used, but several other versions were examined for their unique soundtracks.

4.2 Water Walk

Cage's *Water Walk* was initially performed on television live in 1960, and features a composition that is centered on the potential for undetermined events. *Water Walk* was chosen for it's compositional approach and demonstration of using atypical sounds to create music. (Figure 1).

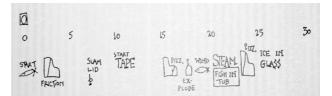**Figure 1 - Score for *Water Walk* (1960).**

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[1] It was reported that the Twitter account of Lady Gaga generated in excess of $30 million dollars for the pop artist in 2012 through a version of personal connection with her audience (Fottrell 2012).

4.3 Venetian Games

Strongly inspired by John Cage's 1958 *Concerto for Piano and Orchestra, Venetian Games* employs elements of chance and indeterminacy, but within the constraints of more formal organization and structural framework, as elements of rhythm are left to the performer, but no pitch change or improvisation is present (O'Brien 2000). *Venetian Games* was chosen for study for the piece's demonstration combining elements improvisation and composition.

4.4 Playtime

Tati's *Playtime* provides a compelling visual world similar to that of *Metropolis*, but also includes an environment in which sound, but not necessarily human dialogue, is used to communicate a significant amount of information. Audio plays a major role film and contributes greatly in the creation of the disconcerting vision of the future presented. The commentary provided by the film on isolation and crowding, in addition to the vivid visual and audio presentation, made *Playtime* a prominent source of study and inspiration for *Crowded Spaces*.

5. CONCEPTS AND DEFINITIONS

The central concepts and ideas of *Crowded Spaces* lie in space, environment, sound association, and location. Dennis Smalley provides an excellent explanation, vocabulary, and definition set in his 1997 article *Spectromorphology: explaining sound-shapes*, to which I will contribute to slightly. Smalley discusses the concepts of *source bonding*, *internal* and *external* space, *composed* and *listening* space, and reduced listening, while I am suggesting the supplementary concepts of *negative bonding,* and *real* and *imaginary* space.

5.1 Source Bonding

Smalley presents the important concept of *source bonding*, which he defines as "the *natural* tendency to relate sounds to supposed sources and causes, and to relate sounds to each other because they appear to have shared or associated origins" (1997). Source bonding implies an inseparable link inseparable by the listener between a recognizable sound and a particular gesture, and includes all "sounding matter and sound-making, whether in nature or in culture, whether they arise as a result of human agency or not." For example, the sound of a human voice invokes the gesture of speaking (Smalley 1997).

The power of source bonding in electro-acoustic music can be quite immense, as they can reference both real and artificial items, locations, events, etc. that have been experienced by the audience in reality or in imagination. For instance, very few people have ever been on a space ship, but the sounds of a spaceship, and in turn, the location of a spaceship is developed in the minds of the public through films and other media. There is also potential for individuals to share a source bonding, again using the space ship as an example, but to a vastly different end, which are referred to as *personalized bonding.* To continue with the space ship example, to listener A, a spaceship may sound cold and empty, filled seemingly random beeps and electronic sounds, air constantly pressurizing and depressurizing, representing a large space station perhaps not unlike one featured in *2001:A Space Odyssey,* but to listener B, a spaceship is a much smaller personal craft, the same beeps and electronic sounds, but also radio chatter, laser blasts, the tearing of sound by other ships as they pass by in pursuit of another ship, perhaps like an X-Wing fighter from *Star Wars* (although sound doesn't exist in space, but that is an entirely different matter all together!). The significant part of the example given, is that a specific set of sounds, whether it is a tone, an impression of an acoustic space, a melody, etc., can

invoke an environment and/or gesture of a spacecraft that neither listener has *actually* experienced in reality. Bonding directs the listener to a specific environment, although the exact elements of the bonding are completely dependent on the experience of the listener. Because source bonding can tap into a low level of perceptual association that cannot be disengaged by the listener, source bonding is one of the most powerful tools an electro-acoustic composer has to enable them to control or guide the thoughts, memories, associations, and 'space' of the listener (Smalley 1997).

The other side of source bonding lies in sounds that are not bound to, or reference anything. This can also be a powerful tool because the inherent bias of the listener towards a particular gesture or environment is avoided, allowing the composer the ability to manipulate and direct the audience as they desire. A lack of bonding is also extremely dangerous, as without a bonded element to establish a base with the listener, making sustained attention difficult as the listen becomes more alienated by the material (Smalley 1997).

