

COGNITIVELY DECONSTRUCTING MUSICAL FREE IMPROVISATION TO
INFORM ON PERFORMANCE AND APPLIED IMPROVISATION

by

SABRINA M. CHANG

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The following individuals certify that they have read, and recommend to the Faculty of Graduate and Postdoctoral Studies for acceptance, the dissertation entitled:

Cognitively deconstructing musical free improvisation to inform on performance and applied improvisation

submitted by Sabrina M. Chang in partial fulfillment of the requirements for

the degree of Doctor of Philosophy

in Interdisciplinary Studies

Examining Committee:

Dr. Eric Eich, Psychology

Supervisor

Dr. Rebecca Todd, Psychology

Supervisory Committee Member

Dr. Gage Averill, Music

Supervisory Committee Member

Dr. Lawrence Ward, Psychology

University Examiner

Dr. Nicola Hodges, Kinesiology

University Examiner

Additional Supervisory Committee Members:

Supervisory Committee Member

Supervisory Committee Member

Abstract

Musical free improvisation (FI) is a technique or style of performance where conventional musical elements such as tonal centers, melodies, and harmonies are largely forsaken. Instead, FI concerns the unbound exploration and expression of sounds, timbres, textures, and rhythms as per the moment-to-moment desires of the performers. The main research presented in this dissertation centers around understanding the subjective experiences and cognitive dynamics of musicians engaged in this unplanned form of improvisation. This was achieved by asking participants to engage in musical free improvisations that were video-recorded for subsequent viewing and segmentation by the performers. These segmentations provided the framework from which the musicians provided text commentaries and engaged in in-depth discussions with me, the researcher. In a second, smaller project I then explored the impacts of applied improvisational training in a non-performance domain by developing and facilitating theatre-based business improvisation training sessions. With these two studies, I addressed the following questions: (1) what are the predominant themes that emerge as FI performers negotiate the cognitive and social-cognitive dynamics of FI? (2) what are the individual and interpersonal impacts of business improvisation training, and do the findings in this regard support and validate the many anecdotal reports given by others in this domain? (3) how do the cognitive and social-cognitive dynamics found in FI parallel and complement those found in theatre improvisation? and (4) how might the findings regarding free improvisation provide support for the inclusion of FI

as a complementary or alternative training method to the more well-known area of applied theatre improvisation? Overall, my findings support two important insights: First, the musical FI findings reveal a novel way to understand how improvisers navigate their performances, as captured by four emergent themes that I ultimately discuss through the lens of enactive cognition. Second, the significance in examining the similarities and differences between the two improvisational domains lies in the potential for the application of musical FI in therapeutic settings where theatre improvisation training is more often used as a treatment intervention.

Lay summary

Musical free improvisation (FI) is a form of performance where conventional musical elements such as melodies and harmonies are eschewed for the exploration of more non-idiomatic sounds and textures. My research aims to understand the subjective experiences and cognitive dynamics of performers engaged in this unplanned, rule-free form of improvisation. A second smaller project examines the impacts of applying theatre-based improvisation training in the workplace. Research questions explore: (1) the predominant themes that emerge via FI participants' feedback based on their own videoed performances, (2) the effects of business improvisation training on individuals via participant feedback, (3) the parallels and differences between FI and improvisational theatre, and (4) how FI offers complementary or alternative training interventions to the more well-known techniques of theatre improvisation. Findings suggest four emergent themes from the main FI study, and support for the further use of FI in therapeutic domains.

Preface

This dissertation is original, unpublished, independent work by the author, Sabrina Chang. The fieldwork reported in Chapters 2 – 4 was approved by the UBC behavioural research ethics board (certificate number: H13-02061). The internship reported in Chapter 5 was approved by the UBC behavioural research ethics board (certificate number: H15-02329).

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List of abbreviations

AI	Applied Improvisation
BAR	Banking Application Renewal
CNSMDP	Conservatoire National Supérieur de Musique et de Dance de Paris (National Superior Conservatory of Paris for Music and Dance)
DEM	Diplôme d'Etudes Musicales (Diploma of Musical Studies)
DNESM	Diplôme National d'Etudes Supérieures Musicales (Music National Advanced Diploma)
DNSPM	Diplôme National Supérieur Professionnel de Musicien (Professional National Diploma for Musicians)
FI	Free Improvisation
HRIS	Human Resources Information System
Improv	Improvisation (for theatre only)
IRCAM	Institut de Recherche et Coordination Acoustique/Musique (Institute for Research and Coordination in Acoustics/Music)

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Dedication

for my Dad

Chapter 1:

Introduction

Musical free improvisation (FI) is a technique or style of performance where conventional musical elements such as tonal centers, melodies, and harmonies are eschewed for the unbound, moment-to-moment exploration and expression of sounds, timbres, textures, and rhythms. Under such unscripted performance conditions, however, when normal musical structures and practices are removed, what then guides musicians during their explorations? Towards answering this question, my dissertation centers on examining the subjective experiences and cognitive dynamics of its performers, and then, how cognitively deconstructing FI performance can theoretically inform on its use in applied settings. Specifically, I look at similarities and differences between FI and the more well-known, oft-used art of theatre improvisation—and propose ways in which FI may offer complementary and alternative ways in which to harness the benefits of improvisation in non-musical domains. Chapter 1 begins with a brief overview of the two main musical streams leading to the development of free improvisation. I then introduce the concept of applied improvisation. Finally, I outline the main research questions that will be discussed in this dissertation, followed by an overview of the dissertation as a whole.

Musical Streams Leading to Free Improvisation

If musical FI can be characterized as lacking in any normal or traditional musical guiding structures, the history of its advent as a performance genre can be

seen as a history of the progressive removal of guidance structure. To that end, in the general realm of musical improvisation, there does not seem to exist a singular definition of the genre. For example, Moorman & Miner (1998) outline several authors' perspectives on the topic including: "Imagination guiding action in an unplanned way, allowing for multitude of split second adjustments" (Chase, 1988, p.3); "The spontaneous creation of music" (Kernfeld, 1995, p. 119); "Free from the effects of previous training" (Pressing, 1984, p. 345), and "Real-time composition" (p. 142); "...in improvisational creativity, the creative process and the resulting product are co-occurring" (Sawyer, 1992, p. 1); "Playing extemporaneously, i.e., without the benefit of written music" (Schuller, 1968, p. 378); "Improvisation involves making decisions affecting the composition of music during its performance. The fundamental ideal of improvisation is the discovery and invention of original music spontaneously, while performing it" (Solomon, 1986, p. 226).

For a short and cleverly succinct encapsulation of how improvisation differs from conversation, perhaps one need to look no further than Frederic Rzewski's encounter with saxophonist Steve Lacy:

"In 1968 I ran into Steve Lacy on the street in Rome. I took out my pocket tape record and asked him to describe in fifteen seconds the difference between composition and improvisation. He answered: 'In fifteen seconds the difference between composition and improvisation is that in composition you have all the time you want to decide what to say in fifteen seconds, while in improvisation you have fifteen seconds.' His answer lasted exactly fifteen seconds and is still the best formulation of the question I know" (Bailey, 1993, p. 141).

In turning to look at freely improvised music, Bailey (1993) notes its various names of ‘total improvisation’, ‘open improvisation’, ‘free music’, and ‘improvised music’—owing this “confused identity” to its “resistance to labelling”, and its tendency to encompass “too many different kinds of players, too many different attitudes to music, too many different concepts of what improvisation is...” (p. 83).

In this manner, Bailey (1993) states that:

“Diversity is its most consistent characteristic. It has no stylistic or idiomatic commitment. It has no prescribed idiomatic sound. The characteristics of freely improvised music are established only by the sonic-musical identity of the person or persons playing it” (p. 83).

As such, Bailey uses the terms ‘idiomatic’ and ‘non-idiomatic’ to describe improvisation—with the assertion that non-idiomatic improvisation is “...most usually found in so-called ‘free’ improvisation, and while it can be highly stylized, is not usually tied to representing an idiomatic identity” (p. xxi). That said, the view of free improvisation as largely ‘non-idiomatic’ may raise differing opinions, including both from those who regard FI’s roots as coming from the sound world of avant-garde jazz, and for those who identify the general ‘free sound’ as an identifiable idiom or genre in itself.

Bailey (1993) then goes on to assert that:

“Historically, [freely improvised music] pre-dates any other music—mankind’s

first musical performance couldn't have been anything other than a free improvisation—and I think that it is a reasonable speculation that at most times since then there will have been some music-making most aptly described as free improvisation” (p. 83).

However, as improvisation is discussed now, it is not usually in terms of these long-ago beginnings. The issue of when exactly improvisation “reappeared” in music is still very much a topic of debate. As Kaikko (2008) notes, some view the reappearance of musical improvisation through the lens of jazz music and African-American culture while others link it to American and European classical music.

In looking towards contemporary improvisation, discussions turn to jazz, contemporary classical music, and contemporary popular music. In fact, Bailey (1993) attributes the questioning of the ‘rules’ of musical language as leading to the growth of FI—“Firstly from the effect this had in jazz, which was the most widely practiced improvised music at the time of the rise of free improvisation”, and secondly, from the effects in “European straight music” (p.84). In this vein, 1960’s free jazz and experimental classical practices are often described as the two musical streams from which free improvisation grew. As such, I will now devote the next several sections to the discussion of these twin musical sources in the development and formation of free improvisation.

Free jazz

As my dissertation aims to understand the underlying cognitive and social-cognitive dynamics taking place during FI performance, I will first discuss the arrival

of free jazz and its breaking down of musical structures that, in large part, led to the FI movement. Free jazz of the late 50's and early 1960's in the US developed as a reaction against the formulaic musical approaches of what came before—for example, the standard chord progressions of bebop (Ford, 1995). It was a period that represented the radicalization of elements such as form, style, materials, relationships, sound, and context as they were previously known in jazz (Pressing, 2003).

There also ran a deep sociopolitical undercurrent with “freedom” being the recurring motif: “Freedom riders”, “Freedom vote”, “Freedom Summer”, “Freedom Singers”, “Freedom Schools” and “Freedom Democratic Party”. Gioia (1997) writes,

“It is impossible to comprehend the free jazz movement...without understanding how it fed on this powerful cultural shift in American society. Its practitioners advocated much more than freedom from harmonic structures or compositional forms—although that too was an essential part of their vision of jazz. Many of them saw their music as inherently political” (p. 338).

Gioia goes on to state that it is these sociopolitical issues that separate the new free jazz musicians from the older experimental players.

Musical innovation: In terms of the music itself, Gioia highlights several players who experimented with free techniques and atonality before Ornette Coleman, Cecil Taylor and others came to define the free jazz era: for example, Lennie Tristano with “Intuition,” “Digression,” and “Descent into the Maelstrom”, and Bob Graettinger’s

City of Glass. In examining the musical aspects of the shift towards this new movement, Pressing (2003) outlines several “...profound tensions which early on planted the seeds for the ultimate blossoming of free jazz” (p. 1), and subsequently describes how each tension is dealt with: (1) Tension between freedom of expression of the individual and the need to form coherent relations with other group performers is handled by role playing for each instrument (e.g. drums for rhythm, soloist for main melody, etc.); (2) Tension between freedom of expression and song form is supported by the musical structure (e.g., 12-bar blues) which provides elements such as harmonic progressions and phrasing; (3) Tension between freedom of expression and conventional musical materials of African-American traditions is handled by balancing traditional materials—such as scales, riffs, etc.—with innovation; (4) Tension between the creative urge and commercial viability is affected when the musical material becomes too novel, causing the performance of such music to move from the concert halls to more specialized venues.

Free jazz ultimately put an end to many of these above concerns by abandoning the blues and 32 bar song structure, employing atonal clusters, discordant multiphonics, pantonal call-and-response, and clashes of sound. There was also a new freedom with the way instruments were being played. To give one example, ‘prepared’ piano was used by way of adding materials—such as wood, bolts, and plates—to the strings inside the piano (Pressing, 2003).

Free jazz/avant-garde musicians: Looking at the musicians themselves, it is the

1950's work of those such as John Coltrane, Eric Dolphy, Charles Mingus, Lennie Tristano, Jimmy Giuffre and Miles Davis that made free jazz possible. In addition to Coltrane and Dolphy, masters of mainstream jazz such as Sonny Rollins and Miles Davis became influenced by the new music. Although Davis despised free jazz and did not play it per se, he was influential with his modal playing of the late 1950's and subsequently moved towards freer manipulations of form and harmony as heard through his electric free funk fusions (e.g., *Bitches' Brew*, 1969). He played with other important free-form players such as saxophonist Wayne Shorter, bassist Dave Holland, drummer Jack DeJohnette, keyboardist Keith Jarrett and pianist/keyboardist Chick Corea (Pressing, 2003). It was then during 1957-1960 that pianist Cecil Taylor and alto saxophonist Ornette Coleman were identified as the innovative pioneers of the free jazz movement. Some of the other main players of the jazz era included saxophonists Archie Shepp and Albert Ayler; trumpeter Don Cherry; and keyboardist Sun Ra and his "Arkestra".

Notable groups and musicians leading the avant-garde jazz movement include the Association for the Advancement of Creative Musicians (AACM) which includes players such as pianist/clarinetist/cellist Muhal Richard Abrams, drummer/percussionist Hamid Drake, and multi-instrumentalist Anthony Braxton. It also provides education and mentoring in addition to concerts. The Art Ensemble of Chicago (one of the first bands to grow out of the AACM) also includes a number of influential players such as saxophonist Roscoe Mitchell and the late trumpeter Lester Bowie. In describing the Art Ensemble's sound, George Lewis (2009) states:

“The group’s unusual hybrid of energy, multi-instrumentalism, humor, silence, found sounds and homemade instruments—and most crucially, extended collective improvisation instead of heroic individual solos—proved revelatory to European audiences” (p. 222).

Saxophonist John Coltrane also played a large role in the free jazz movement, particularly with his single-track album *Ascension* in 1965. This recording included other important players of the moment with his quartet of McCoy Tyner on piano, Jimmy Garrison/Art Davis on bass and Elvin Jones on drums; the recording also included Pharoah Sanders and Archie Shepp on tenor saxophone, Freddie Hubbard and Dewey Johnson on trumpet, and Marion Brown and John Tchicai on alto saxophone.

Of course, those mentioned above are just a few of the names associated with free jazz and avant-garde jazz. And as is the case with every musical genre—in that one is never isolated on its own—jazz instrumentation would also be used by the contemporary classical composers in their exploration of avant-garde techniques: for example, Stravinsky’s *Ebony Concerto* and Milton Babbitt’s *All Set* (Gioia, 1997).

As was the case, the Third Stream—a term given by Gunther Schuller in 1957— was defined by Schuller himself as, “a new genre of music located about halfway between jazz and classical music” (Schuller, 1986, p. 114); it is also described as the movement that “offered atonality with a smiling face, dressed up in

top hat and tails” (Gioia, 1997, p. 239).

Contemporary classical music

In parallel with free jazz, western contemporary classical music provided a musical stream that also contributed to the development of free improvisation—that is, the experimental classical music of Europe and America (Sansom, 2001). In trying to gain an understanding of the musical paths leading to FI as we work towards deconstructing the cognitive dynamics of FI musicians, we once again witness the breaking down of musical structures in contemporary classical music—just as we saw earlier with free jazz. Around the turn of the 20th century, musical modernism led to the breakdown of tonality that had formed the basis of the baroque, classical, and romantic periods for the last three hundred years (Born, 1995). Then in the early 1920’s, Arnold Schoenberg and his pupils Anton Webern and Alban Berg (the Second Viennese School) developed a philosophy and compositional technique called serialism.

Serialism involves a twelve-note series or row made up of the twelve chromatic notes of a scale. The order of these notes is fixed and each note must be used once before the series begins again. Four transformations of the series are used: (1) the original series, (2) backward (retrograde), (3) upside-down (inversion), and (4) retro-grade inversion. Furthermore, each of these transformations can begin on any note of the chromatic scale—thus resulting in forty-eight different permutations. Eventually, serialism became even more radical in theory with the

control of not only pitch but also rhythm, dynamics, and timbre—‘total serialism’—a movement led by Pierre Boulez and Karlheinz Stockhausen in Europe and Babbitt in the United States. As a result, some argued that it is only this postwar period that should be labeled ‘serialism’, with the method formed by Schoenberg and others in the 1920’s labeled as ‘twelve-tone’ or ‘twelve-note’ method (Born, 1995). That said, in taking a closer look at how serialism itself led to elements of improvisation, the formal mathematical structure of serialist compositions became so precise that performers could not carry them out accurately. As a result, the performances actually became *less* rigid. With this realization, composers such as Stockhausen began allowing players to choose the ordering of different musical events. His 1968 text piece, *Aus dem Sieben Tagen (From the Seven Days)*, was one of the first to involve free improvisation (Ford, 1995); and to give a sense of the nature of this piece, the first verse of the section entitled *Unbegrenzt (Unlimited)* begins, “Play a sound with the certainty that you have an infinite amount of time and space...”.

Alongside the collapse in Europe of hyper-controlled compositions, a rival movement emerged in the 1950’s with experimental music. Just as free jazz was a reaction to the jazz stylings that came before, experimentalism was a reaction to serialist determinism. This movement—with its use of aleatory and chance procedures, and indeterminacy—was led by the American composer John Cage and his followers Morton Feldman, Christian Wolff, Earle Brown, La Monte Young and Cornelius Cardew (Born, 1995). In fact, Ford (1995) attributes Cage’s silent composition 4’33” in 1953 as marking the start of the experimental stream of

classical music. Furthermore, through the use of chance operations, Cage (1961) aimed for “a musical composition the continuity of which is free of individual taste and memory (psychology) and also of which is free of the literature and ‘traditions’ of the art” (p. 57-59).

In contrast to the compositions of the serialists that were highly-controlled and organized in rhythm, pitch, and timbre, the experimentalists favored simplicity with short descriptions or graphic diagrams as scores (rather than the traditional use of notes), thus giving performers maximum interpretative freedom. And in reaction to serialists’ linear and strictly structured units of time, experimentalists utilized non-directionality and rhythms that were cyclical and repetitive—musical traits subsequently developed by minimalist composers such as Philip Glass, Terry Riley and Steve Reich (Born, 1995). Born (1995) states that “free improvisation was a logical extension of indeterminism, and also in accord with a stress on collective group relations as determining musical output” (p. 59). And so, we see, as with free jazz, the development of improvisation within contemporary classical music comprised a progressive breaking down of traditional musical structures that once previously offered a musical guide for performance and interaction amongst musicians.

Free improvisation

With a basic understanding of how free jazz and contemporary classical music each saw the breaking down of their respective musical structures, we now

arrive at the musical movement from which these twin sources ultimately led: free improvisation. Nunn (1998) describes free improvisation as “the imagination unleashed through impulse” (p. 5) and defines it as: “(1) the practice of spontaneously creating music in real time without the aid of manuscript, sketches, or memorization; (2) multiple, spontaneous processes of creating music in real time as a direct response to the influences of content itself as perceived, and an indirect response to the ever-present influences of context” (p.20). As we see, this captures perfectly the notion that with free improvisation, the traditional structures guiding the interactions among musicians have, in theory, been stripped away. Indeed, Lukas Foss (1963) “identified free improvisation as one area in which the traditional duality between composer and performer was being questioned” (Sansom, 2001, p.30).

Free improvisation became a cohesive movement in the early 1960's though Bailey (1993) points out that it was not 'started' by anyone in particular. He also discusses the many differing opinions regarding the nature of free improvisation. As free playing is accessible to everyone from children to non-musicians to the highly-skilled, this aspect seems to offend both its supporters and detractors. Similarly, some view this form of playing as being especially simple while others regard it as the highest in sophistication and complexity (Bailey, 1993). Of interest to note here, is whether one's construal of FI's sophistication is due to the cognitive and social demands taking place, rather than the musical skill required in terms of playing score-based music. Conversely, others may feel that being guided by the flow of these cognitive and social demands during performance is actually simple and easy.

Perhaps what cannot be argued upon, however, is that players enjoy it for the satisfaction of communicating musically with others during group performance, as well as for the opportunity to express themselves individually.

Nunn (1998) has a slightly different take on the process of free playing. He similarly posits that this style of music is unpredictable and personal yet firmly states that it requires:

“...instrumental technique, a knowledge of styles, and a compositional imagination. No less than other kinds of music, it is an art which requires practice and dedication...It is important here and now to destroy the myth that free improvisation is easy, that mistakes can't be made or that anything goes. The truth is, free improvisation is a natural expression (but one that needs cultivating), mistakes are made (but they can be “contextualized” in retrospect within music), and anything might go (but only as an outgrowth of the performance itself)” (p. 3).

Perhaps an even stronger stance taken to this belief—that free improvisation is only for those with the acquired skill and experience—can be found in a quote by bassist Gavin Bryars concerning his reaction upon seeing a bass player achieving the ‘general effect’ and sound of the genre:

“He was doing his fantastic runs and so on...as far as I could see he had no idea what he was doing—he was a clown. He had no conceptual awareness of what he ought to be doing. I thought he was playing a part. And when I realized that it was possible for someone to sham like that it depressed me immensely and I never played my own bass again” (Bailey, 1993, p. 113) (Bryars did, however, eventually return to improvising a few years later).

Although free improvisation grew out of avant-garde and experimental music, it does not actually fall under the category of 'experimental' or 'avant-garde'.

Regarding the imprecision over its naming, Bailey (1993) writes:

“Two regular confusions which blur its identification are to associate it with experimental music or with avant-garde music. It is true that they are very often lumped together but this is probably done for the benefit of promoters who need to know that the one thing they do have in common is a shared inability to hold the attention of large groups of casual listeners. But although they might share the same corner of the market place they are fundamentally quite different to each other. Improvisors might conduct occasional experiments but very few, I think, consider their work to be experimental. Similarly, the attitudes and precepts associated with the avant-garde have very little in common with those held by most improvisors. There are innovations made, as one would expect, through improvisation, but the desire to stay ahead of the field is not common among improvisors” (p. 83)

Furthermore, with regards to free jazz and experimental classical music, Bailey advocates two important books in the free improvisational field—written by two musicians who discuss their style of playing from two very different perspectives: In Leo Smith's *Notes: 8 Pieces*, Smith posits that free improvisation is an extension of jazz. However, Cornelius Cardew views free improvisation as a progression from indeterminate composition, as outlined in his essay 'Towards an Ethic of Improvisation' from his *Treaties Handbook* (Bailey, 1993).

In light of Cardew's views of indeterminacy, he is also the composer of *Treatise* which is a 193-page work consisting solely of graphic scores. There are no notes in the traditional sense and no instructions to guide the players. He states that such musical improvisation is ideally played by those who have “by some fluke, a)

acquired a visual education, b) escaped a musical education and c) have nevertheless become musicians, i.e., play music to the full capacity of their beings” (Cardew, 1971, p. 5).

Musical education or none, some are of the belief though that the longer a group of free improvisational musicians play together, the more likely expectations amongst performers are formed along with the development of a group sound or vocabulary. This, of course, is not necessarily a problem in itself. Rather, in a continued move to remove even these newly formed expectations or group sounds, some free improvisers prefer to play with new performers or beginners.

Furthermore, some may raise the question of whether ensembles and individual performers with a long history of free improvisational experience are still in a position to perform as ‘freely’ as those without experience. Indeed, a number of participants in the study I report below expressed frustration at the idioms or techniques that are fallen back on due to long-ingrained habits, or moments lacking in inspiration.

Nevertheless, other participants in the study commented on their increased enjoyment and freeness to explore when playing with those they are musically familiar with. Saxophonist Evan Parker echoes this last view stating “the people I’ve played with longest actually offer me the freest situation to work in”; and percussionist Eddie Provost suggests that “individuality can only exist and develop in a collective context” (Bailey, 1993, p. 129).

That said, is FI more free than other kinds of music? Corbett (2016) states:

“Music that uses improvisation but also has composed or preconceived sections is not more or less free than freely improvised music...there are scads of players who utilize one or another hybrid of improvisation and composition, drawing elements or strategies or game plans from both and applying them within the course of a single piece.” (p. 130)

This then begs the question: is free music actually *free*?