By understanding the concept of bonding, a composer can have strong control over the audience by practices like adding or subtracting bonded elements from common contexts, or by juxtaposing elements in an interesting or challenging manner. When employed with control and thought, source bonding becomes one of the most powerful tools that can be implemented in electro-acoustic music.

5.1.1 Negative Bonding

While it is up to the composer to decide where, and in what form, bonding is applied, it is critical to address particular types of *negative bonding* that detract from the composition or recording. Negative bonding refers to any sound that distracts the listener and *unintentionally* breaks the connection with the intended experience through technical fault. This type of bonding invokes a lack of knowledge, carelessness, laziness, or otherwise, and discredits the composition, the recording, and the composer. Examples of negative bonding are poorly executed or sloppy edits, unintended noise or crackling, the evident lazy or uncreative use of a particular effect or technique, or any other 'tell' that would inform the listener of apathy on the part of the composer or artist. Negative bonding is <u>only</u> detrimental, as it permanently effects the listeners experience with a work or composer by instantly removing them from any state of attention or achieved, and focusing their attention on factors that could have been addressed. It could also be explained through a rhetorical question; if the artist did not care enough about the audience to address distracting technical faults, why should the audience care about the artist.

5.2 Reduced Listening

Another concept that Smalley discusses is that of *reduced listening*, a term that was established by Pierre Schaeffer, that refers to "concentrated, repeated listening to a sound event…whereby detailed…attributes and relationships are uncovered" in a situation where any source bonding is removed, obscured, or blocked (Smalley 1997). Reduced listening shifts the focus away from the cause and effect of a particular sound, and moves it towards the other properties present, outlining the specific properties of a *particular* sound, that may only be reveal through repeated listening and has therefore *only* been possible since the advent of recorded media. Michel Chion uses the example of identifying the intervallic relationship between two pitches as a very basic form of reduced listening, as pitch is an inherent characteristic

of sound that is completely independent of it's cause or meaning (1994). This type of listening extends to the understanding any repeatable, fixed sound that can be examined, and it's traits identified.

5.2.1 Reduced Listening as a Tool
Understanding of a sound's traits, as identified by reduced listening, can become another tool for the electro-acoustic composer. If an in-depth understanding of the non-casual elements of a sound can be learned, a composer could theoretically employ the learned information to manipulate source bonding, or even invoke the emotional response from a source bonding without actually bringing attention to a particular gesture or environment. Reduced listening can also be used to extract information from a sound source to be used as a compositional tool. For example, traffic light timings, the limited number of potential vehicles, and city speed limits, would instill specific pitch, structural, and rhythmic elements in a recording of city traffic that could be extracted through reduced listening and then applied to a composition in whatever manner the composer so chooses.

5.3 Spaces
A brief discussion of the types of spaces that exist within the context of electro-acoustic music is required. While they could be viewed as similar, there are important differences between them.

5.3.1 Real and Imaginary space
There are two basic types of spaces that can be experienced: *real* and *imaginary*. A *real* space is any tangible space that exists in the real world. This could be anything from a forest or restaurant, to the cabin of a 747 or the Acropolis – the only specific criteria being that it can be defined by physical properties.

What constitutes an *imaginary* space is less clear, more abstract, and more complicated; it is a situational space that is created by a person or between a group of people; it is temporary – but recallable; it can exist inside a *real* space but in and of itself does not have physical properties. An imaginary space can be many things, including one created when listening to a portable music player with headphones or while watching a movie or television show, to the one created while listening to a particular piece of music in a vehicle, or in a mosh pit at a live concert. Further abstracted, an imaginary space could be created in a photograph, while waiting in a line, on the Internet, or even a person's own mind.

5.3.2 Internal and External space
Internal space is described by Smalley as a space that occurs when a sounds appears to occupy a particular location that is identified through a resonant structure or a perceived vibratory reaction. He required that there is some form of source bonding present, and specifies that internal space relies on the experience of the listener. *External space* is the space that is made apparent through reflections, and refers to the area outside and around an internal space. External space is more significant than internal space, in that it is required for internal space to be present (Smalley 1997).