Corbett goes on to describe saxophonist Steve Lacy’s feeling that expectations were developing regarding how one was supposed to sound when freely improvising—the building of an aesthetic all of its own. In reaction to this, he started including predetermined materials back into his playing in a style he called ‘poly-free’. “With poly-free, Lacy wanted to allow the music to be free *not* to be free.” (p. 131). Similarly, he cites cellist Tom Cora as another musician who had “grown weary of the tendency to ‘avoid’ in free improvisation—avoiding tunes, beat, harmony, standard technique.” Cora, too, incorporated these elements back into his free improvising.

It is clear that there are many varied viewpoints regarding musical free improvisation as expressed thus far by some of the more well-known performers in the field. However, we now hold at least a basic understanding of the ‘freeness’ with which this style of playing embraces and affords, and the musical paths that led to this movement.

In Chapter 2, I will present several further key viewpoints concerning these issues as shared by the FI musicians I interviewed for this project. These rich commentaries will also provide a foundation for understanding their self-reported cognitive and social-cognitive processes undertaken during their performances—insights that may deepen our understanding of the many layered complexities of FI, and that may ultimately prove informative for the use of FI in a number of applied settings. Given this, I will now discuss the area of applied improvisation.

Applied Improvisation

In trying to understand the processes that guide musical free improvisation, the aim is to then see how FI can be used as an intervention in non-performance domains—either as an adjunct to the more well-known application of theatrical improvisation, or in its own unique right. This brings us to the area of applied improvisation, which can be defined as the use of improvisational perspectives, principles, and techniques in areas including—but not limited to—organizational structure, education, and public health. For example, musical improvisation is frequently used in music therapy settings, with research looking at its effects from issues concerning attention and non-verbal social communication in children with autism (Kim, Wigram, & Gold, 2008), to team building for professional hospice caregivers (Hilliard, 2006). This application of musical improvisation is of direct relevance to my work as the goal of my dissertation is to ultimately propose ways in which the themes and principles drawn from my analysis of FI performance can be applied to benefit participants in non-musical contexts. This will be discussed in

much greater detail with respect to the findings of my project in the final chapter of this dissertation.

Main Research Questions

The aim of my dissertation is to deconstruct the cognitive and social-cognitive dynamics of free improvisational musicians, with the goal of informing on FI performance and the application of FI in non-musical settings. As such, my work ultimately centers around four main research questions:

First, what are the predominant themes that arise as individual performers negotiate the cognitive and social-cognitive dynamics of free improvisation? My interests here initially involved two broad issues: to musically understand the implicit negotiations and interactions taking place between players, and to cognitively examine the temporal interplay between control versus impulse during the course of the musicians' performances. However, what eventually emerged from the data proved much more involved than these initial examinations into group dynamics and the role of impulse and control. Through in-depth interviews and independent commentaries provided by participants, a much deeper understanding of where musicians were directing their attention during performance was attained—along with an increased resolution and detail of performers' recollections regarding their musical and cognitive processes.

Second, in thinking about the way improvisation might be applied in real-world settings, I discovered the fast-growing field of business improvisation training. This ultimately led to my internship with Vancity Credit Union, and the research question: What are the individual and interpersonal impacts of business improvisation training, and do these impacts support and validate the many positive anecdotal reports given by others regarding such training?

Next, in understanding that basic similarities may exist between free improvisation and theatre improvisation, my third research question asks: How do the themes and processes found in musical free improvisation parallel and complement those found in theatre improvisation? This leads to the fourth and final research question: How might the findings regarding free improvisation provide support for the inclusion of FI as a complementary or alternative treatment method to the more well-known application of improvisational theatre in non-performance domains? Answers to these questions may hold important implications for those wanting to experience the benefits of improvisation, but who may find that one or both methods may prove more suitable, accessible, and enjoyable to personal taste—and in turn, perhaps increase the odds of positively impacting the efficiency and efficacy of the training.

Overview of Dissertation

As my research questions highlight, my dissertation focuses on how musicians negotiate the cognitive and social-cognitive aspects of free

improvisational performance when the traditional structures that guide musical performance are removed—such as notes, tonal centers, and scores. The starting point for this examination is based around the idea that certain cognitive and social-cognitive factors will likely persist during the course of a free improvisational performance—factors that contribute to the dynamic, ongoing development of a piece.

Given this, Chapters 2 to 4 are dedicated to the main project—that is, the investigation into the cognitive and social-cognitive dynamics of FI performers, and the four main themes that result from the in-depth coding and analysis. More specifically, Chapter 2 focuses on the methodology and methods employed for the study. Chapter 3 looks at the role of segmentation in the gathering of participant commentaries; a brief discussion of how the thesis findings can be seen through the theoretical lens of “enactive” cognition is also included. Chapter 4 then delves into the four themes of the study which include: guidance, character, environment, and story. Each theme is comprised of predominant categories that arise as a result of the qualitative analyses of musicians’ subjective reports.

In Chapter 5, I present findings from a smaller project involving applied improvisation in the organizational setting. Through a Mitacs Accelerate internship at Vancity Credit Union, I designed and facilitated a series of theatre-based business improvisation training sessions for two of their head office teams. As such, I examine and discuss the participants’ self-reports regarding these sessions and

offer insight into the impacts of the training at both the individual and team level. (And as a note to add before continuing, I will be following the lead of John Corbett (2016) in using the abbreviated form of improvisation—that is, ‘improv’—only with reference to theatre improv).

In Chapter 6, the main research questions are revisited. Furthermore, the emergent themes arising from the FI study will be discussed in relation to similar concepts found in theatre improv while looking at the key parallels and differences between these two areas. The aim of this discussion is to highlight the argument for including applied FI as a viable, impactful alternative and enhancement to the use of applied theatre improv in areas such as public health. The concluding chapter will also look at the limitations and future directions for this relatively new area of research.

Chapter 2:

Free improvisation research methods

Introduction

Chapter 2 presents the methods I used in my study of FI performance, a project that involved a collaboration with the Institut de Recherché et Coordination Acoustique/Musique (Institute for Research and Coordination in Acoustics/Music; IRCAM), in Paris, France from October 2013 to March 2014. It was during this six-month stint in Paris that I recruited 30 free improvisational performers for inclusion in my study. In brief, these participants performed free improvisations (either as soloists or within a group) that I videoed, and then based on watching their performances and being interviewed by me, they provided commentary and discussion on a broad range of issues regarding their performances—topics that ultimately led to the four main emergent themes for describing and understanding the guidance of a FI performance as presented in Chapter 4.

To be clear, although I included group performers, the aim of my project was not to examine the possible shared representations or social processes that may exist between players during FI performance, as is often the focus of other FI research (e.g., Canonne & Garnier, 2012; Wilson & MacDonald, 2012). Rather, my work centres on the cognitive and subjective experiences of the performers at the individual level, be they social in nature or otherwise. Certainly, issues concerning communication and social interaction between musicians were raised by the

performers—however, these topics were still often discussed in the context of their impacts on the individual players themselves, rather than solely relating to issues of group discourse or coordination. Interestingly, the concepts of communication and interaction even played a prominent and recurring role in the self-reported cognitive processes of the soloists—demonstrating that these issues are not only reserved for those playing in group contexts. While one of the initial goals for this project was to examine the social-cognitive aspects of FI, the emerging data quickly progressed to encompass a greater scope of issues—allowing both soloists and group players to be included in the discussions.

Methodology

There are four critical points to make at the outset regarding my chosen methods. First, although I did not employ a formal phenomenological approach for this study (e.g., Gallagher & Zahavi, 2008; Groenewald, 2004), in-depth subjective reports of performers' first-person experiences were used to inform on a wide range of cognitive issues concerning what guides a musical performance when conventional structures and elements are removed. That said, my process for qualitative inquiry was distinctly non-phenomenological in nature, as qualitative coding and analysis methods (Saldaña, 2009) were used to capture and analyze the rich, dynamic, and complex cognitive and social-cognitive experiences of musicians. This data-driven approach aligned with Saldaña's (2009) codes-to-theory model for qualitative inquiry—wherein similarly coded data were organized and grouped into categories, and the subsequent comparison and consolidation of these categories

resulted in the emergence of themes. Although the demonstration of how interrelated themes can lead toward the development of a theory (Corbin & Strauss, 2008), Saldaña also notes that the development of an original theory is not always necessary. Certainly, my approach to the research did not involve any explicit goal of establishing such a theory. However, in the process of uncovering and examining the many interrelated concepts across the emergent themes, I did in fact arrive at the proposal of an overarching theme.

Second, during the processes of interviewing and coding, I was acutely aware of my own position as the researcher—and how this might impact the ways in which musicians expressed themselves as well as my approach to the analysis of data. More specifically, my own musical background and training involved extensive formal study in classical piano and violin, as well as three years of jazz piano training during my undergraduate degree. My arrival to free improvisation, however, arose as a new intriguing area of musical exploration for myself—from the standpoint of both a researcher and a performer. As such, I believe these personal perspectives proved to be complementary and beneficial for this project in two ways: (1) my more traditional musical knowledge and experience allowed me to understand and further engage the participants' discussion regarding musical and sound-based concepts and theories, and (2) my unfamiliarity with the nuances and complexities of free improvisation allowed me to keep a more unbiased distance between myself and the participants, which in turn enabled me to explore new areas of discussion in the field.

Third, it is important to note that as the project progressed, the topics and procedures for the project (e.g., segmentation methods) shifted and developed. Similar to other data-driven methodological approaches such as grounded theory, this flexibility allowed the emergent issues raised by the participants themselves to guide the research. That said, the initial aim of the study was to examine the management of impulse and control states of musicians during FI performance. In other words, how did the musicians mediate between these two cognitive states during the dynamic, online demands of performance? However, it soon became clear that the depth of input and scope of issues raised by the musicians far exceeded those simply related to impulse and control.

Finally, to my knowledge, at the time of data collection for this project, no FI study of this size had been conducted in terms of the breadth of material collected and examined. Particularly striking was the number of participants who expressed how enjoyable, informative, and enlightening it was for them to not only view their own performances, but with the opportunity to reflect post-improvisation and to talk through their experiences and processes. In reading the many quotes I've included from the musicians in Chapter 4 below, this enthusiasm becomes abundantly clear.

Methods

Participants

This study included 30 participants (7 female, 23 male; 2 left-handed, 27 right-handed, 1 unspecified; mean age: 36.5 years). While a majority of participants were French (N = 16), four were from Brazil, three from Japan, and one each from Denmark, Belgium, Italy, Estonia, Switzerland, Poland, and South Korea. Detailed demographic information was ascertained via questionnaire (Appendix A) where participants provided information regarding ethnicity, country of origin, native language, program of study (if applicable), year of study (if applicable), program major (if applicable), and handedness. They were also asked to include details regarding all the different instruments they played, as well as outlining their training, years of experience, and number of hours practiced per week for each of those instruments. Musical free improvisation backgrounds ranged from 'novice' to over 40 years of playing experience. For the sake of convenient reference, the table below only includes information most immediately relevant to the project—that is, the instrument the participant played for the study, and the training, experience, and weekly number of practice hours for that specific instrument (Table 2.1). I also included data regarding whether each musician played in a solo or group situation for the study. Initially, students enrolled in a FI class at the Conservatoire National Supérieur de Musique et de Dance de Paris (CNSMDP) were to be recruited for the study. However, only 3 of those students ended up participating. Two additional participants were musicians I personally met during my stay. And the remaining 25

participants were found through email recruitment of performers suggested to me by acquaintances I met throughout my time in Paris.

Table 2.1. Participants' background information.

Participant #	Solo / Group	Instrument	Training	Experience with the instrument	Practice
1	G	Bassoon	Bachelor in classical bassoon; 1 year of improvisation (both at CNSM de Paris)	12 years; play professionally in classical orchestras about once every two weeks	Every day between 2 to 3 hours
2	G	Trombone	Jazz Master's year 2; free improvisation	4 years; play professionally every day	6 days, around 3 hours per day
3	G	Percussion	Professional training at CNSM (DNSPM) for percussion; personal experience and training at CNSM for improvisation	19 years; play professionally once a month	25 hours per week
4	G	Double bass	Classical training Master's year 2	11 years; play professionally every day	6 hours per day
5	G	Piano	Classical piano training in a conservatory (10 years); composition training at university	26 years; before arriving to France, played professionally at least once per month	15 hours per week, more or less
6	G	Drums	Self-taught; very amateur	Around 10 years	Around 1 hour per day
7	G	Guitar	Self-taught; good level; exclusively free improv for 5 years	No professional playing	3 to 10 hours per week
8	S	Double bass	Studied jazz, improvisation, and a little bit of classical music	9 years; play professionally very often	At least 2 hours each day
9	G	Electric harp	CNSMDP Improvisation / Jazz, ancient music; Ancient music DEM, Bachelor at Conservatory of Layhaye; Electroacoustic composition DEM Pantin	22 years; play professionally, very regularly	20 hours per week

Table 2.1. Participants' background information (continued).

Participant #	Solo / Group	Instrument	Training	Experience with the instrument	Practice
10	S	Piano	Completed training in conservatory; Royal Conservatory of Mons	More than 30 years	Depends on activities, around 2 - 10 hours per week
11	S	Saxophone	Studied over 25 years with private professors; study is more related with jazz and Brazilian popular music. But, now I work mostly with free improvisation, live electronics and contemporary music.	More than 20 years; play professionally, especially in academic contexts; I use to play it also in events and concerts dedicated to experimental and contemporary music.	Around 20 hours per week; due to my academic work in the University as a professor I don't have much time to study, unfortunately.
12	S	Percussion	PhD / Master's	10 years; play professionally every day	4 / 5 hours each day
13	S	Piano	Classical piano; Conservatory of Brazil; Master's in piano; Doctorate in contemporary music; Post-doctorate (IRCAM); Improvisation: self-taught, workshops in contemporary music / free improvisation	35 years; play professionally in the university context, and also for a few concerts; for the university they are related to music research; 2 to 10 concerts per year according to the projects	From 5 to 20 hours depending on the activities
14	S	Flute	Trained in Conservatory of Music (classical studies) in Italy, then Austria; Master's in New Music (Performance practice in Contemporary Music)	Started at age of 12 (16 yrs); play professionally and work with different groups for New Music in Italy and Austria; before, studied classical music and worked in different orchestras (Italy)	Depends on periods of work and projects; practice every day, between 2 to 4 hours per day
15	S	Guitar	Started self-taught then studied in the conservatories; I practiced free improvisation, like that of Derek Bailey	33 years; play professionally almost 1 concert per month	It depends but I need at least 2 to 3 days of work

Table 2.1. Participants' background information (continued).

Participant #	Solo / Group	Instrument	Training	Experience with the instrument	Practice
16	S	Violin	Formally trained classical; formally / self-taught free improv	23 years professionally as a free improviser, monthly	As a steady duo of improv, we don't practice much anymore, depends on if I get any new preparations...or a new technique; workshops 2.5 h a week
17	G	Piano	Diplomas in jazz and classical	30 years; play professionally around 40 concerts per year	2 to 3 hours per day; 5 to 10 hours of rehearsals per week
18	G	Soprano and Sopranino saxophones	Self-taught	40 years; play professionally around 40 / 50 performances	Sometimes nothing; sometimes 4 or 5 hours personal and sessions with other artists
19	S	Clarinet	Studied at college in Japan, and conservatory in France; classical, in orchestra chamber music, contemporary, free improvisation	16 years; sometimes	3 or 4 hours for practice, myself
20	G	Alto and Baritone Saxophone	Classical training at conservatory, and after am self-taught	26 years; play professionally 2 or 3 concerts per month; also teaching	2 hours per day, sometimes more
21	S	Piano	Trained 14 years for classical piano	22 years	10 hours alone; 8 hours collective
22	S	Computer Piano	Avant-garde music; Bachelor of Science, Computer Sciences Jazz, self-taught, free improvisation	22 years 25 years	--
23	S	Koto (Japanese Harp)	Diploma of master professor; free improvisation, classical, jazz, contemporary music	29 years; concerts once per week; teach almost every day	5 hours per day; 2 to 3 rehearsals per week

Table 2.1. Participants' background information (continued).

Participant #	Solo / Group	Instrument	Training	Experience with the instrument	Practice
24	G	Saxophone	3e cycle (classical); Self-taught (jazz and improvisation)	30+ years; perform daily	Around 10 to 12 hours per week
25	G	Percussion	Jazz and improvisation (both at CNSMDP)	20 years; play professionally 5 concerts per month on average	10 hours per week, 3 rehearsals
26	S	Percussion	Conservatory training, DNESM; Professional	21 years	3 hours per day
27	S	Piano	Training in Poland (conservatory) then musicology in France	35 years	7 to 8 hours per week
28	G	Clarinet Voice Bandoneon	Classical Classical Self-taught	34 years 10 years 10 years	10 hours per week for all
29	S	Guitar	Mostly self-taught; pop music, experimental improv, classical music	13 years; perform approximately 3 times a month	Around 1 hour per week
30	S	Double bass	New Japan philharmonic orchestra in Japan; Conservatory in France for classical music; Musashino school of music for jazz; self-taught for free impro	21 years; perform professionally 3 to 4 times per month	3 to 4 hours per day; for rehearsal, this depends on the project

Study / performance locations

The performance recordings took place in a number of locations: five at CNSMDP, eighteen at IRCAM, two at Luna Rossa (music studios), four at the Church of Saint-Merri, and one at Kiosque Flottant (a “Floating Kiosk” that stages events). Of the 30 musicians I met with, 17 of those conducted their performances and interviews on the same day. As some of the performances included several musicians playing together, interviews for the other 13 musicians took place at a later date (range: from 2 to 35 days post-performance; mean: 15.8 days).

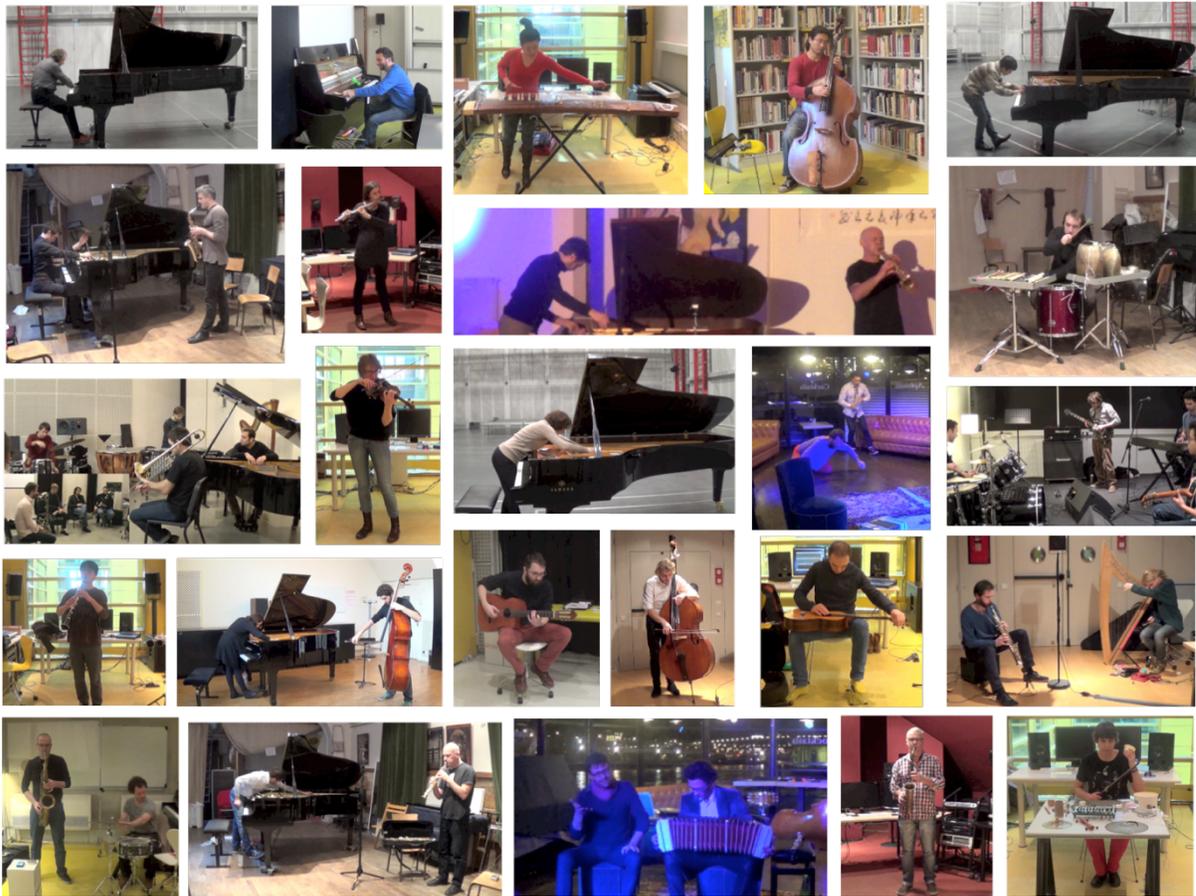
Procedures

Before participating, all of the performers were briefed of the procedures of the study and signed a consent form. Each of the participants’ sessions lasted for an average of three to five hours and included the broad components of: (1) a videoed free improvisation performance; (2) the participant’s segmentation and text commentary of their videoed performance; (3) a discussion of their segmentation and accompanying text commentary; and (4) a semi-guided interview. Each of these components will now be discussed in further detail.

Videoed performances: Participants (either solo or group) performed free improvisation while being videoed via a simple recording setup with a Sony HDR-CX220 Handycam on a tripod (Figure 2.1). In terms of performance length, I did not suggest any particular timeframe so as not to influence or predetermine any aspect of their performance. Instead, I encouraged the musicians to improvise as they

normally would, and for as long as they felt that particular performance needed. Indeed, the performances averaged 20 minutes. On a couple of occasions when pressed for a timeframe, I would first ask how long the musicians' pieces normally lasted for. As their reported times did not widely diverge from the other already-recorded performances, only then did I suggest the approximate timeframe of 20 minutes (one duo used a watch as this was their recently adopted preference).

Figure 2.1. Some of the study's free improvisational performers.



Segmenting and text commentary: Upon completion of the performances, the videos were immediately uploaded via a MacBook Pro to a Python software program specifically created for this project. The Python application enabled participants to view their videoed performance, and to mark the beginnings and ends of segments by clicking on the letter 'C' on the laptop's keyboard (Figure 2.2). With each click, a timestamped segmentation would be created, and a small Events and Comments window would open up at the bottom of the screen. This window allowed them to enter information such as: rating the level of synchrony for the current segment (on a scale from 1 – 7), marking the segment's level of stability, whether they found the segment interesting, and how much they liked it. A comment box allowed participants to remark on suggested topics of impulse and control, sound, the environment, self, and others. As they felt relevant, participants commented on these ideas and others in relation to the immediately preceding segment, that particular timestamped marker or transition point, and / or the upcoming segment. A number of participants also took this opportunity to frame certain issues in the broader context of FI performance. Once participants finished with filling out the Events and Comments box for that specific timestamp, they would then press 'Save'—thus saving the timestamp and its corresponding information to a text file within which all the timestamps and text for the entire performance was compiled (Figure 2.3). Figure 2.3a shows an example of a participant's text commentary with fewer markers and longer comments, whereas Figure 2.3b provides an example of a participant's text commentary with more markers and shorter comments. Finally, upon clicking 'Save', the Event and Comments box also closed and participants then

pressed the video 'Play' button to resume viewing until they felt it was time to once again press the 'C' key to mark another segment.

Figure 2.2. A freeze-frame of a musician's performance video with the Events and Comments box.

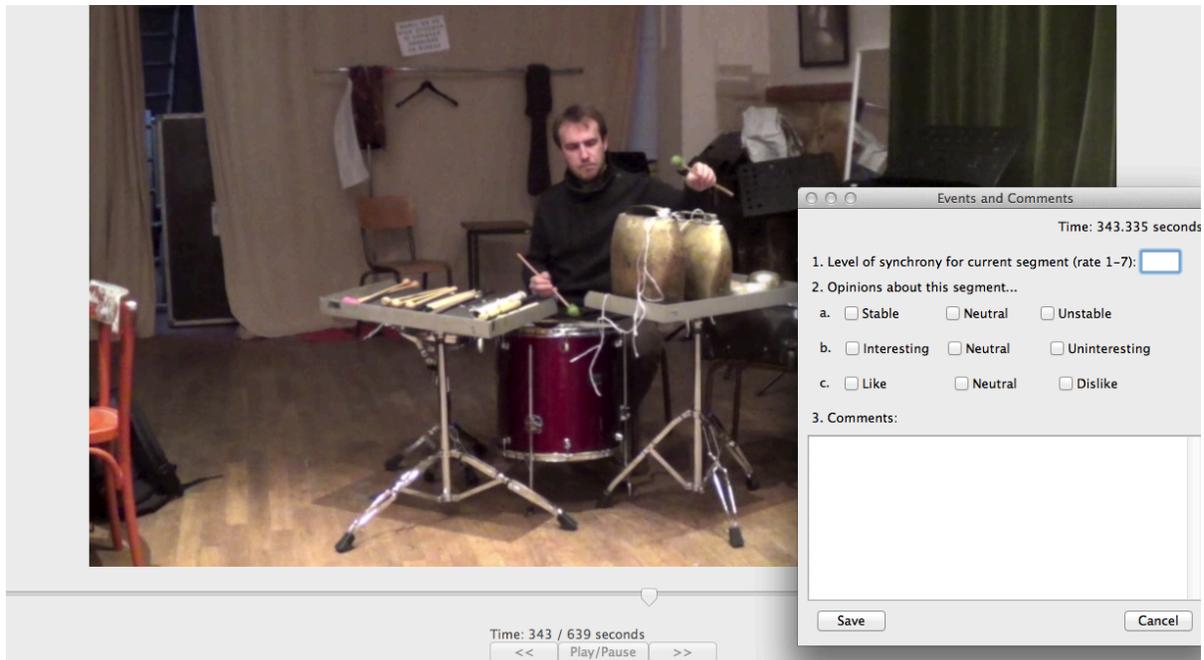


Figure 2.3. An example of a participant's text commentary with (a) fewer markers and longer comments and (b) more markers and shorter comments. Note: Each row of numbers is the data output indicating a time marker, with the first number indicating the time within the video; the remaining digits (0s and 1s) in each row of numbers can be ignored.

a.

Time	Category	Like	LikeNeutral	Dislike	Comment				
143315.0	Music	0	0	1	0	0	1	0	
0					"In this section I try to explore one sound (I repeated it) with the possible variations of it, using different techniques for the <u>color</u> of the sound itself. The important element is that there is a basic <u>"continuum"</u> of sound (position of G) and there are little transitions with air, whistles tones, normal sound, glissando, etc. always on the G (I tried to modify the material: sound's variations). From this point of the recording, I try to go on exploring with the noises of the key effects (new element) and giving a new pulse to the first part of the improvisation."				
228350.0	Music	0	0	1	0	0	1	0	
0					"This part marks more the <u>rhythmical</u> pulse increasing on the improvisation. I try to keep a pulse (with help of a simple and repeating key click) with the aim to create a tension: tension of dynamics (i play more intense and more forte) and also a musical tension. This pulse brings myself in another part of the improvisation, where the <u>"crescendo"</u> is more evident than in the start point. From this point, I try to <u>develop</u> a new part, with a little <u>transition</u> where the key click effects are more intense and more present, with new combinations and variations. The <u>"continuum"</u> of G Sound remains on the background as a remind of the starting point."				
310188.0	Music	0	0	1	0	0	1	0	
0					"With the transitions of new keys effects and the support of articulation (slap <u>tongue</u>), I try to support the musical tension and to stay inside this tension. After this little <u>"climax"</u> , I go a little bit down with the dynamics (not so much <u>"forte"</u> , I try to play little <u>"forte"</u> sections, and then echo sections in <u>"piano"</u>). This double section (forte piano) wants to play with the volumes of the sound. This is also a variation and a new element of the same material (G sound always present). The sound goes down until the end, with a final part (a little <u>"coda"</u>) that is the last change of the <u>impro</u> and where I recollect the G sound of the start point (whistle tones really in <u>impro</u> and where I recollect the G sound of the start point (whistle tones really in				

b.

Time	Category	Like	LikeNeutral	Dislike	Comment				
35728.0	Music	6	1	0	0	1	0	0	
					level of synchrony and attributes referred to the previously sections				
38102.0	Music	0	0	0	0	0	0	0	
					Answer: melodic development of computer player on middle and low key registers				
54112.0	Music	6	1	0	0	1	0	0	
					Human player response to the computer player output. Chord (D,Eb,A) played in middle and lower registers, with interpolated melodic lines				
76575.0	Music	1	0	0	0	1	0	0	
					Rhythmic human player enforcement on the lower key register, followed by <u>pointlistics</u> tones from computer player				
93824.0	Music	0	0	0	0	0	0	0	
					Same level of synchrony and attributes as the previous section				
112997.0	Music	6	1	0	0	1	0	0	
					Computer player solo				
136782.0	Music	1	0	0	1	0	0	1	
					Human player interference and interaction with computer player solo				
154904.0	Music	5	0	1	0	1	0	0	
					Chaotic gestures respectively sound mass waves input from human player				
170126.0	Music	0	0	0	0	0	0	0	
					"Da Capo: returning to chord main basic theme (D,Eb,A) as in the <u>"Overture"</u> part."				
217042.0	Music	6	0	1	0	1	0	0	
					Computer player solo with slow movement in low key register, <u>accompanied</u> by human player playing chord basic theme (D,Eb,A)				
268407.0	Music	3	0	0	1	0	1	0	
					Human player and computer player soloing parallel				
295395.0	Music	6	0	1	0	1	0	0	
					Chordal blocks played from computer player and human player interchangeably.				

Discussion of segmentation and text commentary: After each participant viewed, segmented, and provided each segment's accompanying text commentary, the complete text file for their performance was used as a framework and reference for further in-depth discussion. As such, the performer and I would watch the video together, stopping at each of their timestamped markers. At each marker, musicians were able to add to or elaborate on ideas they wrote about in their text commentaries. In trying to understand the performers' thoughts, what they attended to, and other subjective experiences, a wide range of issues were discussed including: salient moments where control, impulse or variations thereof were used during performance; their sound signals and others' signals; their environment including the performance room; decisions, feelings, moments where new ideas were introduced and why they were introduced; their reactions and feelings about the ideas and physical movements of others.

Semi-guided interview questions: Participants also completed in-depth interviews that were semi-guided by a number of questions concerning their ideologies and approaches to free improvisational performance. Topics discussed included: attraction and arrival to FI; playing experience; definition of FI; coordination and cohesion; experience playing with their group; performance issues of pre-planning, form, goals, idioms, avoidance, previously played sounds, control and impulse, attention, distraction, overthinking, regrets, and performance pressure; global versus focused attention; the effect of environment / videoing; performance recall; personal practice; performance strength with improvisation versus score-based playing;

attentional differences between group versus solo playing; the role, effect and awareness of movement (one's own versus others' perceptions); relation between instrument and body; specific emotions; audio / visual recording experience, parallels to everyday life; and open topics. However, for reasons detailed in the following section, these interviews were not included in the analysis of the qualitative data presented in this dissertation.

Data analysis

The primary method of analysis for this project involved qualitative coding with the aim of discovering possible emergent themes (Saldaña, 2009). Given the number of ways in which participants were able to provide feedback (i.e., text commentary, verbal commentary, and semi-guided interviews), and the sheer amount of time participants willingly spent in discussions, my project yielded an immense amount of qualitative data. From this large set of data, a suitable subset of material was selected for coding, with the important criterion that the material reflect the full diversity of data sources (Schreier, 2013). Specifically, two sets of data were analyzed: (1) the text commentaries as entered by the participants themselves while viewing their videoed performances, and (2) transcripts of the participants' verbal commentaries that elaborated on these text entries. The rationale for this selection was predicated on the notion that the text and video commentaries directly related to the participants' FI performances; in this way, participants' improvisations provided a reference and framework in which to discuss their individual processes, while

simultaneously allowing for the inevitable exploration of related topics regarding free improvisational performance.

By way of actual process, both the text and verbal commentaries were printed out as hard copies and coding was completed manually via paper/pen methods. Given that the participants' initial segmentations and corresponding comments provided the framework for further discussions, the first phase of coding began with all of the participants' text commentaries. The second phase of coding then included all of the verbal commentaries as they provided further detail and variety in the issues that were discussed. Of course, after these initial rounds, the two data sets were continually revisited in the further examination and distillation of codes, categories, and themes as discussed next.

Codes: To begin, I identified codes—defined as “a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data” (Saldaña, 2009, p. 3). The codes I employed were mainly *'in vivo'*—words taken directly from what participants said. However, I also used ‘descriptive’ codes that summarized the primary topic of a given sentence or passage. In terms of the coding process itself, I began by underlining words, phrases, or passages that seemed to denote salient/striking issues that were “not only expected but even surprising, unusual, and conceptually interesting” (Saldaña, 2009, p. 18). Alongside this, concurrent “memo”-ing also

occurred which involved analytic reflections and notes being written down next to, and around, the underlined portions of the text commentary/verbal transcriptions.

Categories: With repeated readings and memo-ing of text commentaries and transcriptions, patterns began to emerge in their varying forms—including those of similarity, difference, and frequency (Hatch, 2002, as cited in Saldaña, 2009). With these patterns, I began to identify categories through the groupings of quotes in separate Word documents. The number of resulting categories was not pre-determined. Rather, the categories were grounded in and emerged from the corpus of data itself. In determining the boundaries of the categories, I considered issues that appeared to be significant and ‘striking’ in their own right, and that did not dilute issues discussed in other categories. To be sure, “...a confounding property of category construction in qualitative inquiry is that data within them cannot always be precisely and discretely bounded; they are within ‘fuzzy’ boundaries at best” (Tesch, 1990, p. 135-138, as cited in Saldaña, 2009, p.6).

Themes: What also occurred during this process of category formation was the emergence of themes—defined as a way to categorize data into an “implicit topic that organizes a group of repeating ideas” (Auerbach & Silverstein, 2003, p.38). It is important to note, however, that these themes did not emerge as a clear consequence of the building of categories or through any kind of linear process. Instead, the development of themes formed alongside that of the categories as the categories began to coalesce into ‘families’ of shared characteristics. The

realization of the themes was additionally influenced by concepts related to theatre-based improv. As such, as patterns/categories were being identified, I also began to code for the emergent themes using a colour coding system wherein salient quotes and passages were notated with corresponding theme abbreviations in the margins (e.g., 'I/C', circled in blue, stood for 'impulse/control'—an initial theme that eventually became a category within the new theme of 'Guidance'). These abbreviations were circled in different colours for ease of search while building the tables of categories for each emergent theme. In addition, other salient issues arose despite not becoming themes in themselves (e.g., the topics of segmentation and 'failure'). In the end, the ongoing triangulation of colour coding, memo-ing, and grouping of quotes led to categories being compared, consolidated, rearranged, and redefined—resulting in the four final themes presented in Chapter 4.

Further Considerations: In the end, qualitative “coding is not a precise science; it’s primarily an interpretive act” (Saldana, 2009, p. 4). It’s a “judgement call” as we bring “our subjectivities, our personalities, our predispositions, [and] our quirks” to the coding process (Sipe & Ghiso, 2004, p. 482-483, as cited in Saldaña, 2009, p.7). In this manner, I recognize the impacts of my role as the researcher—and the accompanying constructs, language, and methodological approaches I brought to the study—in trying to interpret and understand the underlying context of participants’ feedback. As Henwood & Pidgeon (2003) state, “...knowing always involves seeing or hearing from within particular individual, institutional, and other socio-culturally embedded perspectives and locations” (p. 135).

With respect to my own reflections during the coding and analysis process, the questions I considered fell in line with those suggested by Emerson, Fretz, & Shaw (1995, p. 146, as cited in Saldaña, 2009, p. 18): (1) What are the participants doing, and what are they trying to accomplish? (2) How, exactly, do they do this? What specific means and/or strategies do they use? (3) How do the participants talk about, characterize, and understand what is going on? (4) What assumptions are they making? (5) What do I see going on here? What did I learn from these notes? (6) Why did I include them?

In addition, I recognize that even my formatting choices—such as the layout of text commentaries and transcriptions on paper, and the analytic memos and notation of tentative ideas for codes and patterns in the margins—also play “a part of the analysis and may reveal or conceal aspects of meaning and intent” (Gee, Michaels, & O’Connor, 1992, p. 240, as cited in Saldaña, 2009, p. 16). Further, the number of codes, categories, and themes generated within any qualitative project will also vary depending on contextual factors including the nature of the data, the level of desired detail, and the coding methods selected for analysis (Saldaña, 2009). For example, if one applies each of the three qualitative approaches of phenomenology, discourse analysis, and grounded theory to a single data set, the different goals, methodologies, analytic methods, and audiences of each of these approaches will result in very different “products” (Starks & Trinidad, 2007).

CHAPTER 3:

Free improvisation: Context for data analysis

Introduction

The goal of my thesis is to understand the cognitive and social-cognitive underpinnings of FI musical performance. Towards that end, the main data supporting the thesis is presented in Chapter 4, data which brings a measure of specificity to what guides a musical performance when traditional guidance structures are absent or removed from the performance situation. But before getting to that data, however, here in Chapter 3 I first consider three more superordinate or overarching issues that arose from data analysis, discussions that are important for two primary reasons. First, the trio of data-related issues discussed here—how participants approached the task of segmentation, how the thesis findings can be seen through the theoretical lens of “enactive” cognition, and the participants’ general attitude towards FI—provide vital context for understanding the findings that follow in Chapter 4 and how they can be interpreted. Second, each of the issues here is informative in its own right, in terms of embedding the thesis in a larger scientific landscape, both with respect to methodology and theoretical perspectives.

Segmentation

Much of the free improvisational literature centers around research specifically concerning group dynamics, such as the musical choices and construction of musical meaning (Wilson & MacDonald, 2015, 2017a), musical

identities in improvising ensembles (Wilson & MacDonald, 2012), social intentions in musical interactions (Aucouturier & Canonne, 2017), shared mental models (Canonne & Aucouturier, 2016), the relationship between performers' individual decisions and perceived form by external expert listeners (Canonne & Garnier, 2015), how focal points are generated in order to achieve musical coordination (Canonne, 2013), and the nature of coordination and shared representations (Canonne & Garnier, 2012). As discussed above, the initial aim of my study followed along these lines, and in particular, I had two explicit goals: (1) to understand the implicit negotiations and interactions between musicians, and (2) to examine the temporal interplay between control versus impulse during the course of a performance. In support of these goals, my intention was to employ segmentation. However, it soon became readily apparent that the breadth of issues broached by participants during segmentation expanded far beyond this set of issues. As it would happen, the act of segmenting and the segmentations themselves became the framework from which participants' commentaries and discussions sprung.

Provided with the open (and often rare) opportunity to discuss and reflect on any issues they felt relevant to their performance and personal musical ideologies, the participants' segmentations resulted in a wealth of data in the form of text and video commentaries detailing their subjective experiences and processes. Though broad concepts such as impulse and control, cognition, and music were presented as initial guiding suggestions for topics to discuss, the musicians ultimately marked segments and provided segment feedback according to their own personal

viewpoints and interpretations of their performances. They also self-reflected both on their performance per se and their reasons for segmenting at particular performance points. So, in the end, a wider range of issues emerged via the segmentation process. Whereas in Chapter 4 I present analysis of segmentations that directly inform on the cognitive and social-cognitive dynamics underpinning FI performance, here in Chapter 3 I highlight segmentation commentary that gives insight into how participants approached the segmentation process or explicitly construed the methodological task at hand. What immediately follows are summaries for each of the coded categories that emerged regarding the participants' statements about the segmentation process itself, with quotes supporting these categories presented in Table 3.1. Each quote included in this table—and throughout this dissertation—will be notated by the participant's number 'P', followed by whether their feedback was provided via text commentary, 'TC', or verbal commentary, 'VC'. For example, 'P17, VC' denotes the corresponding quote as being provided by participant number 17 through their verbal commentary.

The segmentation process: Categories

Sound: Sound played a significant role in participants' segmenting methods—either in the form of notable sound events marking the start of a new segment or in the nature of the sounds within the segment. Interestingly, musicians often reported that their markers indicated new 'sections' based on new elements but that this was not a deliberate or preplanned intention on their part.

Change: This category informs on performers' realization or desire for change—either through an innate sense or resulting from an idea that's been carried through and completed.

Number of Aspects: Participants often segmented according to a number of concurrent factors including: technique changes, tempo, impulse, control, flow, sound material, rhythm, register, dynamics, transitions, soundscapes, phrasing, and imagery. Furthermore, these segments were also characterized as 'sections of basic ideas', 'cells', and included the idea of decomposing such sections in order to create more structures.

Instrument: A musician's ongoing shifting use of an instrument, the act of changing to a different instrument, the use of a different instrument, the addition of instrumental parts, and the idea that one instrument contains multiple instruments or 'sections' within itself all contribute to many of the segmentations made by performers. Of course, the resulting expression of sounds and responses to sounds as a consequence of these instrumental devices are included as well.

Physicality: The 'physicality' category contains only one quote—namely due to the implication of the segment as a 'sentence', and its relation to the sense of shared 'breath' between performers. However, the discussion and categorical inclusion of physicality plays one of the largest roles in this dissertation's proposed themes, yet to be subsequently explored.

Transitions: Transitions are discussed in terms of co-performers separately shifting their techniques, and in their construal of these section changes as non-linear. The terminology of segments and transitions can also be somewhat interchangeable, as a segment may also be transitional in nature when an idea or concept has not yet been found or fully realized by the musician.

Reference: This category refers to sound qualities that are reminiscent of idiomatic styles or forms (e.g., reggae, spectral music, codas), imagery (e.g., Homeric dream), or references to actual sound material presented earlier in the performance (e.g., repetition of beginnings, particular notes or sound gestures, contrasting sections, or non-linear progressions in content compared to what came before).

Self: The category of self is a bit more abstract in nature as it attempts to describe participants' desires to explain what was happening within themselves (as opposed to what was happening musically), what they wanted to 'do' in the upcoming passage, as well as personal turning points in thought or significant decisions that were made.

Imagery: The occurrence of imagery to denote or describe different segments was significant throughout the project's main themes. Imagery was also further used to help guide and inspire performers' ideas for proceeding sections as well as to inform on the overall 'feel' of the piece.

Pre-planning: Although the issue of pre-planning runs counter to many performers' ideologies regarding free improvisation, one would be remiss in failing to recognize that musicians can arrive to any given performance with their own ideas, feelings, hopes, and goals—whether it be moment-to-moment, at the segmental level, or in one's overall approach to the piece—and whether any of these end up actually being realized or not.

Context: Participants segmented according to a number of contexts including time of the day, situation, mood, performance space, presence of others, and temporal perception.

Labels: Segments were, at times, given descriptive labels such as the 'nervous guy' or the 'waiting statement'.

Mistakes: The occurrence of 'mistakes' or 'accidents', as characterized by the performer, was the driving force behind numerous segmentations. In turn, the incorporation and development of these mistakes further along in the performance (and in subsequent segments) were also discussed by the musicians.

Table 3.1. Participants' segmentation methods.

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Sound	<p>Segment characterized by introduction of 'sound' in addition to the 'noises'. But basically, it is the same structure as the beginning, it's a kind of a 'development'...at the end, the drummer takes the musical lead. (P1, TC)</p> <p>This pizzicato on the high sound was a kind of uh little bang. Little bang, it's a word used by this composer, Italian composer. And little bang is the little event that changes all. (P5, VC)</p> <p>I think my markers are all on new sections, but I didn't do that on purpose. Each marker, seems to be a new section in the improvisation, a new element. (P12, VC)</p>
Change	<p>I changed because it was necessary, I don't really decide that I must change now, it's just that now it's finished so I don't continue. (P15, VC)</p> <p>I mean every time we change something you could go, oh, something's happening, but, but I don't think it's a most interesting thing, it's more an overall thing which I'm interested in. (P24, VC)</p>
Number of Aspects	<p>Technique changes and the tempo, the internal tempo of the scene also changes...tiny bit of control, the point of like me deciding to um, change the tempo and change the technique, and the flow...like into the next one. (P16, VC)</p> <p>Every segment...I made some change...(in) aspect...I just propose the material...then rhythmically, very stretch(ed)...waves in the whole register...then rhythmically more aggressive, and then dynamics, too, was more aggressive...a kind of conclusion...really short transition...then I introduced the granular thing, then chaotic thing. (P21, VC)</p> <p>Well, I paid attention basically (to)...impulse and control. And how (are the) dynamics, how (is) the phrasing...these are for me sections, for me, some basic ideas, like cells, you know? And sometimes these cells, they come back...and after, you take this material, you start to...decompose the sections, and create more structures, no? (P22, VC)</p> <p>Change in sound and use [of] technique, and yeah, some image also. (P23, VC)</p>

Table 3.1. Participants' segmentation methods (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Instrument	<p>(New section) because I'm on a new instrument and a new way to play. In fact, it's kind of interesting to see that because my instrument is not one instrument, there's a lot of them, so maybe there are a lot of sections on these instruments. (P12, VC)</p> <p>Change of saxophone, soprano now and introduction of a mute in the instrument. (P18, TC)</p> <p>I divided these sections in terms of objects I used, but this part where the harmonics start, it was something I tried to develop in terms of the sound and the response. (P13, VC)</p>
Physicality	<p>Maybe end of the first sentence. Feel the same breath. (P20, TC)</p>
Transitions	<p>Transitions are very important. We shift separately (with) instrumental techniques. For example: When F— changed to pizzicato, I kept the same technique that I was using (in the) previous section. The changing of sections was not linear. (P5, TC)</p> <p>Don't know what to change to, what a shame! (P27, TC)</p>
Reference	<p>Guitarist 2 revives a more bracing idea, we come back towards a marking path; reggae style. (P6, TC)</p> <p>Repetition of the beginning just with a changed sound. (P8, TC)</p> <p>Here we're in the Homeric part, a bit like a dream with three associated ideas: there's an idea that I previously employed: the low notes, but also there's an association with two gestures...So I reunited those three gestures from before, to come out of the dream just slightly. (P10, VC)</p> <p>I think it was an attempt to make a more contrasting section with the other three. (P11, VC)</p> <p>'Coda': very stable and calm segment. Subtle timbral variations around a tone. More static, less discursive. 'Spectral' music. (P11, TC) (quotes marks by participant)</p> <p>A major structural decision that doesn't follow 'linearly' from what was going on before. (P16, TC) (quotes marks by participant)</p>

Table 3.1. Participants' segmentation methods (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Self	<p>I had to say what was happening within me, which didn't correspond to what was happening in terms of the music. So, at the end, I segmented according to what was happening with me, so I started from the beginning again. (P15, VC)</p> <p>I just tried to mark certain events that either for me were turning points in how I was thinking or...like major decisions I made, for example. (P16, VC)</p> <p>Sometimes I'll stop after a sequence, and sometimes—you'll see—I stop before a passage because I'll say "I want to do this" because I know how strongly I'm going to control this moment, so I want to explain it. (P27, VC)</p>
Imagery	<p>I was being guided by the idea of a frenetic (almost maniac) speech. Some pauses for breathing that are being gradually introduced (as in a speech) help me to think about the next segment. (P11, TC) (parentheses by participant)</p> <p>I thought it would be very nice to make a visual phonophonic structure, when you have various sequences...I think this is the most complex moment of the improvisation. I try to work with lots of different layers as complex polyphonic segments. (P11, VC)</p> <p>Introduction like the rain tombe dans la riviere (falls in the river). (P23, TC)</p>
Pre-planning	<p>Here I remember, in 10 seconds maximum I decided to find something very different to go in a new section. (P12, TC)</p> <p>I can't possibly plan when I'm going to put (the clothes peg on the string), but I'm definitely, like this was in my mind, I was aiming at this to happen at some point. (P16, VC) (parentheses by participant)</p> <p>I really like the end, but I never had the occasion to pour the pieces of (polystyrene) on the keys. It's done, it was nice, to keep and to reuse. (P27, TC) (parentheses by participant)</p> <p>A section I had thought of using before playing, using intervals of minor thirds and fourths and tritons. (P29, TC)</p>
Context	<p>Yeah, it's like, I'm tired, let's move on. There's a decision, but you feel it...I think it depends on the time and the situation and the mood of the day...Free improv, I think it's completely connected to the present time. It depends completely on your current state. The people who are there. (P11, VC)</p> <p>I was bored (with what) I was doing, (what) I was playing. And I thought I should change. (P21, VC)</p>

Table 3.1. Participants' segmentation methods (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Labels	<p>It elicits some feelings, some emotions. Often, we give fantasy names to the segments. For example, this might be the 'drunk guy' or the 'nervous guy'. (P11, VC) (quote marks by participant)</p> <p>Like the 'waiting statement'...I didn't know where to go. (P12, TC) (quote marks by participant)</p>
Mistakes	<p>Sometimes it (a new section) comes from a mistake. A mistake can come very early so I can go into another section. (P12, VC)</p> <p>A mistake – hitting the clothes peg accidentally, which I then incorporate into the improvisation further on and make it a feature, coupling the hitting sounds with pizzicato sound. (P16, TC)</p>

Segmentation caveats

With respect to segmentation as a methodology, there are several important caveats to consider in terms of the data presented and analyzed. First, though perhaps an obvious point, it may be prudent to note that the inclusion of musicians' quotes here—and throughout this dissertation—is by no means exhaustive. Rather, the aim is to provide a representative presentation of issues discussed and their relative frequency of occurrence. Second, as might be expected, there is also cross-over between the many concepts presented both within and between the resulting categories and themes, both in the above data and the data presented in Chapter 4. For example, the issue of 'environment' can be found within the 'instinct' category of the 'guidance' theme. However, 'environment' is also one of the main themes of the study that emerges in Chapter 4. Finally, as a more general observation, the participants' rationale for segmenting were not just based on what they were 'doing' per se, but also on the feelings and emotions related to the occurring sounds or music. For example, clear 'changes' in sound material produced or offered by one player did not necessarily invoke a reaction in the other, as described by the participants here:

“(Segments based on) ideas that (were) happening. Like for example here I think Michel proposed a new idea...it's (a) new element and of course it's a very nice one, uh, it's a new proposition, and uh, so I can say my reaction is of course not to react [laughing]. I would say to react is a beginner attitude when you start because you are so happy to listen to what others are doing so it's like you react...to show that you understood (that I) was proposing something. But...as Michel start a new idea, of course I have to continue to develop what we (were) both doing since the beginning. And also, it was suddenly just after one minute, it was a bit too fast to change....Also, his proposition (made) more

sense if the kind of enjoyment we created from the beginning stay(ed) here.” (P17, VC)

“It’s not really about reaction. But, of course, some determination of (change is) coming from the partner. Also, the way he is more dynamic, changing his texture, of course it’s always related to what I’m doing. It’s like, you know, you put the small stone in the water, and there is this circle...so one is playing the sound and makes some circles, and the circles touch you somewhere and give you some (changes).” (P18, VC)

“When music happens, the sound is totally alive. As an organism, as something (that) circulate(s) everywhere, all the time, and you really cannot fix it. It’s not, ah, you can’t...cannot, you know, codify.” (P25, VC)

These quotes demonstrate that the manner in which ‘changes’ or shifts in sound affect one’s propensity for segmenting is not always clear cut—and is heavily influenced by the musicians’ subjective interpretations of sounds, and their reactions (or non-reactions) to their fellow performers.