   The concepts of internal and external space are somewhat abstract, and may be more easily demonstrated through an example. Imagine a person speaking in a room to an audience. While the person is speaking, the room becomes the internal space, and the room also acts as the external space. Suppose a recording of the person speaking was made, and a speaker is now placed the room. When the recording of the person speaking is played back, the area around the speaker is the external space, while the internal space is the sound of the room that is captured on the recording.

5.3.3 Composed and Listening space
The final set of spaces is comprised of the composed space and the listening space, a set that is much more clearly defined. A composed space refers to the space created within a recording of a composition, while the listening space is simply the location in which the composition is heard (Smalley 1997).

6. CROWDED SPACES
The goal of *Crowded Spaces* is to generate knowledge and research through a developed creative process that combines composition and improvisation, indeterminacy, and sonic exploration, while examining modern 'spaces' and the self-imposed isolation that results from the adoption of technology, mass communication, and globalization. *Crowded Spaces* attempts to examine the phenomena of 'spaces within a space' through the use of sound, bonding, existing environments, and composition.

There is a duality of purpose established by focusing on space, as I am attempting to create a means establishing imaginary spaces within a participant's listening space that exists through a simulated external space, which can be employed in both *real* and *imaginary* spaces, and can therefore be utilized by the participant to create a location in situations of 'aloneness' and isolation. This could be, for example, the implication of a space like "sky transportation" that can be created in the existing, but imaginary, space created while waiting in a queue or a line.

The feeling of being separated, isolated, and alone, can exist even in the busiest and most populated places (a crowd of strangers, a city, the internet). If specific spaces can be created through composition and sound, an alternative can be presented to an individual in a situation when they are disconnected from our seemingly always-connected world.

6.1 Project Parameters
A particular set of parameters and requirements were established to facilitate the goals of *Crowded Spaces*. The specific aspects the process were developed through study of *Metropolis, Venetian Games, Playtime, Water Walk,* Smalley's *Spectromorphology,* as well as the different 'spaces', and include elements of indeterminacy, improvisation within a framework, reduced listening, composition/improvisation synthesis, and source bonding manipulation.

6.1.1 Mandate
Crowded Spaces must:
-Contain four larger pieces broken up into three smaller pieces
-Be longer than 30 minutes, but no more than 50 minutes
-Satisfy the composer

Each of the four pieces must:
-Begin with a field/environment recording
-Be approached with least amount of preconception possible
-Allow for a documented three day recording cycle, interspersed with periods of 'rational thought'
-Combine improvisation and composition elements

6.1.2 Environmental/Field Recordings
It was required that each of the four pieces begins with a stereo sound recording from a particular location or environment that was captured the on the first day of recording, or from a pre-existing collection. These recordings are then subject to an

examination under the parameters of reduced listening, and the rhythm, pitch, timbre, structural, etc., data used as the basis of a given piece.

The environmental recording can, but is not required to be *of* a particular space, or even be related to one, as they are used as primarily as a first building block and may not even be present in the final recording. The field recordings are recorded in stereo using an X-Y or ORTF configuration (if possible). All field recordings must have been made by the composer in order to guarantee initial source bonding.

6.1.3 Choosing Sounds
The decision process by which particular sounds are selected is based solely on the situation and circumstance under which the decision needs to be made, from what tools are available to use at the time. That being said, the employed instruments, sounds, timbres, and textures, are all subject to the presence, or lack, of source bonding. Any sound that will induce negative bonding is avoided.

6.1.4 Composition Map
To keep the amount of preconceptions, or pre-compositional ideas, at a minimum, only two potential elements are established before beginning a piece: an environmental recording, and a set of names from a composition map that contains a list of modern 'spaces' in which one can experience varying degrees of isolation (Figure 2). The composition map was employed to establish an underlying level of structure and coherency throughout the four movements, to promote development within a particular movement, and direct 'space' visualization at before working on a piece.

Figure 2 - Composition Map.

6.1.5 Self Research Questions
To help develop the process for *Crowded* Spaces and generate the desired self-research, rhetorical questions were asked of the self throughout the project. Some of these questions included:

-How or why does one action get chosen over another?
-Can I, or should I, always trust my own judgment?
-When is something finished?

-When is something a dead end?
-What is the best course of action in a particular circumstance?
-How do I begin a composition without preconception?
-What do I do if I'm stuck?

A journal of events was kept that contains details regarding the cause of particular actions and events, and was used to help answer some of these questions and generate research.