Quantitative exploration

Although my project was not intended to quantitatively examine issues concerning group dynamics or coordination, I was curious to see whether for non-solo performers their segmentations would roughly match one another, as found with Canonne & Garnier (2012). What emerged was that even when the markers didn’t temporally match up, the individual subjective ratings for ‘cohesion’ (on a scale of 1 – 7) were still quite high (Figure 3.1). Figure 3.1 shows the timestamp markers, given in seconds, for three different duos as a result of each musician’s segmentations of their performance. These were the only non-solo performances where all the players involved within each group were interviewed regarding their

respective joint performances. For the first pair, although the overall number of segments greatly differ between the musicians, four of their markers do in fact line up—and both performers rate the level of cohesion as quite high. For the second duo, none of the markers line up although the rate of cohesion according to both performers is still 5 out of 7. For the final duo, we once again see a lack of ‘coordination’ in terms of synchronized timestamps—however, one member of the duo still rated the performance as a full 7 on the cohesion scale. As the second member had not provided a rating, I inquired as to his thoughts on the matter. The participant ‘MD’ replied that the issue was “not applicable” and that the matching up of segments was “dualist” (others in this study also referred to the process of segmenting as a measure of coordination or cohesion as “idealist”). MD went on further to say:

“It’s just a specific situation, you know? Improvisation, even if you play solo, you are never alone. You are related to the space, to the audience, to your memories, so you’re never alone, never...so yeah, for me, of course, when there (is) more information, we have to listen in another way and to find our place in the space.” (MD)

MD’s response seems to emphasize the importance of the intentional and meaningful ongoing processes of a musician as they navigate their way through their specific performance context—rather than on how one might generally construe solo versus group playing, or on how quantitative data might provide an indication of coordination or cohesion. MD’s viewpoint also seems to align with Wilson and MacDonald’s (2017b) findings that successful group improvisation is not so much

about overt musical connections, conventional musical standards, or external criteria of musicianship—but rather, it’s about a shared understanding based on common values, attitudes, and beliefs, such as honesty, trust, and mutual respect. And especially with FI, “it may be that once the agreed parameters or conventions of a particular genre are abandoned when improvising, instinct and intuition must be relied on to a greater extent” (p. 117). Wilson and MacDonald also address individual aspects of performance such as personal fulfillment and remaining true to one’s own musical vision—while collectively, improvisers demonstrate the ability to appreciate, as well as, see beyond different genres and fellow performers’ varied backgrounds.

view them through. Though the issues of coordination and cohesion certainly come up in participants' commentaries presented in Chapter 4, they are addressed in the broader scheme of how musicians navigate through their free improvisations. That said, an important concluding point emerges from this discussion. Specifically, these preliminary findings regarding low coordination but high cohesion ratings underscore the potential importance of examining free improvisation at the individual level, in terms of how one affects and is affected by their performance context—an approach that directly complements the study of FI social roles and expectations. So, for now, we retune our focus to the systematic examination of the ongoing, dynamic processes of the individual musician be it in either a solo or group situation.

Enactive Cognition

An overarching theme for the data presented in Chapter 4 that emerged during data analysis is captured by the concept of enactive cognition or *enactivism*. In brief, enactivism holds that our understanding or experience of the world is the result of an on-going, transformative process that unfolds through the dynamic interactions between our physical bodies on the one hand, and our physical environment on the other (e.g., Thompson, 2007; Varela, Thompson, & Rosche, 1991). In this sense, the human mind isn't conceived as merely internally "representing" information passively taken in from the external environment as per the traditional cognitive science perspective (e.g., Marr, 1982; Neisser, 1967). Rather, people actively create their own meaning and understanding of the world by enacting with the environment at a sensory-motor level. The end result is that

through the sensory-motor capacities of the body, the mind and environment constantly transform each other in a mutually co-constructive process that plays out across multiple interacting time scales (see e.g., Chiel & Beer, 1997).

Given this basic conception of enactivism, there is an important extension that helps to build a comprehensive framework from which to cognitively view FI and what I report in Chapter 4. Specifically, enactivism has now been applied to social cognitive processes, where in an enactive account, social meaning and understanding can be seen as being created and transformed through the autonomous interactions between individuals, or what De Jaegher and Di Paolo (2007) call “participatory sense-making.” While I did not begin data analysis with any preconceived notion of enactive cognition, consistent both with the evolution of my project and its data-driven approach, an understanding of FI and its cognitive basis ultimately emerged that directly parallels this idea of participatory sense-making. Notably, as will become clear, the idea applies not just to what individual musicians experience in group or “social” FI performances, but even FI soloists can be seen as creating “meaning” or engaging in “sense-making” through participating in their own individual performance. Although the goal of my project was not to inform on such basic issues of cognition per se, the findings I present in Chapter 4 can thus be taken both as a validation of the enactive approach itself, and an illustrative example of how it captures the fundamental dynamics of purposeful human activity.

Buttressing these conclusions is the methodology itself that I employed in my project. Specifically, a core facet of the enactive approach is the argument that first-person phenomenological experiences are vital to the scientific study of mind, and complementary to the traditional methods found in the cognitive and neurocognitive sciences (e.g., Thompson, 2007). Taken in this vein, one can construe the analysis I report in Chapter 4 as enactive in spirit, in that while I did not use a formal phenomenological approach per se, subjective reports of performers' first-person experiences were used to inform on specifically cognitive issues—in this case what guides a musical performance when traditional guidance and organizing structures are removed. That the overall conclusions arising from these subjective reports were retrospectively found to converge on core principles of the enactive approach to understanding human cognition is again strong testament to the validity of the data and themes alike.

Musicians' Viewpoints Regarding Free Improvisation

A final overarching point to discuss in Chapter 3 concerns the performers' overall orientation towards FI. The discussions with participants yielded deep insight into the world of FI, but it needs to be formally recognized that the knowledge so gained here is constrained by the musicians' collective attitudes towards FI performance. As highlighted in Chapter 1 and its history of the evolutionary development of FI, different musicians can have very different perspectives on FI. With this in mind, to build on the FI viewpoints expressed in Chapter 1, the following

participants' quotes underline some of their own key ideologies and approaches regarding free improvisation.

To begin, participants here reference the impact of one's musical background and training on their free improvisations, and the importance of developing one's own sound:

"Free improvisation is also real time composition. (I) have a composer background and that makes (it) more easy for me to apply such concepts, you know, and I think it's, it's different when you play only with instrumentalists, people who can play only instruments, or people with a composing background, or (they have) experience (with) music theory, or form, or all these aspects, because when you improvise, (it's) implicit...like...DNA, you're automatic in improvisation, you bring back such concepts." (P22, VC)

"Many people are coming from classical music and they try to make some improvisation, and it's like, it's okay we can just let it go...but you also have to be an artist and develop your own language and, uh, your own sound and all your ideas and all your music. It's not just to let go, it's to build your own world, enough to build your own world with other people." (P17, VC)

"Singularity is...deep believing, as you can, believe in God, for example, that's not my case. But singularity is believing in something present and infinite. And music expresses this mysterious aspect of life in terms of sounds, of space, of uh, time, which transforms itself in space, and the way you live with the other, ah, what happens between people. Why you understand the musicians of all the culture(s)...(a) kind of universality...often (with) musicians...you can say 'Yes, I recognize his sound, or his language, like this 'puff', I hear it's John Coltrane.' And that's what gives intensity to music and to yourself." (P25, VC)

Here, participants discuss the concept of 'free'—and once again, address the issue of developing one's own musical language or identity:

“I did a lot of improv with some people who believe they are totally free if...they move some chairs, they play music, they do what they want, as if they were in a...hospital. To me it's not really interesting, because, uh, if there is no thought of what happens, um, it's not very...intense.” (P25, VC)

“I put timing to space. When music happens, the sound is totally alive, as an organism...To me the most important, is not the page, it's what happens in the head, in the brain, and in the body...And when we are improvising, ah, we are not, I think...‘more’ free than someone who is trying to pay Bach all his life. Maybe...the difference is, ah, is we...is that we try to develop our language, our forms, as a composer. When I put time into space, time becomes space.” (P25, VC)

“English people are very easy...very good at (changing) from one thing to another...very fast and in a very nice way. Um, and I'm not very good at it [laughter]. People in Berlin...(there is) much more focus on one special technique of some materials and some ideas. So, for example, A—, he was mainly developing just breathing sounds in the trumpet...so for sure when you are going to see A— in a concert you are absolutely sure you won't (hear) at all, during all the time of the performance, one note of trumpet...making the typical trumpet sound, never. The ones who are saying they are completely free, well, you can see that...some things are forbidden.” (P17, VC)

As might be expected, performers raised the issue of idiomatic material—as well as their accompanying reactions and views on the topic:

“Takes root bit by bit, with many difficulties. I find the musical colour too connotative, too evocative of classical rock.” (P6, TC)

“I thought the idea of impact on the bell and after on the snare drum was really idiomatic. I start with this, and it was question / answer and I was not so happy with this...Attack and answer is really basic.” (P12, VC)

“I personally try really to be careful of, about mechanics, patterns, and routine. I *know* that we all improvisers, (we) all have routines, mechanics, patterns, of course. But the way is to listen to what's happened, like this is the, maybe the first time, we played...maybe you played this sound twenty millions of time...because of the memory, it will not be the first time. But for the body, it's certain shape, certain condition, this is really the first time.” (P18, VC)

Here, soloists speak of communication, the spirit of the music, and the vital role of the instrument:

“It’s a communication between gestures that are being made on an instrument that’s not in my head: it’s a piano, or a body, or someone, and that’s how things are done...What we’re conveying to the public really is the spirit of the music. Maybe when we play a piece of written music, that’s just the envelope, but where’s the spirit? I really like that in improvisation, trying to capture that with almost nothing, that’s utopic.” (P10, VC)

(Playing with a computer) “Always surprises. It’s not so much deterministic. If you play with (a) human being you can drive more determin(ism). That’s the paradox. Because (with) communication...you know the vocabulary...People think simple decisions (are) very un-deterministic (in terms of) what you can do. But it depends on level of knowledge, on the improviser, how long (you’ve played); yes, (with more) experience as an improviser, (the) more deterministic it is (with) free improvisation. That’s the paradox in the whole history, yes. And the computer, normally if you are a big improviser or a newcomer in improvisation, yes, the level of the determinacy...he decide(s), not you.” (P22, VC)

Following is a brief exchange between myself (S) and a participant regarding the oft-controversial issue of comparing music and spoken language:

S: Do you ever feel parallels to language?

P12: Yes, it’s kind of a language without signification, without meaning. But it means something, not a literal meaning, but there is definitely a story.

S: Like a dialogue, would you say?

P12: Yes, but without words and without subject.

S: Just with that kind of rise and fall, even if you just look at the simplest thing like volume, even when we’re talking there’s a rise and fall.

P12: It’s very natural, it’s crescendo, and it’s like in nature. But I think it varies in a lot of people, a lot of people say music is not a language. But why not? Because there is no meaning, no words? You can translate feeling, so what is a language? I think for a linguist, there has to be meaning to be a language.

S: I think some people also look at the very technical aspects of a language, so this is a morpheme, this is the syntax, and they break it down and say that you cannot compare it to music in that way.

P12: Yes, but a lot of parameters can be compared. Not for the meaning, but syntax we have, colour, volume.

Finally, musicians might reflect on the journey and outcome of their improvisations, and ask:

“Is it enough?” (P26, TC)

As one can see, the world and ethos of free improvisation provides a unique platform in which to examine the cognitive and social-cognitive negotiations performers make on an ongoing, moment-to-moment basis. The quotes presented above only scratch the surface of the many overlapping topics, categories, and themes that will be presented in the following chapter.

Chapter 4:

Free improvisation: Emergent themes

Introduction

This chapter presents the four emergent themes that arose from the coding and analysis of participants' commentaries and discussions. In that regard, one of the initial aims of my study was to understand how performers mediated between impulsive and controlled cognitive states during musical FI. As such, the first theme I discuss below, 'Guidance', encompasses this *a priori* focus and captures the range of processes that 'guided' the musicians throughout the moment-to-moment unfolding of their performances. However, as I interviewed the musicians it quickly became evident that these topics would serve as the starting point for a much wider range of issues that would be a necessary part of discussion. Although the other three themes I present below—or what I call 'Character', 'Environment', and 'Story'—also served as important guiding forces in the performers' playing, they emerged as a result of participants' specific discussions regarding those issues. These four themes began to take shape while I was also examining issues found in improvisational theatre. What then came about was a convergence of ideas related to both improvisational domains—that is, that performers engaged in both musical and theatrical improvisation are attending to the ongoing adaptations, manipulations, and meaning-making of 'characters', 'environments', and 'stories' in their real-time creation of 'scenes'. In further examination of the themes that emerged via discussions with the free improvisational musicians, I propose an overarching

theme—and a discussion on how these findings may be viewed through the lens of enactivism.

What follows under each theme below is a list of categories that emerged within that theme, a table supporting the identification of each category via one or more direct quotes from the participants' interviews, and then a discussion of salient issues that arose during data analysis. In listing out the categories under each theme, however, it's imperative to note that there is no systematic mapping between the order in which I present the categories and their relative significance or importance within that particular theme. Likewise, while one may often be tempted to see a larger collection of categories falling into natural sub-groupings or clusters, I resisted this approach here to underscore the degree to which there is often deep conceptual overlap in themes and their constituent categories. Ultimately it is this cohesion or broader unity between themes and categories I wanted to emphasize, rather than bringing focus to any more granular microstructure.

Theme One: Guidance

As mentioned earlier, 'Guidance' had its origins in the *a priori* study aims of exploring issues of impulse and control during performance. However, participants greatly expanded the scope of these two topics, with discussions of 'impulse' and 'control' eliciting a number of different reactions, including: understanding, expansion on the ideas, alternative terminology to use, confusion, and outright rejection—all to be presented in the categories below (Table 4.1).

Guidance theme: Categories

Impulse and Control: In commentaries and discussions regarding impulse and control, the vast majority of musicians spoke about the co-occurrence of both states, often describing each cognitive state as modulating throughout the performance and varying in degree. Participants described their experiences as such: control in the rhythm with impulse in the sound; control in the will to answer another but impulse in what is ultimately played; controlling impulsivity by needing something new but not knowing what; control as turning an impulse into something; both states being in conflict; both states not in opposition; both states moving in parallel; thinking is controlling versus impulsivity in action; control of the material with impulsivity inside the material; control of the material with impulse in the rhythm; not being in one state or the other but having both occur in a dynamic process; feeling both states and contradictions at the same time; the need for impulse in order to control everything else; control in following what you are going to do with impulse inside of that.

Impulse: For some participants, impulse (or concepts in relation to impulse) played an important role in how they understood key moments and segmented passages throughout their performance—with discussion of impulse as happening independent of, or in a more salient manner, than control. For example, ideas included: impulse involving the body, and relating to the body versus the mind; not thinking but just playing; when you think of something, it's too late; no time for reflection; how you react impulsively is a mirror of how you practice and reflect on

your music; impulse is not always good (e.g., nervous impulse); an idea occurring in the moment—perhaps impulse—may be related to one’s knowledge base; after impulse, looking for the connection to what comes next; collecting (by sitting back and listening) in order to come back with more impulse; spontaneity in the body.

Control: With respect to the state of cognitive control, musicians described their experiences as: control in terms of having form, musical elements, and gesture; control being present when not knowing where one is going musically at the start; control in looking for a pulse to synchronize with others, or in wanting to create something interesting; one’s decision and sentiments being connected to control; control being described as frenetic (a characterization also often associated with impulse); engaging in an intellectual and active manner (and wanting otherwise, by being more in the body); control in the desire for change; teaching oneself to stop being controlled and describing it as an internal wrestling; the use of spontaneity in place of impulse (alongside control). A performer also described his control state as being modified—with his control in the sound and technique, versus another part of him being more in the music and in the space. Participants also spoke about control of their musical material, including describing control as: having concrete ideas; imposing a beat and a pulse; not just making ‘sounds’ but giving them meaning and shaping them to how you want them to be and in the desired timing. Finally, as opposed to active control of musical material, participants reported playing material in order to give the brain a rest. Giving the brain a break means lessening the

cognitive demands of always having to come up with something new—as is often the expectation with free improvisation.

Precision: A number of participants preferred to use the term precision instead of control. Although some regarded impulse as important or more interesting, others preferred the act of being really precise—described as ‘to be here now’. Along the same lines, precision was viewed as being in the moment with others and perspective-taking—trying to understand the actions and thoughts of others. Finally, in underscoring the importance of this concept, a number of participants reported their general preference or admiration for artists who exhibit precision in their work.

Decision: Musicians commented on making decisions regarding conscious or self-conscious moments of wanting to ‘do something’—as well as addressing the role of selective listening to the details present in one’s environment in making these decisions.

Organization: Here, a participant described impulsion leading into organization through the need to organize ‘what is going on’; impulse and organization were also described as happening at the same time, with the organization of space, sound, and the piece as a whole.

Awareness: The idea of control was questioned by some performers—and in its place, the idea of awareness is used instead: awareness of what is happening which

in turn informs the performer on what they have to do; the thought that awareness should not always be automatic; and for one participant, awareness represents the ability to determine his own presence as both the musician and the listener. The topic of awareness is also frequently discussed in the Environment section of this chapter.

Reflex: Here a musician talked about acting reflexively to her fellow performer. Precipitating this was her self-described lack of concentration—concentration being another category found in this table.

Intuition: The role of intuition in performance was raised, as well as its opposition to rationality.

Instinct: Awareness of what one is doing and what is happening during a performance was once again mentioned here—and in the context of there being a mix of instinctive things. As well, like impulse, instinct was also juxtaposed to the idea of control, with emphasis placed on the role of the body in space and the environment.

Imagery: Imagery was used to describe one's mental state during performance ('dreaming', 'mind-wandering'); the focus of one's attention and listening ('under a microscope'); the sound frequencies of the piece ('like a garden'); the feeling for change ('a river current'); and attention to multiple elements, as well as the dynamic

processes and influences between these elements at different levels ('like motors or small engines working on their own').

Memory and Habit: Here, participants reflect on the possible role of (muscle) memory and habit in what ends up being played.

Loss of Concentration: Participants reported losing control of flow and concentration, a lack of concentration, and the occurrence of mind-wandering as noted above; also, there was the sense of wandering, akin to impulse, wherein following the performance the musician reported feeling like he didn't know what really just happened.

Flow: Players characterized their improvisations as: more related to flow than memories; the presence of mistakes taking a participant out of flow; the sense that a performer and his partner were following the music and that it was the music that controlled the mood; fluidity; listening to each other, collectively.

Experience: Experience was discussed in terms of (1) one's musical background and individual approaches to playing, and how these affect issues of control and concentration; (2) one's experiences during the actual improvisation, including ideas of idiomatic playing and falling back on clichés (due to concentration lapse), enjoyment in one's level of freeness, discovery (versus improvisation) in a moment of disconnectedness, trying to be less judgmental of oneself, and being less

conscious in general; and (3) building experiences through practice and experimentation at home in order to 'wake up' the mind.

Rhythm: In this category, performers addressed issues concerning preferred consistency in asymmetric rhythms when in a (fairly new) group context; there was also the issue of control with respect to rhythm that is informed by the performer's breathing; and reports of thinking in rhythms which were not in the participant's control.

Instrument: With respect to the issue of cognitive control, participants spoke about their instruments with respect to: responding in the moment to an instrument one cannot fully control; forgetting where one is due to their connection to the instrument; figuring out instrument logistics during performance; the instrument's influence on impulse and control, and its effect on performers' focus and sounds.

Sound: With respect to sound and cognition: the music was described as telling the performer what to play; inspiration coming from the sound and not from decisions; and one's love of just listening to sounds, and then analyzing and organizing the diversity of these sounds.

Physicality: Participants discussed physicality through the idea of the mind taking care of the body, not needing to look at others during performance, and the close connection between body and sound (resulting in no conflict of control); the tension

inside oneself at the beginning of the performance as quiet focus is needed before playing; and control in the body positively influencing musicality and thus resulting in one not needing to think about the music.

Headspace: This concerned the presence or non-presence of intellectual playing, as well as the impacts of fear, lack of confidence, thinking too hard, and too much forward-thinking.

Space: Participants used the concept of space to describe one's reduced attention—with additional reference to its physical effects on the stopping of movement and near-immobility; and with a description of 'more space', a musician comments on a fellow player's ability to develop more impulsive sounds 'without saturating the global sounds and the music'.

Table 4.1. Guidance theme.

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Impulse and Control	<p>In this whole segment, what I play is rhythmically controlled, but the sounds and noises I use are 'impulsive'. (P1, TC)</p> <p>Once the rhythm is given, I think the decisions of playing one thing or another is impulsive for musicians. Their will to answer to each other is controlled, but 'what' they play is impulsive. (P1, TC)</p> <p>For me there is a lot of impulse in this end, but the decision to end HERE and not another moment, was controlled. (P1, TC)</p> <p>...I keep the control that is important regarding beat and the rhythm. On the other hand, the use of sound repertoire is pretty impulsive. (P2, TC)</p> <p>From a subjective point of view, you always think you are in control and in impulse...When I see me on the video during the session...I don't think, uh, I'm in control...yes, I'm in impulse but the control is imposed by the rhythmic simplicity. I'm unconsciously in control. (P7, VC)</p> <p>It was an impulse to play a high note but then it was (controlled) thing to stay there. (P8, VC)</p> <p>What's hard about the difference between control and impulse when you're alone, you're always controlling, in a way, you're not reacting. So, the impulse can also be something that's uh, for me, in front of me. (P8, VC)</p> <p>If I would like to control impulsivity at the end, I would say you need something new but you don't know what. (P12, VC)</p> <p>Here I comment that I screwed up my stroke, so I made the crescendo because I messed up. Controlled impulse. (P12, VC)</p> <p>(I'm) focused on myself because I have a lot of conflicts in control and impulse. (P15, VC)</p> <p>Because for me, (impulse and control) are not opposite...(they're) on the same time. (P17, VC)</p> <p>The thinking is always, uh, controlling but the quality of the music...of course, um, impulse is always here as an action. (P17, VC)</p> <p>I think that we control our material, but we try to produce, uh, an impulse inside the material. (P20, VC)</p> <p>I mean the thing that I control – I kept the same material that I played at the beginning. I was trying to, like, create...a line...this is what I controlled. And then impulse is like a...rhythm. (P21, VC)</p> <p>You need to have impulse now (if) you wish to get control of everything else. (P22, VC)</p>

Table 4.1. Guidance theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
<p>Impulse and Control (continued)</p>	<p>Somehow, it's not the way I look at things [laughing]...it's not one or the other. I think it's a dynamic process. (P24, VC)</p> <p>I feel...both things at the same time....musical improvisation...you have a lot of contradictions at the same time. (P25, VC)</p> <p>There's definitely control. Some of it is thought out; it's controlled because I'm impulsively creating dialogue between my two hands. There's one hand that says something, and the other responds, so it's happening in my brain, there was no impulse. The impulse happened earlier—something had to be done to stop the spinning and I wasn't sure what. (P27, VC)</p> <p>It had come to an end, so there was no control. I wanted to finish softly, so I guess in that regard there was a little bit of control. You saw me with that gadget there, I took it but never did anything with it. (P27, VC)</p> <p>The control consists (of) trying to follow what you are going to do and what you are doing. And...inside that of course, there is impulse. I mean, you hear words, and you take his words, and you play with the musicality of his voice. (P28, VC)</p>

Table 4.1. Guidance theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Impulse	<p>Not any thought, just impulsion of body and body language. (P4, VC)</p> <p>...(more) impulse than control. We are listening and doing ideas that are more related with the body than the mind. (P5, VC)</p> <p>So, I am not in control. A lot of impulse for me. Nervous impulse. I thought I was in control but when I see it...I'm really in impulse. And negatively. (P7, VC)</p> <p>I didn't really think about the...the rhythmic problem or the complexity. I just play. (P7, VC)</p> <p>Your way of (reacting) impulsively is determined a lot by the way that you practice, the way that you reflect on your music. So, if you're practicing a lot and...practicing in a way where you're thinking a lot and reflecting a lot on what you're doing I guess that...your impulse [is a] kind of mirror of what you work with. Then of course, in a solo...you don't get reflected in the other it's only you. (P8, VC)</p> <p>Here we have movement, on a path, on a schedule. But there isn't control either, I'm not in control, it's just happening. The first part was impulsive preparation, it was 'I LOVE YOU!' and now you have tenderness. (P10, VC)</p> <p>It was an idea that I had in the moment, if you call that impulse...But what I was doing gave me the idea, I didn't plant (it)...I don't know exactly how it comes, maybe it's related to your knowledge base. (P11, VC)</p> <p>It was on purpose, but it was 1 or 2 seconds before that I wanted more metallic sounds. It was not impulse, but it was very fast. (P12, VC)</p> <p>This was impulsive, but the transition into what comes after, I had no idea...it was a good sound and it had an interesting timbre, etc., but afterwards had to look for the connection to what I could do. (P13, VC)</p> <p>For the ending, there was maybe a part that I let slip and impulsed, but that was it. (P13, VC)</p> <p>Here there was a lot of spontaneity in the body, so impulse. (P15, VC)</p> <p>Of course, new ideas, it's just an impulse, it's just a *clap*...in the moment. So, you know, when in an improvisation, for me...when you think of something, it's too late. (P18, VC)</p> <p>There (was) one...one moment that I should, should not (have) played some note [laughing]. I play, yeah, this is my body [laughing]. (P21, VC)</p> <p>(When sitting back and listening) I'm collecting...to come back with more impulse. (P22, VC)</p>

Table 4.1. Guidance theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Impulse (continued)	You play with your environment and at the same time you, um, you have impulsion...it goes very fast so you can't think too much...because if you begin to think (about) everything it's too late. You don't have time for reflection. (P28, VC)

Table 4.1. Guidance theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Control	<p>We found a kind of control and a kind of rule. So, it's very controlled in the terms of form, musical, and also gesture. (P5, VC)</p> <p>We're, uh, not synchronized...We didn't find the pulse...I feel...a little bit control because we (are trying) to find the pulsation. (P7, VC)</p> <p>Decisions and sentiments are something that are connected to control. I was trying to create something interesting. (P11, VC)</p> <p>It was the most controlled, I was kind of frenetic, trying to make the most out of the keys, the tremolos. (P11, VC)</p> <p>Maybe this is more focused on control because, uhh, I have more clear insight (into) what this (is) because in the beginning you- you start but maybe you are not so- you don't know exactly where you can go here or here you have all the possibilities at the beginning, no? (P14, VC)</p> <p>I try to construct in an intellectual manner, to give a form. I look for myself in my body. I should be more trusting and leave the sound image to come to me instead of being active. (P15, TC)</p> <p>I'm now fed up with what I'm doing before, and I want to, you know, do something else, (there's more control) here, just this point of change. (P16, VC)</p> <p>To go further and further, one mustn't do that (be controlled). I want to describe the second stage of that. I've been teaching myself to stop being controlled. It's always a bit of an internal wrestling. (P30, VC)</p> <p>There is no absolute spontaneity and no absolute control. (P24, VC)</p> <p>I remember the state where I was during this improvisation and I, of course, I control a lot. My sound. My technique. But also, uh, one moment my mind is very modified. My control state is modified...in the space, and with the music. It's not so easy to explain. One part of (me is) controlling the technique aspect. And another part of me is maybe more in the music. In the silence of space, (trying) to make a shape. (P20, VC)</p> <p>Control for me is that (more concrete ideas). (P5, VC)</p> <p>The guitarist plays a riff, and I try to impose a binary beat, with (my) head and my hands which gives a pulse on my guitar. (P7, TC)</p> <p>There's impulsive elements but you're definitely (in) a control situation because you...need to maintain everything...there's the control part of the brain working so...you need to not make it just 'sounds'. I know how I want all the sounds to be when I want them...timing-wise, sooo there's...that's a lot of control to do...more things I want. (P8, VC)</p>

Table 4.1. Guidance theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Control (continued)	<p>I felt that I could easily do many variations on this idea of guiro on piano keys. Then I used it in order to have "brain rest"; no urgency to find a new idea right now! (P26, TC)</p> <p>Went even further by simplifying the harmony some more, felt like my inspiration in this section was growing thin and decided to end on an almost bluesy tritone...was surprised by how it gave the section an interesting twist in the end. (P29, TC)</p>

Table 4.1. Guidance theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Precision	<p>Precision instead of control. Control is military, authority, and accidents are important in the process of improvisation. (P18, TC)</p> <p>The acoustic of the room, we play two o'clock or three o'clock, the lights, and um, the body is in certain shape, all these elements are really a part of [it]...when we are doing an improvisation. So, what we try to do is to be as precise as possible. For me, it's very important to be really precise...in terms of playing, in terms of 'to be here now'. (P18, VC)</p> <p>I think it's, uh, balance of both every time. Sometimes you have to control to have this kind of sound and this kind of- this kind of precision maybe with the music. And of- of course you have (to) also accept...to have some impulse too to feel the different events you meet when you play...Of course I am especially interested by impulse...I think it's more interesting. (P20, VC)</p> <p>The works of improvisers I like the most, um, that's (their) precision. (P25, VC)</p> <p>Most of the time it's not with words that we find precision in music. It's more in living together, with the other musicians, in saying 'What do you read at the moment, actually what do you do, what happens in your mind'...(P25, VC)</p>
Decision	<p>I think it was a moment of me being self-conscious and like, 'oh I should do something' moment. It's sort of a seagull technique which is like (an) artificial harmonic...you make this sort of squeaky sound, like seagulls, at the seaside...it's a string player slang. (P16, VC)</p> <p>The acoustic, the time we play, the lights, the sound from outdoors...everything is different, anytime. I don't know if it's an influence, maybe not, it's a presence. But often, of course, listening is sometimes very selective. So sometimes it's our decision...we are not like microphones. Microphones, they have no subjectivity. But we decide, we decide. (P18, VC)</p> <p>In my case, it was a conscious decision to play something similar to the beginning and to the "turning point". I don't always do this. But as this piece was shorter than the pieces I usually play and very clearly structured, it was easy to remember and it seemed to make sense. (P24, TC)</p> <p>There was a decision and a sense of combat. And there was a dialogue without really looking for one. (P27, VC)</p>

Table 4.1. Guidance theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Organization	<p>With the experience you know that you have to be self-confident of what you feel. And, uh, I think that's what's very exciting with improvisation. It's a mix of impulsion...something that you feel inside you, you feel you have to do that. And also...there is organization, moments for reflection and for you [to] have choices sometimes. And so, you have to decide if you do that and that and...</p> <p>So, there is a part of, uh, of course, impulsion but after that there is organization. You try to organize what is going on...</p> <p>In (a) certain sense you have your impulsion and at the same time...you organize space, you organize sound, you are going to organize...a whole piece with a lot, with emotion, with time. (P28, VC)</p>
Awareness	<p>It's kind of this yoga thing in the music...I mean, basic awareness that...you kind of determine the presence, both as a listener and a musician. And when you are a musician, um, when you're playing solo at least you can hear everything so you are as smart, uh, a listener as the others. I like to sometimes feel that way then I play solo concerts. I mean, it's also...not this pressure of me as a person...when you're expressing a thought, that's—I found that very beautiful and in general I guess I'm attracted to music where it's an idea more than a person that is exposed. (P8, VC)</p> <p>(Discussing how often new sounds are discovered) Just by doing it, but not every time. Of course, it's like a working scale, you have to be aware of your sound and the way to play. It shouldn't always be automatic. (P12, VC)</p> <p>It's a mix—you have to be confident (in) your impulsion and (at) the same time try to control things. But I don't know if it's really control. You have to be aware about what is happening most of the time and after that when you are very aware you know exactly what you have to do, and to do what you have to do [laughing]. (P28, VC)</p>
Reflex	<p>At this moment, I didn't understand that Jonathan was starting an improv. We laughed. I wasn't concentrating, but I respond as much by reflex as to amuse myself. (P9, TC)</p>
Intuition	<p>I'm doing a few calculations in my head to get into his rhythm but it quickly becomes quite intuitive. (P2, TC)</p> <p>The computer player's solo...Now here I give the control up...that's the moment in procession where you shut up, the mouth (laughing)...it's really intuitive, it's not rational. (P22, VC)</p>

Table 4.1. Guidance theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Instinct	<p>You have to be aware about a lot of things. About what you are doing, what is happening around you and of course it's a mix of instinct, instinctive things. (P28, VC)</p> <p>It's more instinctive. It's not control...the energy and the portion of your body in the space is very important but it's not control. It's the environment and the way you are. (P28, VC)</p>
Imagery	<p>I started a journey, a bit like we're leaving, dreaming. (<i>Are you mind-wandering?</i>) Ah yes. I didn't really like the beginning, but I really like this part. (P13, VC)</p> <p>I shrunk my attention and listened to the sound like it was under a microscope. (P15, VC)</p> <p>In my mind, maybe it's like a garden. Of frequencies. And we try to be in different spaces to maybe...to discover or to find something, you know? (P20, VC)</p> <p>Your body, your mind, your spirit, your intellect, everything is involved...there's a kind of dynamic process going on between all these things...there are different levels in this process. So, uh, I can do two or three things at the same time, like we actually do in real life [laughing]...I call these different motors, like small engines [laughing] working on their own. And there's a relationship, and they are influencing each other. (P24, VC)</p> <p>I wait while I play. But—how to say—there are moments where I feel—oh, there's a change—so I do that. At any rate, I feel that it's a bit like a river current. I don't intend for the connections to be dramatic, but even if one isn't trying to be dramatic, there are changes. I think free improv is like that. (P30, VC)</p>
Memory and Habit	<p>In the pizz section I let the fingers fly without reflecting, so there is a big aspect of memory that returns in playing I imagine (muscle memory). (P4, TC)</p> <p>It's not an impulse, it's a decision, and this thing exists in the beginning of the improvisation, but I don't know why. I suppose because yesterday I played a lot with my student and I used a lot of changes – we changed the tune a lot. I suppose this is from habitude, I don't know. (P15, VC)</p>

Table 4.1. Guidance theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Loss of Concentration	<p>I lost control of the flow, like I lost control over my own concentration. (P16, VC)</p> <p>Our concentration is not so high. I think we are just at the beginning, to open the mind...and the sound. (P20, VC)</p> <p>(On mind-wandering) I know if I think, it's bad. (P20, VC)</p> <p>When I was playing I was feeling like I was wandering...it was like (a) moment where I felt like I don't know what happened after really, I mean, It's like (an) impulsive thing. (P21, VC)</p>
Flow	<p>We have some memories but I don't think (this) was the case (for) this improvisation. This improvisation is more related to having a flow, and to keep it going. (P5, VC)</p> <p>('Mistakes') momentarily take me out of flow, out of the flow section. (P16, VC)</p> <p>So now we are in another mood...I think it is not deliberate. I think the music controls (it). I think...we are following the music. It's like an evidence...it's a play between me and the music, me and F— and our music...a mix of different parameters. I think it's...more fluidity. (P20, VC)</p> <p>My feelings (were) very peaceful...silence...like soft light...it's very, um, sweet. Just the movement—it's not like a 'tch-tch-tch' like that, it's very (much a) flow. (P23, VC)</p> <p>It's quite clear, I think, for the both of us that we are kind of in a flow, we are really in a flow...so I think (we) were really...listening to each other, very collective. (P24, VC)</p>

Table 4.1. Guidance theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Experience	<p>I think he thinks in terms of (the) body the most part of time because he has this...this experience as a musician, as player, and I (have) this experience as (a) composer. I think maybe control for me is more important than for him. (P5, VC)</p> <p>...I started playing something that was too idiomatic to violin technique. I think at this point I also had a small concentration lapse and that's why I fell back on some clichés. (P15, TC)</p> <p>I have to propose things, and to react. But I'm not totally free, in this context...it's nonsense to be totally free. But I'm just free enough (to) be able...to enjoy it. (P25, VC)</p> <p>I'm no longer in improvisation, I don't know where I am, but I'm discovering...P— told me "once you're in discovery, you're no longer in improvisation" and it's true...afterwards I came back to improvisation with the interesting sounds that I could use to continue my improvisation. It was just in that moment I was disconnected. (P27, VC)</p> <p>I'm trying to get more "into" the improv (less conscious) and I feel better about the way it's turning out. (P29, TC)</p> <p>Really trying my best not to judge myself at the time and to just expand on the ideas. (P29, TC)</p> <p>Yes, so the contrabass, the sound of the contrabass, and the sound of the materials mix together, that happens sometimes. So, from time to time I try to—wake up—wake up my mind. (P30, VC) (regarding experimentation at home)</p>

Table 4.1. Guidance theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Rhythm	<p>When I think too much I can't feel the music...I like asymmetric (rhythms) but when everybody finds a place...and when we stay in this asymmetric rhythm. And when it's really in place it's good because it's like a trance. But when it's (changing) each time, yes, that's not the same. (P6, VC)</p> <p>The control is that I want to explore the different possibilities of one sound...but there is another control also...not with the conscious...so with other rhythms given by the breathing. (P14, VC)</p> <p>I'm think(ing) just rhythm...it's not (in) my control. (P23, VC)</p>
Instrument	<p>I know I wanted something then...it was in my head...this can also be really hard to control on the bass so you...have to respond really in the moment (to) how it (sounds) exactly. (P8, VC)</p> <p>I really, uhh, was only connected with the instrument so...yeah, I (forgot) really where I was. (P14, VC)</p> <p>Trying to figure out how to manage the logistics of putting on the second peg. (P15, TC)</p> <p>The height of the piano (was), like, too low...so I wanted some different sounds, I mean more, like, heavy...I wanted to be more impulsive...Yeah, (it's) too controlled. (P21, VC)</p> <p>The bow there, that was annoying. I was so focused on the bow I wasn't in the sounds. (P27, VC)</p>
Sound	<p>I just listened and it's a very nice moment for me, because the music is telling me what to do. I just play and the music is saying to me what to play. (P15, VC)</p> <p>It's from the sound, it's not my decision. It's from the sound (that) I (am) inspired. (P23, VC)</p> <p>When I'm listening...I just listen to sounds...you know, the aspects of sounds, I love I love I love that, most of all...always, I try to think. And so, uh, I take (the) diversity of sounds in my brain, and my brain analyse(s) this and organize(s) all this information. (P25, VC)</p>

Table 4.1. Guidance theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Physicality	<p>"I don't really like to look (at) the people I play with." (P4 VC)</p> <p>The mind takes care of the body and lets me play (in a) tranquil (manner)...Oh, I like this sound here, because it's a sound with the body. My entire person is tied to the sound, and that's nice. There's no conflict of control and everything is well. (P15, VC)</p> <p>For the first 10 minutes at least...I was probably, uh, too tense inside to be really (completely in) contact with what I am doing...because probably was just speaking just before and I think...I was actually not prepared to play...I always like to, um, have a quiet moment before playing to be more focused. (P17, VC)</p> <p>With the knee...I control...my body became like a spring, you know. In my knee. And then this interaction, yeah, it made me more musical. I feel, like, in the music so I don't need to think about the music. (P21, VC)</p>
Headspace	<p>I think in this, uh, section it begins to be...less intellectual, more in feelings...we found a possible creation together...a sentiment that can be shared. (P6, VC)</p> <p>I choose an intellectual manner to highlight the proceeding part of detuning. Surely by fear of not having any more to say. (P15, TC)</p> <p>It's a problem of confidence. At this moment, I don't believe in me, and control has a lot of place at this moment. (P15, VC)</p> <p>I might have been thinking too hard on what I'm going to do next...like maybe not really paying enough attention to what I was doing in the moment, um, maybe a control issue in a sense, like too much forward thinking. (P16, VC)</p>
Space	<p>Here I reduced my attention to a very small space, as if I was playing with something very small. I almost stop moving, I'm almost immobile, but everything is concentrated on something very small. (P15, VC)</p> <p>There is more space, M— can develop more...impulsive...sounds without saturating the global sounds and the music. He can really develop more animal, animality in the instrument. (P17, VC)</p>

Discussion

If Guidance as a theme proved to have many different constituent categories as outlined above, the *a priori* emphasis on impulse and control in my study led to an understandable focus on this particular issue in my participants' commentaries and self-observations. Perhaps the most foundational issue to emerge in this regard was the notion that impulse and control weren't always experienced as mutually exclusive states of guidance, but for many participants they were simultaneously present during their FI performances, as captured by this participant:

"What I am describing, it is a state I am in when I improvise actually, and I don't recognize moments where I would, ah, lose myself in spontaneity or lose myself in control and rationality. It's always quite the balance." (P24 VC)

But beyond this issue that impulse and control demand on-going balance or mediation during a performance, participants also often discussed them as having different underlying origins. In particular, whereas control might be allied with focused attention to some aspect of sound or internal imagery, impulse frequently took on a more embodied or enacted form:

"You are not physically, but mentally you...have a feeling to be like a listener of music, like if you were sitting with the audience. The body is acting and doing exactly what he has to do to make what you are dreaming the sound is—whether you are dreaming or whether you are listening—but you don't know exactly what you are doing. So, there is a reason at the same time for me, the control (is) like to be listener...but in the same time, you have the feeling of very natural flow from your body...for example you could be impulsive because (the) body is really completely not under control...it's really free but in the same time it's exactly what you expect him to do." (P17, VC)

In a similar vein, for this next participant control was mapped to intentions, whereas impulse was mapped to “life”, or presumably, what actually happens in our lived bodily experiences irrespective of any overt intent:

“So, this is a bit of a messy bit that I made like two mistakes in that sense, like two things I hadn’t planned to, coming out one after the other, and they both then needed to be incorporated into the piece [laughter]. Um, so here is, yeah, this sort of pull between control and um, control and impulse maybe, like not maybe control and impulse, but intentions and life, basically.” (P16, VC)

Yet not all participants were comfortable with the terms “impulse” and “control.” For this participant it came down to the perspective that control itself can be exerted on an impulse, thereby rendering the terminology itself unhelpful:

“These words (impulse and control) are problematic because an impulse can be controlled or (it can be) random...I think it would be really difficult to always be in impulse in improvisation because it implies that there is no form at all. It implies that you don’t have any control, but I didn’t try in fact. It would be interesting to make a 5-minute improvisation with no control at all. I’m not sure it’s possible. I think it would be boring for me, maybe not for the audience because the audience doesn’t know how the music comes from the performer, but for the performer it would be boring.” (P12, VC)

But in recognizing this comment, it’s also interesting to highlight that it also comes full circle—again, we see evidence consistent with the notion that impulse and control are not necessarily mutually exclusive states during a FI performance, but rather, they are co-occurring processes that collectively guide the performance.