6.1.6 Rational Thought
The journal was also maintained after the first day of a cycle and records specific thoughts, first impressions, future compositional intent, and other ideas regarding the piece that was being working on at the time. A *period of rational thought* is time spent outside of the recording process where critical thinking is done and important decisions are made. By evaluating raw materials in early in the morning, while driving, or other situations outside of the studio, realistic and honest opinions about musical and structural elements can be formed and aid in the compositional processes of the second and third days.

6.2 Time Frame and Three Day Cycle
A three-day period was chosen as the time frame for each particular piece, although the 'days' could also be viewed as three different stages. *Day One* being the period of raw material generation and improvisation, *Day Two* being the compositional period, and *Day Three* the presentation and polish period. Day One and Two were to be kept as solid blocks of time, while Day Three is slightly more ambiguous and could be extended or repeated if needed to address technical issues. The overall process is much like that of a traditional composition, but includes inherent compositional and improvisational components, provides an initial starting point, employs elements of indeterminacy, and has a fixed period of development.

There are other important general aspects of the three-day cycle that must be considered as well. Firstly, the three days in the time period do not have to be sequential and time can, and should pass, between them to allow for periods of 'rational thought', where objective decisions can be made and documented, and additional reduced listening can be performed to aid in the compositional component of the process in Day Two and Three.

Next, it is important that "destructive decisions' are made whenever possible. A destructive decision refers to any decision that is permanent and cannot be reversed. Given the narrow window of time to complete each piece, an abundance of choices during the Day Three period would slow the completion process and detract from any improvisational choices that were made previously. The virtually unlimited amount of options that are provided with a modern digital audio workstation must be somewhat subdued in favour of committed ideas in order to prevent the 'watering down' of the raw materials. Changes can be made to the raw material, but the building and layering nature of the improvisation period requires they must be decisive, permanent changes.

Finally, a "Yes" environment is to be maintained that allows for rules to be broken in an effort to promote a creative atmosphere that is restrictive the intended ways, and not in ways that will needlessly hinder the creative process.

6.2.1 Day One

The first day of a cycle is primarily a session to create the 'raw' audio material that will make up a final piece. Day One incorporates the primary improvisatory elements of the process and relies heavily on unintentional and indeterminate compositional practice. It begins with the selection of an environment recording, a choice that should be made purely on what is interesting or appealing at the time and without preconceived preference is possible. After selecting the environment track, a title is selected from the compositional map (Building, City, Transport, Abstract), and the selected 'spaces' are visualized (see 6.2.1.1).

6.2.1.1 Visualization

The visualization process is a five to ten minute period that allows for a particular space and emotion to be imagined and used as used as a focal point and reference during the improvisational process. The visualization can be used again during the Day 2 composition phase to ensure that the desired effect is being created with the piece.

6.2.2 Day Two

The second day consists of arranging the raw materials that were created on Day One in a manner that supports or creates a coherent composition. Compositional elements will already be instilled in the layers of audio, but are editing, deleted, moved, cropped, or processed, in a destructive manner that moves the piece closer to the feeling and image of the visualization from Day One. Additional material is recorded at this point is needed, and a ruthless evaluation of the existing material is performed and any sub standard, superfluous, or distracting material is permanently removed. Attention is paid to technical details and distractions, like edits, unwanted noise, clipping, - anything that fits within the parameters of negative bonding. Issues of mix balance, compression, equalization, and other matters of presentation are also addressed at this point without the detriment of ear fatigue induced from a long period of recording.

By revisiting the ideas formed during the ration periods of thought between Day One and Day Two, and through honest critical evaluation from the perspective of a composer, the second day facilitates the traditional areas of composition, but without the same level of performance distraction, or the technical issues involved in recording or producing a sound. It is in Day Two where the major components of improvisation and composition are synthesized, and some of the best elements of both are revealed.

6.2.2.1 Establishing Structure

During the improvisational process a natural structure will have formed based on the human intuition and the application of the data from the environment recording. However, the reinforcement of motives (pitch, timbral, rhythmic, etc.), careful attention to the presence or absence of source bonding, and pursuit of traditional compositional strategies, the existing structure can be exploited, or a new one can be implemented in a particular piece. Elements of contrast, counter point, silence, density, etc. can be left untouched, exaggerated, removed, highlighted, or otherwise to defined and establish a structure that supports the composition.

6.2.3 Day Three

The final day is used primarily for technical considerations and is a critical step. The goal of the Day Three is to address or remove any technical problems that invoke negative bonding, allowing for the sounds and composition to be seamlessly presented without distracting or removing the listener from the composition, sonic environment, emotion, or space employed. Adjustments to the mix are addressed, as are any new things discovered in a period of rational thought.

Day Three differs slightly from the first two days, as it is treated like more of a period of time than a specific day, and may be broken up into several smaller periods of work as required, so long as they are separated by additional periods of rational thought. Because of the detrimental nature of technical faults, and the resulting effect they have on the listener, Day Three should continue for as long as necessary to allow the piece to be presented in it's best form and without distraction. However, unless it is absolutely required, no major changes are made during this time, and no new material is recorded, all while being mindful of the spatial and emotion intent and original visualization. That being said, the rules are fully breakable if it is *necessary* for progress.

6.3 Methodology

After the initial research was completed, the steps required for creating *Crowded Spaces* were quite straight forward and for the most part outlined in the three day cycle outlined 6.3. The basic process was as follows:

1) Environment/field recordings are made or compiled.
2) Compositional Map is defined
3) Select field/environment recording and concept from Composition Map
4) Run through a complete three day cycle, including journal entries
5) Repeat steps 3 and 4 three additional times
6) Evaluate all 4 movements *as an experience* and establish a play order

7. OBSERVATIONS AND CONCLUSIONS

In pursuing *Crowded Spaces*, I have learned a significant amount about electro-acoustic composition, 'space' creation and manipulation, and creative process. While the results varied drastically, the same basic process was employed on each of the four moments of *Crowded Spaces*, and throughout each recording cycle, new discoveries were made and problems identified. As I progressed further into the project, I gained additional appreciation for the comprehensive and useful nature of Smalley's *Spectromorphology* and its ability to define a vocabulary for describing electro-acoustic music.

I have concluded that it *is* possible to control and create *imaginary* spaces through composition and the employment of bonded sources, and, while it is possible to lose the sense of human connection through the realities of certain social constructs (namely self-imposed isolation), we are also equipped with new methods to deal with these realities. Using composition and recorded sound that can invoke new is interesting, highly challenging, and highly recommended to the electro-acoustic composer. By placing such a heavy emphasis on the use of source-bonded material, creativity must trump comfort and ease in order to create a successful piece.

The majority of my findings lie in personal discovery, details of composition, and to some extent, human psychology. The most intriguing concept that I explored is source bonding, followed closely by the inherent danger of technological faults and negative source bonding. Smalley (1997) discusses the issue of technical fault, stating that the technology must be able to be

ignored in order to create a successful piece of electro-acoustic music, and I fully agree. If the composer is providing and controlling a particular 'space' to a listener, and then *unintentionally* pulls that listener out of the environment they have created, it is detrimental to the composition and the actual composer. Technical deficiencies are perhaps the most damaging oversight in electro-acoustic composition and recording.

In the imposed role as a producer of this piece of music, I have reconfirmed to myself that the ability to recognize when something is of value or not is a slowly developing, difficult to master, and highly useful skill. In a creation solitary process, like the established for *Crowded Spaces*, rapid self-production is constantly occurring when writing, performing, or mixing. Acceptance personal fault and self-awareness are vital components in maintaining an effective, self-governing, 'garbage filter'. When is something special? When is something trash? When is a decision made out of laziness? When is it time to move on? These are some of the questions that must be asked during the creative process to ensure some level of quality, be it in an individual or group situation.

I have also gained a trust and appreciation for 'different versions' of myself. For example, the version of me that existed last week made decisions that were the *best* decision that the particular version of me could make at that particular time.

The understanding of personal plurality became an important factor while addressing the many different time consuming aspects of the *Crowded Spaces* project. By making decisive or non-reversible decisions throughout the life cycle of the project, I committed to trusting a previous version of myself. By removing the ability to second-guess my previous choices, I avoided the highly probably scenario of being over-burdened with an endless sea of options.

Finally, I have come to the conclusion that it is rewarding and satisfying for the result of a project to surprise and challenge the composer who created it. Because the result of *Crowded Spaces* was unanticipated and satisfactory, I can conclude that, on a personal level at least, the project was successful.

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