If a FI performance often demands a simultaneous, on-going balance between “embodied” impulse and “attentional” or “cognitive” control, this perspective

on guidance also gives insight into a core domain of individual variability in terms of musician performance. Or in the case of this quote, it informs on what biases a novice improviser may bring to the musical learning environment:

“I try to be pleased intellectually and in what I am doing...but of course I have a lot of pleasure to listen and also to do something...very, very violent, so very physically impulsive...always with a deep attention to...musical(ity). Also, as (I’m) doing a lot of workshops in improvisation it’s quite a complex thing I think to understand. Because some people, uh, sometimes they try to hide behind, behind ideas because (they) are afraid to be showing too much (of) themselves. Sometimes they are losing the control [clapping sounds] about the pollution they are doing. And um, so it’s funny because...when you have both kind of people in the same workshop you have to push some people [laughing] and you have to...um, maintain or take care (of), control what they are doing, not just (to) have pleasure. It’s like...for some people to be screaming is, uh, impossible [laughing] and for others it’s very easy.” (P17, VC)

It is thus not surprising that this need to cultivate a dynamic balance between impulse and control during FI becomes a central focus of FI training, as this participant goes on to explain:

“I can see in the workshops is that people (lose) control of their own audition. So, they don’t care about what the others are doing...They lose contact with the band and the sound...so that is the main balance—to find, in between, your own activity or action and to always be a listener. But the problem for some people to be (a) listener...they are not able to be active anymore, if they listen they are not able to act. And same in conversation, some people are more listening and some people speak a lot, so with music we can speak at the same time, it’s nice [laughing], but we have to find the right balance.” (P17, VC)

Speaking directly to this issue is a second participant, who highlights a common misconception about “impulsion” and learning in the context of FI:

“What are we thinking when we speak about impulsion or control because sometimes in our culture...we put less importance [on] impulsion, we say, “oh, it’s just an impulsion”...the control is something very good, you control your body, you control your keyboard, you control your violin, and you have to work control, and you...don’t have to work for impulsion. And for me, it’s not right [laughing], for improvisation—it takes time. It takes a lot of time to be confident (in) your impulsion, you know what I mean? I think impulsion and control, these words perhaps, they are good but we have to be careful about what is behind these words. And you know, (in) our culture, impulsion is something wild and (it’s) the world of animal [laughter], and control is one of human and it’s higher—and impulsion is lower. And here we see that it’s not like that because impulsion is also creativity, and in art, creativity is in the centre.” (P28, VC)

But what’s the outcome of such learning? Or put differently, how does training in FI impact or alter one’s experience of impulse in the FI performance? As captured by the following participant, training impulse provides a window of opportunity for the simultaneous expression of control:

“Maybe you reflect a little bit and the more you reflect, the better you get so you don’t need to reflect. I mean, it’s happening impulsively so that you’re actually training your impulses. So, you also have this thing and this, uh, awareness in...in your impulse. Then you’re more free to listen to what’s going on, and now it’s just me so I know the sounds that I produce but even me, myself, I, um, surprise myself sometimes. The material surprises me. But when you’re playing with others it’s even more...urgent that you have energy for your ear.” (P8, VC)

Perhaps understandably, the concepts of impulse and control were also frequently discussed by participants in the context of their own formal musical training, and in particular, how that training impacted not just their performances per se, but how they themselves subjectively experienced the performance. Here the

emphasis is on how classical training has engrained a sense of self-judgment in the participant, and how that can interact with one's sense of control during FI:

“Maybe a tiny fraction of frustration at that point of making the mistake, like I'm losing control for a minute and regaining it and...still I think it's control from the upbringing, like if you're trained as a classical performer, like, you learn all the time not to make mistakes, like judge your performance all the time, and I think I still have the feature. Like it doesn't apply to free improvisation practice in the same sense as it does to classical practice, but I still can't get rid of those feelings [laughter].” (P16, VC)

For this next participant, the very act of falling into a trained pattern brings definition to a low point of the performance, a problem described as bound up with a struggle or desire for some form of control:

“This is the worst part of the entire sequence. It's a bad part, because I know everything I'm playing, it's a system. The system when I use the voice, the system when I use the chords, I know this and I don't know why I go there. I suppose it's because I'm afraid to use my voice and I would like to control with what I think I know.” (P15, VC)

However, if there can be conflict between impulse and control in the context of formal musical training, it was not always deemed to be necessarily negative. In the case of this participant, while experience with FI brought a decrease in conflict between impulse and control, conflict was also seen as good and something to preserve to some degree:

“The difficulty, I mean, compared to jazz, jazz is improvisation too but (with) jazz we have the material fixed. But (with free) improvisation, we don't. (With)

more and more experience I can produce good material in...real time...(with) less conflict (between control and impulse). But I mean, I think we should (have) conflict, too, because we can't control everything. I think when we control everything it's not the best." (P21, VC)

Interestingly, discussions of impulse and control weren't limited to the participants' self-observations of their performances. The perspective was also applied to the evaluations of the performances and music of others as well. For example, one participant described how a pianist is regularly seen to improve in his playing quality over the course of a concert, presumably due to a reduction in the amount of control that he brings to bear in the performance:

"I think it's also the case of the first piece in a concert. Many concerts that I saw for example a concert of P— on piano, the first piece was, "oh, it's shit" [laughter]. He's a very good pianist I love him but his three concerts that I went (to), the first piece was shit because he was trying to control...the muscles, the instrument, the acoustic. (P5, VC)

Likewise, another participant saw impulse as being essential to music not always labeled as such, or at least essential to the writing of that music:

"If you think that Mozart, for example, writes a concerto in three days, he can't think about everything. So...there is also a lot of impulse in his music. Mozart or Vivaldi, or Bach, they write, there is a sort of impulsion and, also, they organize this impulsion...we think that because it's writing that it's more thinking, there is more control. Perhaps it is right for the music of now, for the contemporary music. But I think (for) music of the past—it's not right. I think you can't say that for this kind of music...that's why this music is so impulsive, and so we feel that something (is) very enlivened." (P28, VC)

Finally, in response to the *a priori* concepts of impulse and control as used in my interviews, numerous participants were emphatic about the importance and role of ‘precision’ as an overlapping if not alternative concept in FI performance. As one participant succinctly put it:

“Control, no. Precision, to be precise. Impulse, of course. Impulse and precision.” (P18, VC)

But precision within FI was also seen as a way to explain what a musician may bring to a FI performance from his or her own lived, everyday experiences. In particular, the “precise” mind in everyday life primes the mind of the FI performer to “find” what can subjectively emerge in a more seemingly impulsive or non-precise manner during an actual performance:

“Like said Picasso... ‘I don’t look for, I find’. And what does it mean to me? His unconscious mind is so much alive, so much intense...so much in action...all the time, when he’s living, when sleeping. And after it’s a faculty to paint, to express...(this) gives him the illusion of, ‘just find (it) like this’...because he’s precise. He’s very precise. He is very conscious of what he has to do at each moment of the day.” (P25, VC)

In expressing this sentiment, my study participant is not alone. In discussing the rhetoric and misconceptions surrounding “free” music, John Corbett (2016) refers to Sun Ra, who “...preferred the terms ‘discipline’ and ‘precision’, emphasizing that the wildest-seeming music, if played well, requires the implementation of both these concepts” (p. 137).

Theme Two: Character

Character is a theme that emerged as a combination of data analysis and inspiration taken from improvisational theatre. Here, participants spoke not only to the character of the music or sound material itself, but also to how a host of other interactive dimensions—including physicality, instruments, imagery, other players, and one’s personal sound vocabulary—informed on or otherwise shaped the character of their FI performance. While this theme is by definition distinct from guidance, the highly interactive and co-constructive nature of all four themes in my study can now be recognized, as in this case not only can guidance be seen as affecting the character of a FI performance as discussed above, but in reciprocal fashion, the unfolding character of a performance as I outline here can be seen as directly impacting the on-going guidance of that performance.

Character theme: Categories

Sound: Sound (or lack thereof) makes substantive contributions towards the character of any given performance, passage, or moment. Though impossible to include all the feedback relating sound to character as a theme, I’ve included a broad range of illustrative quotes: a decision to make the performance itself evolve towards something more sonically ‘concrete’; numerous descriptive words for sections or singular sound events such as ‘chaotic’ and ‘drone’ish’, suggestions of ‘invisible perfume’ and ‘invisible sound’, ‘brittle’, ‘sound of wind or of hair in the saxophone’, ‘wood sounds’, ‘soft’, ‘pure’, ‘clean’, ‘dirty’, ‘dense’, ‘calm’, ‘raucous, raw

playing', 'instability', and 'technical irregularities'; furthermore, one participant synesthetically describes a sound theme as giving rise to a particular image that has its own character. Interestingly, participants' reflections regarding the issue of sound also proved somewhat revealing of their own individual character as musicians—such as liking the discovery of something new and as a moment to surprise oneself, and the interest in exploring something else and feeling a bit restless.

Physicality: The topic of physicality here deals mainly with the actual physical mannerisms, habits, and expressions of the musician—with the character of the improvisation being impacted by: 'listening to the body' versus thought; hand or bow gestures where one is receiving impulses from the body; presence in the body allowing continuation of discourse; a sound element becoming physical (through movement); feeling rather than thinking; walking (during the performance) as a result of feeling relaxed and free after a sense of accomplishing what one came to do and now entering a bonus free moment; moving a lot to deeply feel the music and silence and to work with the material; emotion through the body; and feeling time physically. Participants also discussed physical aspects as related to the group context, for example: being together through respiration, feeling, and breath; not looking at one's fellow performer; and an observation that a musician and her fellow player lean in the same way.

Imagery: Imagery was also used quite a bit by the performers to characterize the improvisations, as well as the *act* of improvisation. For instance: imagery of slow

motion flying similar to the Matrix movies, to depict not knowing where one is and where one will go in the performance; letting oneself be guided by the current of a river in a barge to express flow and fluidity; an idea to 'make a short break of the world' created by previous ideas ('like a finger on a video camera lens, that makes you remember that it's just a film that you're seeing'); building ideas in the moment as one might draw one line after another only to discover in the moment it's the roof of a house; piano sounds that evoke sine waves and whale chants; and music developing a shape. These reports of imagery encompass both those being generated during the performance, and those as being triggered in post-performance reflection.

Instrument: The musicians spoke frequently of their instruments' role in affecting their playing and how each instrumental material brings different characteristics, for example: the changing of instrument preparations during performance as changing and altering sound material, one's body relation to objects, and one's own reactions; the limits of certain instruments relative to what one may want to achieve musically; playing in certain registers to create specific effects; using and approaching traditional instruments in non-traditional ways to attain certain sounds; playing an instrument until it hears and answers itself; the ability to develop multiple ideas simultaneously with certain instruments; instrument particulars causing sound 'accidents' and resulting frustration for some; and specific tuning inspiring imagery.

Vocabulary: This category arose from the many commentaries regarding the development and use of musicians' own vocabulary in playing, in addition to common vocabulary that is built between fellow players over time. For example: the accumulation of techniques through practice; individual preferences for starting performances (e.g., trying out the instrument and being able to work with more delicate sounds first as opposed to entering immediately with big sounds); playing what one knows and has used before; falling back on familiar techniques to give oneself a rest; it's not just about impulsion in performing but knowing one's own language; having 'data' and a stock of ideas for experimenting, and being able to imagine the tendencies of certain materials.

Reference: Participants at times described their performances as sharing characteristics with sounds that are more recognizable or idiomatic in nature. For example: technical music, like math rock; a sound and not a 'note' as found in classical music; a polyphony akin to Bach or Berio sequenzas; the lamentation of sounds as being too idiomatic or traditional; references to specific notes (e.g., G) or known musical elements (e.g., glissandos, arpeggios, chromaticism); ideas and techniques influenced by other styles of music (e.g., heavy metal). As well, the use of reference here also denotes performers' later re-use and re-interpretation of earlier sound elements in their pieces—for example, using the same material in its variations throughout the performance; and the ability to give space between elements that have been developed earlier on.

Rhythm: Rhythmic elements often characterized the performances, with musicians using descriptive words such as ‘obvious’, ‘hypnotic’, ‘folky’, ‘minimalist’, ‘obsessive’, ‘steady’, ‘unsteady’, ‘balance’, and a ‘groove’.

Others: In this context, ‘others’ refers to the roles (e.g., the maestro) given to other players which in turn influence the progress, outcome, and ongoing characteristics of the piece. Others can also act as ‘mirrors’ of who they are. Of particular interest is one participant’s observation that playing with others can push you to multitask (e.g., playing with and accounting for the character of multiple instruments) and having to find spontaneous ways to do so.

Accidents / Mistakes: Accidents or mistakes—as distinguished by the musicians—colour and influence individual moments, segments, and overall trajectories of the performances. As expressed by the participants, when these accidents or mistakes do occur, one has the option to: leave it or add chaos to it in the event that it may become interesting over time; accept the consequences even if the situation cannot be mastered; keep playing in the style that came before; or view it as a challenge to turn it into something that’s interesting.

Adaptation: The topic of adaptation was, in some respects, recently visited in the immediately preceding category—that is, the ways in which performers managed, developed, or moved on from their ‘accidents’ and ‘mistakes’. Here, participants’

feedback demonstrates how they accepted, embraced, and adapted to unexpected techniques or sound occurrences.

Support in Solo: This category came about as a result of musicians' reports on how they supported their own sound ideas and musical characteristics. One participant even shared the existence of three distinct personalities within himself—each supporting and contributing different styles and approaches throughout the progression of the performance. In this particular recollection, the first KS (the participant's initials) is the one who is 'interesting', the second KS wants to play the 'normal music' that he knows, and the third KS gives him ideas for complete changes and is also the one who physically feels when the performance should end. Finally, soloists supported themselves sonically in the simultaneous use of multiple instruments or objects during the performance (see Instruments category).

Table 4.2. Character theme.

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Sound	<p>I decided here to make the performance evolve towards something more 'concrete'. (P1, TC)</p> <p>Chaotic part, without beat, very big volume, screaming sounds. I like this well enough, good energy, good fluidity in the connecting parts. (P2, TC)</p> <p>More drone'ish section after a beginning with a lot of movement. (P8, TC)</p> <p>At the beginning we have a lot of resonance, and the listener still has that in mind so we can suggest things, an invisible perfume, and an invisible sound. I really like the idea of improvising suggestion and to not just say everything; to leave little points. How much the public understands, I don't know. (P10, VC)</p> <p>I was interested in exploring something else, I was feeling maybe a bit restless [laughter]. (P16, VC)</p> <p>I like the unstable...the unpredictability, like you put your finger somewhere but you're never sure what exactly comes out, and it's brittle and it breaks, but it's really interesting overtones. (P16, VC)</p> <p>I very much like when I discover something new...when I surprise myself, and this was one of the moments when I surprise myself. (P16, VC)</p> <p>Michel is playing new, different breathings...sound of wind or of hair in the saxophone. I am entering some new kind of wood sounds, like a guy...cutting trees. (P17, VC)</p> <p>The beginning of the song was much more, uh, in French we say <i>lisse</i>, uh, much more soft, not in the dynamic but the sound is very pure...opposite of dirty...the song is quite clean, like pure, and now clearly this song is starting to be much more dirty and dense. Now the song is much more rich...made of different frequencies, mixing of techniques...so the space will be more full of sounds now...the sound is intense and loud...and you will forget everything else, it would be completely (absorbed) by this song now. (P17, VC)</p> <p>It's really calm inside, but there (are) some (changes)...different technique, different texture of sound. (P18, VC)</p> <p>Something which...doesn't happen is as important as what happens. (P25, VC)</p> <p>There I decided to end a second section which raucous, raw playing I thought was leading nowhere. At one point during that section I remember thinking the instability and technical irregularities might be sounding good but quickly (discarded) that thought and felt just plainly uneasy about my playing and try to come to a stop asap. (P29, TC)</p>

Table 4.2. Character theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Sound (continued)	It's rather organic...Each sound theme, each gives a particular image. For example, I write with harmonics, I had the idea of an image...with its own character. And every time I get an image, I use it like a colour for painting. (P30, VC)

Table 4.2. Character theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Physicality	<p>Return to 'listening to the body' that is more important in my opinion in an improvisation than the thought. (P4, TC)</p> <p>I think each one of us (is) just thinking about one gesture that we are doing...each one of us. Kind of hand gesture or bow gesture I think that's kind of (where) we are receiving impulses of the body...we are exchanging it because we...pause in the same moment. We have individual gestures but we are together in the respiration, the phrasing. We are not looking for each other, we feel that and we take that breath. (P5, VC)</p> <p>My routine (is) not to look at the other very much. For me music is...just sound, it doesn't need, uh, eyes. (P7, VC)</p> <p>It's going from being, you know, an element that has been in the piece because it was a contrast to the first thing. Now it's getting, yeah, really a physical thing. (P8, VC)</p> <p>It's funny, we lean in the same way. (P9, TC)</p> <p>I don't think. It imposes itself on me, it's a condition. I don't think I just have feeling. (P10, VC)</p> <p>Happily, my presence in the body and in the space was there, which allowed me to continue the discourse. (P15, TC)</p> <p>I didn't realize I started walking so much there, I think I felt more relaxed and free, like I had already in a sense, like done what I came to do, or like this was my sort of bonus, really free moment. (P16, VC)</p> <p>(Moving a lot while playing) it's a way to be...feeling deeply, the music and silence and...the best way also not to play too much, to not have too much density and to have some breathing. (P17, VC)</p> <p>Emotion is much more related to the energy, and to all the bodies. Sometimes, something happens in my feet, or something happens in my back...so this is much more emotional. (P18, VC)</p> <p>I try to be more, uh, flexible maybe...I'm moving around. I try to work with this material. (P20, VC)</p> <p>I really don't use, ah, consciously, my body. (P25, VC)</p> <p>Here I'm just trying to get comfortable and in my body. P— always says, "Don't wander, stay focused" and I try but I couldn't do it this time. (P27, VC)</p> <p>You have something in you that tells you to go there [laughing]. And you don't know why but you go there. (P28, VC) (participant speaking to the dance portion of his improvisation)</p>

Table 4.2. Character theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Physicality (continued)	Yeah, I can count to 30 minutes, 40 minutes because...I feel it physically. (P30, VC)

Table 4.2. Character theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Imagery	<p>When you're jumping there is an, I don't know...the word of 'gravity'...you know like, flying things in slow (motion)...in movies you have this...Matrix things. You don't realize, you don't know where you are, where you will go. (P4, VC)</p> <p>The keyboard guides us, very progressively; guitarist 2 takes the statement into the flow; something fluid. I have the impression of being in a barge, of letting myself be guided by the current of a river. (P6, TC)</p> <p>A thing, idea to make a short break (like a finger on a video camera lens, that makes you remember that it's just a film that you're seeing) of the world created by the first two ideas. (P8, TC) (parentheses by participant)</p> <p>It's like if you have, you're drawing a line and then you (see) the line but then you draw another line that you (then find) out that this was actually the roof of the house and...so (you) build a house under the...the idea. (P8, VC)</p> <p>Force, explosion, resonance, gestures...Countryside...Random apparition of notes. (P10, TC)</p> <p>The piano starts alone for a few seconds with rubbing sounds that evoke (sine waves) at different heights. Come out like whale chants. (P17, TC)</p> <p>Change to the next motif. Like bird is singing. (P19, TC)</p> <p>The music begins to have a shape. (P20, VC)</p> <p>After a short 'collapse' different dynamics happen. (P25, TC) (quote marks by participant)</p> <p>Now I have a yard, and someone is running through it and I want to stop them, so I have to go there. (P27, VC)</p>

Table 4.2. Character theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Instrument	<p>(Changing instrument preparations between each playing) I like to do it. Because, um, I'm afraid about (doing) all the time the same thing [laughing]. It's a way also to change the body relation with the instrument because if you have a different instrument or object you react in a different way. (P5, VC)</p> <p>Inside the piano we don't have the same freedom of both hands that we have when you are playing on the keyboard...we are not percussionists, we don't have the form, the education of a percussionist. (P5, VC)</p> <p>Here I focused on the idea of staying in the middle of the keyboard, and center around harmonics in lower notes, to create an effect. (P10, VC)</p> <p>The piano keyboard becomes a percussion 'guiro' instrument. Percussive touches from which emerge notes randomly, accordingly. (P10, TC)</p> <p>I tried to scratch the skin without knowing if with this mallet it would work. Afterwards I realized it was a nice sound! (P12, TC)</p> <p>I chose an object to work the (partial) harmonies of the piano...(P13, TC)</p> <p>I was trying to work with that mass of sound...to give it a definition. That's why there's rhythm and things like that, it's trying to play something until the piano hears the sounds and answers by itself. (P13, VC)</p> <p>The fear of the use of the voice brought me (to) my common places (common ground). It's not interesting at all. It likes verity, it's false. (P15, TC)</p> <p>But in comparison to many other instruments it's easier to develop ideas at the same time, or at least different materials because you can have, uh, things inside the piano. You could, for example, have something developing in high frequencies inside and have a completely different element playing with another kind of preparation on the bass, and at the same time play the keyboard. So, it's very easy to develop, for example, at least 3 ideas at the same time, and to maintain them. After what is complex is to be able to develop (them)...(be) interested and well-attended. (P17, VC)</p> <p>I have to change the clarinet more faster and quietly. (P19, VC)</p> <p>Part of small clarinet in Eb. But reed was too dry. So, for me, it was a little accident in the beginning (of) this part. (P19, TC)</p> <p>Now I'm trying to transform my notes into OBJECTS, fixing on a particular zone on piano (before, it was a kind of long line which was sometimes eased, dilated, accelerated, etc.). The rhythmic harmonic (sayin' in classical way) has got more space between each object. (P21, TC) (parentheses by participant)</p> <p>Very strange (use of) just the mouthpiece. I want to give the audience (a) new style. (P19, VC)</p>

Table 4.2. Character theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Instrument (continued)	<p>I look for some parameters, it has some sliders here...and I don't have a human being to look for, the face of the screen, so (it's) analogical. (P22, VC)</p> <p>My image is (of the) night world. It's inspired from the tuning. (P23, VC)</p> <p>I have difficulty handling the metal bars because they went over the table. Having to manage the bars disturbed me. (P27, TC)</p> <p>Each material brings different characteristics. Particular characteristics. So, for example, curiosity alone, sometimes I experiment with my instrument at my place. I scrape and rub like that...the timbre that comes from certain materials that I use. Plus, contrabass. Simple, really, like a synthesizer, an analog. (P30, VC)</p>

Table 4.2. Character theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Vocabulary	<p>Because (of) the practice we have, uh, accumulated, you accumulate techniques and vocabulary. (P5, VC)</p> <p>For the introduction, in general I like trying out what sounds the piano will do rather than enter immediately with big sounds and opt to do more delicate things that I can work with; and then see where it takes me, bringing attention to little sounds. (P13, VC)</p> <p>But at this moment, I play what I know, what I've used before. I've used this thing before, in concert, it's a system. I don't play exactly the same thing, but the system, the voice, is not new for me. I am not interested in this. (P15, VC)</p> <p>In some sort of longer piece, you get these moments where you just, like, need to take a rest...so I think maybe this section was a bit...think I needed a rest. So, I fell on those, something I clearly know is under my fingers...one of those techniques that I use quite a lot. (P16, VC)</p> <p>It's not only a question of impulsion when you improvise—you have to know what is your language, you know?...like your own personal language. For me, it took time because I use a lot of mediums: I use my body, my voice, and my instrument...for me, what I do, it's near opera...it's dance, theatre, and music, and everything is mixed, and I try to go through all these. (P28, VC)</p> <p>Well, at the start...I'm always...I don't play very quickly, in fact, not too much speed. For example, I need something to prepare to allow something else to come out. So, I wait, I wait, I wait. And bit by bit, the sounds that will come from me is increasingly there, I can get ready to let it out. (P30, VC)</p> <p>Yes, I have something like 'data', a stock, of ideas in my head for experimenting. But one must keep experimenting to find sources of ideas. So, one can't stop. At the same time, I can imagine the tendencies of certain materials. So, I use that, for example. (P30, VC)</p>

Table 4.2. Character theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Reference	<p>That's like math rock...that's technical music...and that's really funny that beginners often try to make some (concert) music and they break the time, they break the flow. Sometimes he plays this riff, and sometimes it matches but sometimes it fails, and now I think it's (a) fail. (P7, VC)</p> <p>We have this idea of classical music and music so that should be a note...but it's not a note...in this I feel this fragility of – it's a note but it's not a note so I was...that stress(es) me...Sometimes you just see it (as) a sound you know that doesn't belong to a history of sounds. (P8, VC)</p> <p>This is the more 'idiomatic' moment of the performance. It sounds a little like free jazz gestures (Coltrane's mood). (P11, TC) (parentheses by participant)</p> <p>This is a very complex and polyphonic moment where lots of different materials alternate much like a virtual polyphony (Bach, Berio sequenzas). (P11, TC) (parentheses by participant)</p> <p>Here, on the two bell strokes, I thought it was too idiomatic (of a) thing. (P12, TC)</p> <p>I try to keep a pulse (with help of a simple and repeating key click) with the aim to create a tension...The "continuum" of G Sound remains on the background as a reminder of the starting point. (P14, TC) (parentheses by participant)</p> <p>I think I use always the same material (in this performance) but with some variations because, I think...because there's always some clicks or some (whistling noise) or some glissandos...but I try to modify this with...volumes. (P14, VC)</p> <p>As most of the elements were already developed enough, we can still have them in mind, we don't have to maintain them all the time. It's much easier now to play them with much more space in between the different interventions. (P17, VC)</p> <p>Texture of breathing and other white noises. (P18, TC)</p> <p>End (of) the part of breath sounds and start Arpeggio. (P19, TC)</p> <p>The idea was to create a zone chaotic...I was trying to combine two different timbre that we (had) already heard such as "traditional piano sound" and some "percussive sound" like a synthesis of a whole (performance). But it's quite short...grrrr. (P21, TC)</p> <p>Chromatic progression at the end is rather insipid, which shows my lack of inspiration at the moment. (P29, TC)</p> <p>My ideas come from day-to-day life, but at the same time they can come from other styles of music. For example, I really like heavy metal. And there is a guitarist in heavy metal that uses two hands at the same time to have a particular sound. Why not with contrabass? So, I tried that. (P30, VC)</p>

Table 4.2. Character theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Rhythm	<p>A beat gets put in, a regular rhythm, there is a 'groove'. (P3, TC)</p> <p>It's quite obvious that we play with this kind of rhythm thing, or rhythmical element. (P24, VC)</p> <p>There I decided to keep going with just the hypnotic treble part. Simplified it, feeling closer to something... 'folky' (close to pentatonic scale) and minimalistic / obsessive in style... I concentrated mostly on trying to keep a steady / unsteady balance in the rhythm. (P29, TC) (parentheses and quote marks by participant)</p>
Others	<p>And for me J— is the maestro. Not because he... has (a) stronger direction in (the) music but because he's the link between all of us. He knows his guys, he knows me. (P6, VC)</p> <p>When you improvise for me that's not just something that's coming out of the blue... it's the mirror, ah, who you are and what you're working with and what you want to present. (P8, VC)</p> <p>It's really interesting how, like, when you're playing with other people and it pushes you too, like pushes you to multitask... sometimes I've tried to play, at the same time, the violin and the electric guitar, like the guitar on my lap... I just had to spontaneously find a way to do it. (P16, VC)</p>
Accidents / Mistakes	<p>But sometimes when things doesn't [sic] feel so good (like the comeback of this green horn toy) you have two options: leave it if it's not too much anecdote (or not like a mistake) – or play more chaos with it in a way it might (be)come interesting after some time! I choose the second option here... (P26, TC) (parentheses by participant)</p> <p>The keys fall and I must accept the consequences of hitting them too hard. I don't master the situations, by hook or by crook. (P27, TC)</p> <p>Why didn't I use another object. That one didn't have a very interesting sound. Shame, I don't get back to it. (P27, TC)</p> <p>A string noise (was) made to try and mask a string rubbing effect I thought I hadn't handled properly. I regretted that nervous and showy hand movement instantly but kept playing in the same style as before. (P29, TC)</p> <p>A kind of reprise of the first section (same chord) that I didn't expect to do and that I almost felt was a challenge to make interesting. (P29, TC) (parentheses by participant)</p>

Table 4.2. Character theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Adaptation	<p>Suddenly, I tell myself that distortion is not really what I wanted to improv with. I start to adapt my musical replies. (P9, TC)</p> <p>I had (an) error because...first note was higher...so second, third note I (also) play higher (to adapt)...(but wanted it) lower, yes. But I don't know (if) it is ideal? (P19, VC)</p> <p>Yes, the keys are falling, they have to accept their fate, and I have to accept that, too. When I hit them hard, the result is that they fall. So, we can't have everything. And the keys fall, making an irregular noise. (P27, VC)</p> <p>A section (I) was surprised by, as it veered constantly between slightly uncommon chord progressions and totally usual major chords that ultimately rooted it in tonality. I remember finding my choices funny and instead of trying to sidestep them embraced the moment. (P29, TC)</p>
Support in Solo	<p>There were good sound results of granulation with the object...I felt a lack of quality and of attention to conclude the improvisation, but I tried to create a small contrast to support this idea. (P14, TC)</p> <p>I try to support the musical tension and to stay inside this tension. (P14, TC)</p> <p>There are two KSs (participant's name) within...the second KS, he wants to make normal music that he knows...the first one, he's the one who is interesting. (P30, VC)</p> <p>But in any case, if one keeps the previous ideas, if one uses the same idea as before...at any rate, there's a change, surely. I think that's interesting. And from time to time, we can have complete changes, but that's the third me, he gives me ideas like that. (P30, VC)</p>

Discussion

As is evident, the character of any performance is informed by a wide range of factors including one's physicality, one's instrument(s), the impact of others, and the role of accidents and mistakes in the trajectory of the performance. That said, two key issues—reference and vocabulary—are worth particular note as these topics are often discussed and debated in terms of how free improvisation is, and should be, characterized. Specifically, in trying to define free improvisation, people often turn to Bailey's (1993) characterization of it as being "non-idiomatic". Of course, performers often try to steer clear of obvious references such as those considered to be too 'melodic' or tied to identifiable styles, musicians, or groups. But what about the referencing and building up of self-idiomatic techniques, sounds, and materials (Bullock, 2010), and the vocabulary that is built up over time in both solo or group playing? As seen in the participants' commentaries in Table 4.2, these personal idioms, references, and built-up vocabularies invoke mixed reactions, with some performers deliberately 'quoting' other musicians in terms of what they might play, while others express frustration over their lack of control in the appearance of ingrained patterns and habits. One interesting example of this dynamic at play comes from a participant who found himself commenting on a fellow musician he both improvises with and often watches in performance:

I (haven't) heard him playing a melody for the last 15 years. So, he says he's (a) completely free improviser but he's not playing Indian music or any melody, so it's also developing his own universe and that's very interesting. But also...in this rehearsal he is not jumping to just one thing, he's always trying to...develop something." (P17, VC)

Similar issues and debates arise in the literature on FI. Perhaps the most well-known idiom-free iteration of free improvisation is Bailey's *Company*, a concert made up of "semi-ad-hoc groupings of musicians", ensembles "not fixed in personnel or style", and whose structure was "based on the idea of the repertory theatre company: a pool of players out of which groupings might be drawn for specific occasions and performances" (Bailey, 1993, p. 133). Yet in a direct counterpoint to Bailey's (1993) claim that free improvisation is beyond genre as it takes place outside of existing genres, Toynebee (2000, as cited in Atton, 2012) states that free improvisation "cannot be exempted from...the inevitability of genre" (p. 108). Echoing this perspective, Atton (2012) writes:

"There seems to be an idiomatic aesthetic at work here that argues against the non-idiomatic claims for free improvisation made by Bailey. For the performer, the aesthetics of free improvisation are joined with the exploration of extended techniques, where the possibilities of an instrument are found in non-normative approaches (such as the use of circular breathing and multiphonics by saxophone players, and the use of mixed timbres and unpitched notes by guitarists)" (p. 436).

That said, as Wilson and MacDonald (2012) point out, perhaps how one approaches and appreciates the character of an improvisation is best construed as in the 'ear of the beholder':

"Viewing musical events as ambiguous and open to multiple interpretations by both performers and listeners challenges the importance of a canon of skills as a prerequisite for successful improvisation." (p. 567)

Theme Three: Environment

'Environment' was one of the suggested topics that participants were invited to write or speak about in their commentaries. The idea here was to assess the impacts of the room or space in which they were playing. However, participants spoke about their environment as much more than just that of the space or room they inhabited. Additional issues that arose included the sound worlds or 'space' they created during the performance, the impacts of others on their performance, the use of and reference to imagery, and taking the perspective of an imagined audience during performance. As such, 'environment' became an emergent theme in its own right. Again, while a distinct theme on its own—and one that impacts the trajectory of a FI performance—it also can be seen in the commentaries below as having dynamic, reciprocal interactions with issues of guidance and character as outlined above, and with story as well, as presented in the section that follows.

Environment theme: Categories

Others: This category addresses the environment that one's fellow musicians create—such as one of encouragement, and the necessity of time and repetition in order to build confidence in each other.

Sound: Of no surprise, sound material contributes immensely to a musician's environment. Here, it is discussed with respect to: sound and harmonics filling the room leading to a sensation; one getting 'lost' in the sounds and deconstruction; 'quitting' the reality of sound through the creation of illusions; the description of

sound as feeling—a movie of senses; the act of waiting and listening to counter the stress of always trying to find something; the creation of a sound masse in relation to sounds of an opposing register; the re-centering of one’s listening to sound particularities; and the aim to focus on frequencies and precise details.

Signal: Here, the participant describes the stopping of sound for every performer at the same moment as a signal from the environment that it’s the end of the piece.

Unity in Chaos: In contrast to the last category, a different sort of environmental unity is gained through the chaos of unstopped sound.

Space: References to space were frequently made by musicians to describe a number of experiences and concepts including: the sound or musical space; the auditory space; a sound world, a new ‘world’ created through different co-occurring elements; a world where one can ‘live’; the changing of universes; utopia; the shape of space such as one being round versus another being linear; the space between sound events creating a sense of openness; the quality of musicians being together in a space; the opening of parallel or independent spaces where musicians create in association through deep listening; the description of empty space becoming alive.

Reference: With respect to one’s environment, this category addresses topics of: reference in sound—through the re-use of earlier sound and rhythmic elements in

the evolving auditory ambiance; and the use of a watch as an actual reference of time within the 'format' of one's world and environment.

Room: According to participant feedback, the rooms affected the sound material as well as the manner in which the participants played. These influences included: the silence and breaks allowing one to listen to the environment and to feel the room—and although the performers were described as not always being 'conscious' of what they were doing, the environment was the 'glue'; the room being perceived as 'matte', contributing to the sensation of being 'in it'; the room affecting acoustics in a way that enabled development of sound for oneself—something not possible in a big room with a big audience; the closing of one's eyes to forget where one is; a 'precise' room in that the making or ending of sounds also needs to be precise; the relaxed nature of playing in a studio situation as compared with playing on stage in front of an audience.

Imagery: Here, imagery is used by participants to utilize environment-related analogies, and to more effectively describe their sound environment, for instance: the need for a foundation (provided by contrabass and drums) in order for something to work 'well' (similar to how flowers, plants, or civilizations need the ground); descriptive words or phrases such as 'enveloping', 'thicker', 'washes the room', 'the space is moving'; a detailed description of one's sound landscape (with analogies to the forest and specific elements found within) in order to explain how despite the fact

that one element may take all of one's attention and focus (similar to using a microscope) the landscape is not forgotten.

Perspective-taking: Participants describe how they examine their performances and the effects of the choices they make therein by taking on the perspective of an imagined audience. Interestingly, one participant furthers the inquiry by asking whether the public can in turn imagine the desire of the improviser.

Table 4.3. Environment theme.

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Others	<p>Other musicians who don't play react positively to our performance. I saw that as 'encouragement' to go on. (P1, TC) (quote marks by participant)</p> <p>It's just the beginning of the relationship in between all of us and we have to have confidence in each other. It needs time and repetition. (P6, VC)</p>
Sound	<p>The room is now full of sound, harmonics, etc. That procures a sensation of excitation. (P1, TC)</p> <p>(I) let myself get lost in the sounds and the deconstruction. (P2, TC)</p> <p>I'm quitting the reality of sound...For example, in certain German music, it's very expressionist, like dissipating clouds and there's an illusion...I really like this game of illusions – "He's playing, he's not playing, he's doing something but I don't know what." (P10, VC)</p> <p>The sound is feeling, the feedback of sounds, I dream. It's a movie of senses. (P10, VC)</p> <p>Yes, I'm waiting, but also listening of course. Because always trying to find something is kind of stressful, so just listening to the loop. (P12, VC)</p> <p>I worked the regions of low resonances...so to create a sound masse that disengages the high harmonics. (P13, TC)</p> <p>I reduced my listening, I re-centered it on the particularities of the sound. A new game has arrived, agreeable. (P15, TC)</p> <p>Here we start to sound...more enveloping...before I was doing more frequencies at different levels in the spectrum and now we will have something more large...(taking) more space in the global sound of the music. (P17, VC)</p> <p>The spectrum of the sound (was) very large suddenly. I was hoping it (could) be...much more restricted or, um, centered? Um, focused on the frequencies again and some precise details. (P17, VC)</p>
Signal	<p>The end is given by the sound, that stops at the same time for every performer. The clarinet concludes. I have the feeling, that it was like if the environment gave a signal: That's the end. That's quite interesting! (P1, TC)</p>
Unity in chaos	<p>Chaos, everyone plays extremely loud, different things. But unity comes from the impression of unstopped sound in the whole segment. (P1, TC)</p>

Table 4.3. Environment theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Space	<p>There is a big space for silence, the sound density is weak. (P3, TC)</p> <p>During this first part up to the very rhythmic one with brief sounds, we have here the first rupture; the drummer, with his echoing cymbals, breaks the rhythm and brings a sound density that takes up almost all the space. (P3, TC)</p> <p>Problem of dulled guitar sound; a bit molasses-like; very dull; the auditory space already seems saturated and uninviting to participation. (P6, TC)</p> <p>Completely new world with three elements going on. (P8, TC)</p> <p>Clearly, at this moment we change universes. It's more J— who is the motor of this change. Me, I don't know where we're going. I wait to find out a bit more. (P9, TC)</p> <p>Utopia!...Utopia between two hands. (P10, TC)</p> <p>You start at a point and then you (cross) this musical space...and you reach another point, no? (P14, VC)</p> <p>A mistake that I regret a bit, I landed on two overly clear harmonics which broke the soundworld I was aiming for. I incorporated it into the piece nevertheless a bit later. (P15, TC)</p> <p>The space around me is less open and more like a line. Before when I was playing the space was very round and everything was outside of me when I played. But here, the space is like a line, very linear and very strong. I'm not as soft on the inside anymore, there are straight lines. (P15, VC)</p> <p>We start mostly walking on sinuse (sinusoidal frequencies)...there is space in between all the events...we could have started very strongly, uh, with a very determined idea, but here it's much more (of an) open situation...contemplative maybe. (P17, VC)</p> <p>You feel the...the quality of gesture, the quality of listening, the quality to be together in a certain space. So, it's why I call it in a way organic, because I think that, uh...bodies, body, and spirit are pretty connected. (P18, VC)</p> <p>We have what I call the independence, means it's kind of two parallel things. Y'know, if you have space like this, here. I'm here...Oh! And maybe I open another space, and another...and another level...And because we are really listening together (we) create in association. And it- it's going together. And sometimes, there are some real resonance between these two spaces. (P18, VC)</p> <p>Resonance, free association in the sound and the space. (P18, TC)</p>

Table 4.3. Environment theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Space (continued)	<p>It's like a theatre [laughing]...sometimes, rain is myself. Uh, so I enter...another world, and so...I don't know where I am but after I understand "ah yes, I can live here". (P23, VC)</p> <p>There is a transformation of the attacks into a long sound. Empty space becomes alive. (P25, TC)</p>

Table 4.3. Environment theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Reference	<p>The auditory ambiance now evolves by reusing the elements that were used in the improv...the long, rhythm-less sounds...and the brief rhythmic aspects. These elements are reused and placed over each other. (P3, TC)</p> <p>This is your world you are in and you're in (this) environment and it's kind of a format. And somehow, for a few years now, I prefer to have a watch, to solve this uncertainty of the length of the performance. (P24, VC)</p>
Room	<p>We can listen to the environment too because we have lots of silence and breaks and it gives us the feeling of the, the room...It was clear that many times we (were) not conscious...conscious? But that's a very important thing because the environment is the...glue. (P5, VC)</p> <p>This room is very matte, you always have the sensation that you're in it. So objectively, I don't hear the reverberations from outside, but I do however manage to escape and be elsewhere...it's a bit like an out of body experience, I'm elsewhere. (P10, VC)</p> <p>In terms of the piano and its acoustics, I could hear very little sounds. For example, I couldn't play this piece in a big room with a big audience. In that way it felt very much like something just for me, and I knew that in this room, I could play this. It allowed me to develop the sound in that way. (P13, VC)</p> <p>In this point the environment has got an influence of maybe, okay, you have to, you have to- to forget that you are here maybe...also maybe for this I closed (my eyes). (P14, VC)</p> <p>In this room, you can always feel, splitting, what is coming from the piano and what is coming from the saxophone, I think. But it's very comfortable acoustic(ally) because it's very precise...so when you, you start to make a sound or when you end it, uh, you have to be very precise also because you can hear everything. (P17, VC)</p> <p>Yes, I was aware, aware of the environment in the studio...it's one thing when you have the audience in front of you, because you need to check everything is okay, and you are more relaxed in a studio situation because you can try things, and it's another thing on the stage you cannot try too much, you know? (P22 VC)</p>

Table 4.3. Environment theme (continued).

Categories	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Imagery	<p>I think contrabass and drums...it's a...foundation...there are flowers growing or plants or civilizations but if you don't have the ground, something (won't) work very well. (P6, VC)</p> <p>I also make two new sounds appear. One that extends the previous idea of a continuous smooth sound, but it is more enveloping and thicker, the other is a vibrant sound more shaped like small clocks far away that echo what Michel is doing. (P17, TC)</p> <p>For me it's very (much) like a landscape most of the time. Yeah, could be a completely visual landscape but is of course- it's a sound landscape...a very simple example to be in the forest...listening maybe to the wind...the leaves of the trees...add some water...maybe some animals. And suddenly, one element of all these landscapes could- could take all the attention and all the focus...We could go with a microscope, be very focused on some detail. So, it's, it's mainly the way I play...I like to not forget all the landscape when I arrive to the detail...part of my memory, I still remember where I am coming from. (P17, VC)</p> <p>For me, this is really...organic, organic in space, the frequencies...the space is really moving, but there is a subtle horizontality. (P18, VC)</p> <p>The complexity of the rolling snare drum washes the room. (P25, TC)</p>
Perspective-taking	<p>Change in register. Does the public hear these touches on the keyboard and the sound effect of the 'guiro'. What does the public hear and understand of these gestures. Can it imagine the desire of the improviser? (P10, TC)</p> <p>All the time I imagine a public, it's the goal of the music. Not a big public, but one, two, or three, ten people, it's public. I think public is simply a heart. (P10, VC)</p> <p>To me, (the) really important thing is (while) I'm performing...I listen, like, as (the) public—what I'm playing, and then I can feel that "ah, this (is) enough"...or "I need more". (P21, VC)</p> <p>So, you can't keep going when you have nothing left to say. In this case I may have had more to say but I already used several instruments, do I go back to them? Would it still be interesting? It wouldn't be a new idea, so for the person listening, would they say, "Well, I've heard this" and stop listening? (P27, VC)</p>

Discussion

It is likely to be taken as a given that the immediate environment (e.g., room, space) would impact any given performance. But it is now clear that many issues relating to environment in one form or another—and some more abstract in nature than others—also deeply impact the performance environment itself. It can be seen as a dynamic, cyclical infusion of the temporal, social, socio-political, cultural, and personal—alongside issues of individual and collective memories, projections, and moment-to-moment formulations of musical meaning and social constructs. In an apt encapsulation of this broader view of environment, the following participant attempts to not just describe, but to visualize in a 3-dimensional reference, some of these non-linear elements, including the yoking of time to space:

“It’s kind of this transformative art in general where you have ideas that present themselves in many different contexts...the main idea is to show things and with our memory...(it’s), like, kind of 3-dimensional because...I mean, music is this present-ness, but it gives the present-ness a relation to the past. Yeah, like reading a book where you then find references to some other books...it’s history...and...you-you-you feel in your stomach. I mean, that’s what I love about art is that you feel in the stomach, at least for me. But I’m not saying my piece succeeded in any way on doing this but there’s...at least the work I like...you get this feeling of when in the place itself, and in time, maybe something is coming again...and what you (are) doing in form, I mean, that’s the control of the time, also of the past. You can change the past of how you are in the—ah, I mean, how you are right now...you’re defining the past in the present, you know.” (P8, VC)

That said, one would be remiss to de-emphasize the role of the actual performance room or space—an issue that greatly impacted some of the musicians in this study, as well as for the well-known drummer and percussionist Hans Bennink

as recounted by Atton (2012). In this case, Bennink was, in fact, playing the room (Atton, 2012):

“In the duo performance, the tiny kit that Bennink brought with him is insufficient for his creative needs and, in the absence of a hired kit, had to be supplemented by the percussive opportunities afforded by the room. Bennink approaches his performance problem by combining the art of improvisation with the expediency of ‘making do’. The consequent reterritorializing of the concert space is contingent on temporary reinterpretation of the space as an instrument in its own right” (p. 436).

Theme Four: Story

As participants talked about performance elements that appeared to address superordinate ideas such as the ongoing development of a framework (e.g., structure, synchrony, coherence, stability), they also spoke of features that bring a measure of quality to these concepts (e.g., dialog, communication, support of other players). Given all this, the performers (whether playing in a solo or group situation) appeared to be describing the real-time evolution of their performance’s “story”—hence, this theater-based theme’s name. Indeed, during the coding and analysis stage, I came across a number of participants themselves using the word “story” in describing particular sound passages or the overall essence of their performance. As such, this theme outlines the ideas brought forth by the musicians as they speak to the factors, ingredients, interactions, and understandings that build up during the moment-to-moment creation of a FI performance.

Story theme: Categories

Others: Participants spoke about the effect of others in their sound choices and how those impacted the segment or overall sense of the piece. For example: a rhythmic development from a fellow performer interpreted as a signal to move towards something more concrete; and a performer waiting and in total reaction to a playing partner. Also included are references to familiarity with fellow performers. This, in turn, presents an overlap with the Vocabulary category within the Character theme—as those with shared experiences over time can often develop a group vocabulary. Interestingly, the musicians taking part in this study were of two minds regarding the experiences of playing with those who were socially / musically familiar to them versus unfamiliar—with some preferring one over the other.

Dialog: Within a story, we often have a dialog—whether it takes place between players or expressed within a soloist’s performance (e.g., through sound dialog, use of multiple instruments, or references to other parts within one’s own piece). Performers spoke of their dialog in terms of reactivity (or lack thereof), propositions, gestures, listening and searching, interference, and interaction.

Communication: Participants spoke of their musical communications with one other in a number of ways: referring to it as a discourse; as being similar to having an approach when talking with people—that is, the idea of a rhetorical approach to improvisation and having rules to follow; the presence of reactions and responses, whether immediate or delayed. As previously stated, many topics within the

dissertation's categories and themes overlap—given this, it is clear that performers also communicated through a host of previously examined issues such as sound, physicality, musical references, and rhythm.

Sound: This category has some crossover with the previous category as communication in part came in the form of sound creation (and silence). Here however, performers discuss sound issues in terms of its temporal appearance and development: the public having a memory of sound and visual suggestions and how their reappearance will remind them of that story; having a map with defined moments and coordinates; the evolution of an introduction toward creating a 'group' sound through listening and breathing together. Furthermore, 'melodic' and 'out of tune' sounds are described in the manner of different kinds of discourse.

Synchrony: Synchrony between players was achieved (whether deliberately or not) through different elements, techniques, and methods, including: settling into a specific beat; searching and finding a way to play together; intention and material; a mutual feeling that what was started still needs to be developed; finding control together through the instrument and musical ideas; an unexplained, 'extraordinary' moment when everyone stops together (and the 'perfect' time to spontaneously end the performance); and a musician trying to breath at the same time as her fellow player. The attainment of a 'united direction' also allowed fellow players to 'assert themselves with more liberty'. And in an overlap with impulse- and control-related issues explored within the Guidance theme, synchrony here was also described as

being synonymous with control, and that control is being 'with the others' while with impulse 'you are alone'.

Coherence in Independence: Independence took the form of participants developing their own separate ways, as well as reports of not needing to make eye contact during performance. Respectively, coherence was achieved in these contexts through trust and careful listening; and through playing together, building knowledge of one another, memory, and a bond.

Support: The group performers supported one another acoustically in a number of ways: through the contribution of particular notes; participating in a 'global' sound to keep the solo parts engaged; developing a melodic aspect in order to complement another instrument; performing something familiar and known to a fellow performer as an invitation to take on a solo; and through a sense that ideas are welcomed and mutually emphasized.

Stability: Instability—an issue mentioned in other categories—was not necessarily deemed negative. Rather it meant that they were a work in progress, and that one can accept the unforeseen and make something out of it. 'Fragility' was also used to describe a passage where performers were slowly trying to explore another direction.

Reference: Reference in the context of the current Story Table (Table 4.4) refers to two main issues: (1) sounds and elements previously played in the performance are reused, echoed, developed with new added elements, assembled as a conclusion of gestures, or returned to like a common point after musicians have ‘separated’, and (2) references to known or idiomatic elements are made (e.g., Sunn O – a group that two players are fans of; or a main theme based on the chord of D, Eb, and A). Of course, these issues also overlap with ideas discussed in the Reference category within Table 4.2.

Structure: For this emergent category, quotes were compiled of participants discussing a number of structure-related elements including: the idea of creating a shape or form; doing something that is of importance and not to be thrown away (perhaps counter to some impressions of FI as a more random process void of careful thought or purpose); feeling like you’re in a structure that has definition and shape; describing the performance as horizontal or linear; conversely, a conscious decision to use new techniques not linearly linked to preceding moments (and thus interrupting the flow—a category also found later in this table); a ‘feeling of certain proportions and a certain journey’; having an inner clock or time frame as developed through experience; memory giving shape (like a sine wave) to the improvisation. Attributions are also made to more formal structures, with participants describing their pieces as ‘quite classical’, symmetrical in shape, recognizable in its temporal form, conventional, and containing references to a sonata. In the end, structure can

include both the overall means to an end, and the structural components of any specific idea or passage.

Instrument: A performer explains how she uses a bow on the strings of a grand piano in the search for unity and similarities with her fellow performer—as he also uses a bow for his instrument, the double bass. This action speaks to her desire for cohesion with her partner through specific object use.

Game: Performers made reference to their improvisations as a game—specifically: talking about understanding the rule of the game; an instrument coming into the game; the observation that the audiences who attend these performances are interested in this ‘risky’ game in terms of asking ‘what is going to happen’ (versus knowing what will happen with scored music like Beethoven). I also included in this category, musicians that described their performances as an adventure or as a competition. One participant mentioned that what he liked most in improvisation was resolving the ‘complexity’ of the music-making process—one without a solution.

Accidents / Mistakes: In an overlap with the Stability category, mistakes contributed to instability—this was not deemed as negative however, as it presented a situation where performers accepted the unexpected and made something of it. Participants’ self-perceived ‘accidents’ or ‘mistakes’ were also reported as: elements revisited in later repetitions; or as incorporated into the performance as they ‘felt important’—becoming turning points and changing the texture of the piece. One participant also

expressed the need for accidents in improvisation (in the context of not liking 'control', a topic visited earlier in the Guidance theme).

Endings: One of my ongoing curiosities regarding this project was: given the lack of pre-determined structure in free improvisation, how do players know when to end a performance—or, how do they know when a performance has ended? Participants spoke of performances as being finished when they had no more ideas to express, when they didn't have anything more to say, or they had said what they wanted to say (e.g., the 'story is done'). They also discussed the return to and development of ideas that either appeared at the start or that were recurring elements throughout (e.g., a 'coda' with a 'transformed' beginning). One participant, however, felt that his group's echoing of the first part in the ending was unnecessary, likening the musical finish to that of a 'fish tail'. Furthermore, participants spoke of bringing the 'narrative' 'down' after the climax and 'waiting for the end'; the occurrence of a decrescendo presenting a nice way to end the piece; and the desire to hear a good-sounding harmony ring out into silence—the silence being described as a 'release and a relief'. One musician felt that her fellow performer's ending of the piece was premature; while another continued on from a possible ending to further explore a detuned string sound. Another performer described the best endings within a group setting as those that do not happen on purpose, where one likes the silence—and endings that are 'real' and 'powerful' are those that occur because they are 'evident'. A musician (who performed solo) also spoke of reaching the end of a story—and the end of an adventure or voyage. He explained the ease in starting but the difficulty in

stopping, and that it's hard to say goodbye in free improvisation. And finally, one performer talked about the arrival of the ending as the feeling of 'coming back', but not as a result of specific sounds or techniques expressed earlier, as she did not explicitly recall what she had played in the beginning.

Table 4.4. Story theme.

Category	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Others	<p data-bbox="492 352 1333 415">Drummer plays a rhythm slightly faster. For me it's a signal that we are moving towards something more real and concrete. (P1, TC)</p> <p data-bbox="492 443 1386 506">Section of waiting for the other (M—) and in total reaction to the sounds that she makes. (P4, TC) (parentheses by participant)</p> <p data-bbox="492 533 1382 627">I had some experiences in (a) duo with J—. And we connect in my opinion, easily. Uh, these two guys it was the first time...Musically, uh, it took a long time to find a connection between us. (P6, VC)</p> <p data-bbox="492 655 1369 718">So, we came back, maybe, to...something familiar, so that we do together. (P24, VC)</p> <p data-bbox="492 745 1411 871">If I didn't know anything about the guy I play with, most of the time it's boring...I'm more surprised when the guy is very interesting to me...You know when you know someone very well, and you discover a new thing, it's more surprising. (P25, VC)</p> <p data-bbox="492 898 1414 1024">Because when we are playing with B—, we have, ah, kind of compression of all our pasts, which is not past, ah, because it's still alive. And so...how to find intensity with all these options, all these parameters, all the difficulties. (P25, VC)</p>

Table 4.4. Story theme (continued).

Category	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Dialog	<p>It feels like a chaotic dialog, without ideas, but with a lot of reactivity from the performers. (P1, TC)</p> <p>Second one...we're listening to each other...I had the impression (we were) more respectful of each proposition...less on control, more on impulse. (P6, VC)</p> <p>There it's me who proposes a thing and I say to myself—look, he's not reacting...oops! (P9, TC)</p> <p>There is an alternation between two kinds of gestures. (P11, TC)</p> <p>If you stop some element or you react too rapidly to one idea, for me, it would be like- you can lose perspective of the music. But sometimes it's very nice if (you) change (at) the same time because (it) could make (a) beautiful transition and open on(to) a completely new space. (P17, VC)</p> <p>Listening (to) the fact that we are searching to be together. (P20, TC)</p> <p>Human player interference and interaction with computer player. (P22, TC)</p> <p>I think for me, the process, process of improvisation is very limited. What we have (is) action, reaction; action, no reaction—which is the same. No reaction, and no action, but it's always action, er, and reaction. (P18, VC)</p> <p>I took the other instrument to cut off the other one. After that it became quite theatrical because one would say, "I'm tired of this, I'm tired of this" and the other will say, "What? Why?" and they would be talking to each other. I'm improvising a dialogue. (P27, VC)</p>
Communication	<p>As you are talking to people, you have an approach. There is a rhetorical approach to improvisation. If you want to communicate, you have some rules that are good to follow. You can't repeat in an extensive way because the listeners can't be bored. You have to equilibrate information with redundancy. (P11, VC)</p> <p>It's a part that lacks presence of a real discourse. (P15, TC)</p> <p>It would be my reaction...one minute later to what M— was doing before....A slow one (response) like with (a) long delay—a very delayed reaction...because of my slow brain [laughter]. (P17, VC)</p>

Table 4.4. Story theme (continued).

Category	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Sound	<p data-bbox="492 363 1406 453">Sound suggestions with the low notes, and visual suggestions with the higher pitched notes. As the public would have already heard these, they're in memory, so they'll remember the story behind that and wake up. (P10, VC)</p> <p data-bbox="492 485 1414 604">Then there is another moment a little more 'melodic' but still related to the idea of a frenetic discourse. Some 'out of tune' sounds are used to create an idea of distortion (like a 'drunk' discourse...). (P11, TC) (parentheses and quote marks by participant)</p> <p data-bbox="492 636 1414 699">You have really a map here, no?...It's really defined here and so you have your coordinate, click click ta ta, this articulation, and this is defined. (P14, VC)</p> <p data-bbox="492 730 1062 762">The frequencies are working together. (P20, TC)</p> <p data-bbox="492 793 1386 877">After the...'introduction' with short sounds, we play longer sounds and I like how we listen to each other, creating an overall 'group' sound. And here we 'breathe' together. (P24, TC) (quote marks by participant)</p>

Table 4.4. Story theme (continued).

Category	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Synchrony	<p>High level of synchrony comes from the specific beat that we settled in the first seconds of playing. (P1, TC)</p> <p>The end is quite a random one, suddenly the remaining performers stop playing at the same time...the fact they stopped all together 'by chance' was a perfect occasion to end the performance in a spontaneous way. The end is quite extraordinary, because of the very weird fact that everyone stops together. (P1, TC) (quote marks by participant)</p> <p>We found that thing that we were searching for...We also found a way to play together. (P5, TC)</p> <p>We found the control together...control of instrument and also musical ideas...So we found a musical idea that was static, combined with similarity that was regular, precise, and...also these things result in control. (P5, VC)</p> <p>The music starts to find the united direction that it will take, everyone can assert themselves with more liberty, I try to bring a more marked rhythm. (P6, TC)</p> <p>We're in synchrony, that's control too, you know, because what is behind control, control is, uh, you are with the others and (with) impulse you are alone, you know. (P9, VC)</p> <p>Even if we don't play on the breathing sounds any longer I still try to breath at the same time as him. (P9, TC)</p> <p>A very determined situation. We just try keep it open and still working because I think we both got the feeling that what we started still has to be developed. (P17, VC)</p> <p>Synchronicity with intention and material. (P20, TC)</p> <p>Level of synchrony and attributes referred to the previous sections. (P22, TC)</p> <p>I can be quite interested in playing without any watch, if it's clear for everyone, I mean for every musician, and for the organizer, and for the audience...so usually you don't look if you don't have a watch...but in the end you play it about the same length because there's this social...um, tradition maybe...but there's always this kind of format. (P24, VC)</p> <p>What was interesting sometimes...we take words from each other...we are aware about what the other one is speaking about so we try to make something with the rhythm...also the musicality of the voice...it works because...if you don't understand French you can hear that it's also music. (P28, VC)</p> <p>In my mind I wanted to say, "repeat this, um, this quote here" during this (text) he was reading. And it's exactly what he did. (P28, VC)</p>

Table 4.4. Story theme (continued).

Category	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Coherence in Independence	<p>(On having no eye contact) It helps because we played a lot together...it's really nice because...you know the others, you don't know what he's doing but there is something like uh, you know, like in memory...and the more you remember the more the (bond) is...strong, you know? (P4, VC)</p> <p>Independence from one and another. We create a sound space in association. The listening makes the ensemble coherent. There is a presence across the space to the silence and in the form. This is not a mental decision but it takes place in an organic matter. (P18, TC)</p> <p>It's just our own way and (we) listen very carefully to each other...it's what I call independence. And it's what makes the things very calm, because I know that I trust (he) is developing his own way, and I'm developing my own way, but we are really related by the listening. We are in the same space. (P18, VC)</p> <p>Human player and computer player soloing parallel. (P22, TC)</p>
Support	<p>I don't longer know too much how to fit into the piece, I wait a little bit then I try to support the mix with long notes. (P2, TC)</p> <p>We tend to play using the group sound, a very global sound that we all participate in, so that the solo parts don't disengage. (P3, TC)</p> <p>I went to the vibraphone because I felt like developing a more melodic aspect, that would complement the piano a bit. (P3, TC)</p> <p>It's kind of acoustics supporting...Because this kind of material that I use, I used a lot...I'm doing a kind of thing that is very familiar to him...Because he knows this material. I'm inviting F— to, to be a soloist...(P5, VC)</p> <p>I feel fairly connected with the keyboard, impression of mutual listening; not of rivalry or of competition. Ideas that seem welcome and mutually emphasized. (P6, TC)</p>
Stability	<p>For me (it was) unstable but it doesn't necessarily mean...we are lost...it's more like they're (a) work in progress in movement. (P6, VC)</p> <p>I have an unstable side in a few passages, unstable is meant in a positive way, like a capacity to accept and welcome the unexpected, the unforeseen, and to make something out of it. (P6, TC)</p> <p>We are beginning to...try to explore, maybe another direction. But very slowly...especially here it's fragile, I think. (P20, VC)</p>

Table 4.4. Story theme (continued).

Category	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Reference	<p>A calmer part that sounds a bit like an echo of the preceding one. (P2, TC)</p> <p>We start to distinguish variations and movements around the base structure that seem to come back like a common point when we separate. (P6, TC)</p> <p>If you don't use it too much in the beginning you have it as something you can develop further on. (P8, VC)</p> <p>I'm not very sure of what I do, but I propose to J— a way of playing that he likes and that reminds us of this group that we're a fan of: Sunno. (P9, TC)</p> <p>The musical elements earlier used are assembled in a sort of conclusion of gestures. (P10, TC)</p> <p>I realized that at the end there is some material from the beginning, but I didn't do that on purpose...it's just an automatism. (P12, VC)</p> <p>Build-up to a culmination using the 'fake virtuoso' technique. (P15, TC) (quote marks by participant)</p> <p>The elements we also have from the beginning so we don't forget what we are doing first. We just add new elements on it...different levels of composition. (P17, VC)</p> <p>Some parts I don't really like [laughter]...because, uh, I mean at the end (it) was too...predictable to me [laughter]. (P21, VC)</p> <p>Ouverture, establishment of the main theme based on chord D, Eb, A in the upper key register, which is the basic input for the computer player. (P22, TC)</p>

Table 4.4. Story theme (continued).

Category	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Structure	<p>You know, never just throw away material that you have presented, you actually use it...this idea of form, if you do something it has an importance, it's not just...you're gonna just throw it away. (P8, VC)</p> <p>I'm playing a lot on the form and always...because the form, no matter what you're playing, the form is always there. (P8, VC)</p> <p>Then in the middle there is a point always in a performance, in the middle, that you feel, uh, really (like you're) in some structure, or I don't know, in some way (it's) really with definition...here there is a shape, I think. (P14, VC)</p> <p>I begin a new, more percussive abrupt element that comes to take over in the linearity of what we're doing up to now. This element is coming from (a) very spatial manner (and) doesn't disturb the musical flux, who continues to develop with more continued, linear materials. (P17, TC)</p> <p>There's a couple of places where I very consciously take decision to start using like a different technique that was not linearly linked to what I was doing before...I in sense interrupt the flow...I'm finishing this and I'm starting to explore a new technique, or something. (P16, VC)</p> <p>(The structural sense of the piece) it's just a sort of feeling, like you sort of have a feeling of certain proportions and a certain journey. (P16, VC)</p> <p>It's a funny thing though, like if you get given a time frame, you very often do it...I think you have this inner clock that comes from experience. (P16, VC)</p> <p>Mainly the form is very horizontal. (P18, VC)</p> <p>Free improvisation, that is memory. When you repeat some parts of the improvisation for the audience...it's, uh, not only for the audience but also for the music as a whole...it gives a kind of, uh, like a shape, like (a) sine wave...can be really exponential. (P22, VC)</p> <p>It is quite clearly structured...the form is quite classical...it has something symmetrical about the overall shape of what we play...I have the feeling...that you can really recognize a temporal form. (P24, VC)</p> <p>In this longer part, the playing is a bit less precise maybe but quite intense. The form gets more 'conventional' in a sense than the first piece we played, less 'open' (also because it's shorter) but I do like the music. (P24, TC) (parentheses and quote marks by participant)</p> <p>Again, reference to sonata. (P26, TC)</p> <p>I think I was playing with the minimum of structure...but I'm looking for something. (P30, VC)</p>

Table 4.4. Story theme (continued).

Category	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Structure (continued)	Well it's not very precise. But, it tells me when I've started to tire. At first, it's a plan. It gives me another level to concentrate on. (P30, VC) (regarding internal clock)

Table 4.4. Story theme (continued).

Category	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Instrument	<p>I...search for unity with F—. Because the bow is the thing that F— uses in, on his instrument so I'm searching for similarities that are close to the double bass. (P5, VC)</p>
Game	<p>I think I'm reacting (to) this because I understand the game. The game, it was to...do, uh, percussive sounds in silence. This was the rule of the game and I think I understand it. (P5, VC)</p> <p>Piano came in the game in a beautiful way, but as a solo guitarist it would have been better if I listened more to him, to answer his note. I don't know for the other, but for myself, I'm too much tensed, excited, impatient. (P7, VC)</p> <p>When we make our concerts, we keep our consideration that the audience is not playing. But, we observe that the audience that goes to see that kind of music are interested in this kind of game, a risky game. They're asking what's going to happen. (Whereas), yeah, Beethoven, I know exactly what it should sound (like). (P11. VC)</p> <p>I get this thing in my head, but I mean to realize (it) on the piano (in) real time...I mean, (it) is really like [laughing], really an adventure. (P21, VC)</p> <p>A kind of revolt (from) my friend...we started to have a relationship crisis [laughing]...here you see I want(ed) to push the control, and he (the computer) started to make something different...this also happens in improvisation, when you play with other people together, sometimes you have a kind of competition. (P22, VC)</p> <p>What I like most in improvisation, it's the necessity to see, uh, the process of music-making as a complexity...and resolve the complexity. I'm saying, without (a) solution. I know, uh, rationally, there are no solutions at all. But I believe from my mind, health, and stability of my psychology—I have to believe in what I'm doing, in what I like, what I love. Cannot doubt it. (P25, VC)</p>

Table 4.4. Story theme (continued).

Category	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Accidents / Mistakes	<p>For me, unstable, is more (about accepting) the accidents or the breakings of the propositions and the directions...we were able to accept it and make something with it so for me it was unstable in a good way...When I talked about instability, I saw a title of the book over there, Serendipity. You know for me there is something like this...something you don't expect and it comes, and you accept it. You find something without searching. (P6, VC)</p> <p>Hit the D-string by accident and follow it up in the next repetitions. (P8, TC)</p> <p>I made a few mistakes but I decided (to) incorporate (them into) the piece because, um, they felt important, they were kind of turning points...the texture of the piece became different. (P16, VC)</p> <p>So, control I don't like, I prefer precision...because, uh, control for me, this is really authoritative. And uh, it's interesting because (in) improvisation we need accidents. (P18, VC)</p>

Table 4.4. Story theme (continued).

Category	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Endings	<p>I'm not so keen on this final part, which echoes the first...it wasn't necessary for it to get worked up again. It could have stayed more stable with the energy at the end, more neutral. The music finished a little bit like a fish tail. (P2, TC)</p> <p>It's like we are finished, we finished kind of...the message was...that we don't (have) any more things to say about it. (P5, VC)</p> <p>There was a climax...(the) exact moment of the music where we (were) a good match, I think. And then after the climax...that narrative, you've got to go down...we were waiting for the end. (P7, VC)</p> <p>I could have continued there but I felt like this kind of decrescendo and the—that's a nice way of ending it. (P8, VC)</p> <p>He stops, but I don't agree. It seems too early for an end and I laugh about that. But good, he makes a joke to finish. It's funny. (P9, TC)</p> <p>Here we're at the end of a story, at the end of an adventure or voyage. We could say goodbye, but it's hard in free improvisation. It's easy to start, but it's hard to stop. (P10, VC)</p> <p>...I didn't have the need to go further. All was said in that performance. (P12, VC)</p> <p>The best endings with a group is when it's really not on purpose; it comes like this and you like the silence. Sometimes endings felt by someone can be not felt by someone else, it's not a problem, but the real endings, the powerful endings happen because it is evident. Why it's evident I don't know. (P12, VC)</p> <p>It's just an issue of whether I have something to say; there always comes a time when there's nothing more to say. (P13, VC)</p> <p>I thought this would be the end, but as the sound of the prepared detuned string was so nice, I decided to explore it some more in the following sections. (P15, TC)</p> <p>Coda—also a 'transformed' beginning, exploring bow control again. (P15, TC) (quote marks by participant)</p> <p>I come back to a new playing style by rubbing metal rods on the chords that generates very held, high sounds. This prolongs the first idea: the play on the frequencies of sinusoidal type. (P17, TC)</p> <p>If you're in solo you have a bit more control over whether it's going to end, like it's...roughly the right time. (P16, VC)</p> <p>The end for me is when I have no more ideas to express. (P22, VC)</p>

Table 4.4. Story theme (continued).

Category	Participants' Quotes (TC = Text Commentary; VC = Verbal Commentary)
Endings (continued)	<p>I could remember that we did these short sounds at the beginning and then somewhere not right in the middle, somewhere in between [laughing], and so, ah, it seemed, like, quite logical to do it again. So, it was kind of a compositional idea...I can do this sometimes, but I don't always do it [laughing]. (P24, VC)</p> <p>When you tell a story, you explain something, and there's a point where it ends, your story is done. So, I told something, and I don't decide it's the end, I just feel that it is. When I'm all alone, I don't want to impulsively continue if I think "well, it's getting tired". An example: you're in a field, and you want to pick flowers, so you pick all the flowers and there are none left. What do you do after all the flowers are gone, get a tan? (P27, VC)</p> <p>I played that short line and felt this was it, even though I was not expecting it. The last harmony sounded good at the moment and I wanted (to) hear it ring out into silence. The silence felt like a release and a relief. (P29, TC)</p>

Discussion

In trying to understand any given improvisation by a soloist or group, we may ask the performers, “What is your story?” This isn’t to say that a performance aims for or needs any kind of story—or one that can be neatly summed up with an introduction, plot, conflict, resolution, and ending. In fact, what we may find in examining participants’ feedback is that there are indeed moments, passages, and entire improvisations that indeed tell a ‘story’, with many participants using that very descriptor. Once again, the themes of guidance, character, and environment are inextricably linked and embedded in one’s story. However, this theme emerged as a result of participants’ conceptions of structure, coordination, stability, coherence, and other important influencing elements such as sound, communication, and dialog. And as this participant highlighted, the concept of ‘story’ also includes the personal stories and group histories (or familiarities) brought into an improvisation:

“I mostly play with people...where there’s an agreement [laughing], some kind of agreement about the music we play which...could be a problem for the ideology of improvisation [laughing], like, ahh, there’s less risk or there’s less surprise, or whatever, but my experience is quite the opposite. It’s actually—the really surprising moments which I’m interested in—happen with people I know really well, and where I feel confident in some ways, where there is kind of a common ground.” (P24, VC)

What might this familiarity or common ground be based on? As the participant went on to explain:

“So, this is maybe the interesting thing about improvised music. It’s not so much about aesthetics, but how do you know [laughing] that you’re playing

together, and that you agree? And I think that most of the time it comes, either if you play a lot together, that's one solution because there is a relationship. And also, you talk (a) lot about music, what you hear, what CDs you're listening to, what concerts you've heard, what you like, but ah, also ah, a lot of non-musical themes. I mean, you know a lot about each other, about social life [laughing], and a lot about political ideas. I don't know, that's one thing but also there are some, like some themes, you know around the world, and (there are) some improvising musicians in this scene, and they're more into this and this scene, and they try actually to play with people who are in the same scene, which is maybe a bad thing [laughing] for diversity, and whatever—which to me makes, ahh, I would say makes sense, from a musical point of view.” (P24, VC)

Although it's been found that ensembles may develop shared mental models over time (Canonne & Aucouturier, 2016), results from this study show that differing interpretations and reactions to others' approaches and musical propositions can certainly (and consistently) arise. According to one participant, for example, performers can often find themselves not in harmony, but in active disagreement:

“Because when people say free improvisation, they think you are in a paradise where everybody is nice to each other. It's not true [laughing]... There are some situations where you see there, okay, we need to find a way to go out of this mess.” (P22, VC)

Another participant highlighted precisely this point, discussing incongruence over genre / idiom choice:

“I thought this guy, it reminds me (of) the rock band Pixies... I love the Pixies but for improvisation it's too similar (to) something known... I try to tell them 'Oh make something (a) little bit strange', but no, it doesn't work.” (P6, VC)

Rhythm became another domain wherein mental models were not being shared among performers, where in this case a participant recounts how one musician's arrhythmic playing conflicts with others who are playing with a pulse:

“We are totally in control because we (are searching for) a pulse...When you make some arrhythmic music, there is no pulse, there is no harmonic, there (are) no clear chords, there is no tonality...Here we have a tonality and a pulse.”
(P7, VC)

In similar findings, Wilson and MacDonald (2017a) reported that free improvisational performers' “understandings of who did what and why converged at some points, notably during relative stasis, and diverged at others” (p. 142). Likewise, in an examination of jazz improvisers, shared understanding between musicians during performance was found to shift between that of the collaborative and individual practice (Schober & Spiro, 2014, as cited in Wilson & MacDonald, 2017a). Finally, Wilson and MacDonald (2017a) also note that in taking a social constructionist view (Nightingale & Cromby, 1999) of interaction during improvisation, performers act according to their identity constructions of others, and the perceived implications for any given sound or silence in their specific context may converge or diverge to any given degree for the performers. In the end however, amongst all the negotiations, agreements, and disagreements taking place between performing improvisers, perhaps one might welcome—or perhaps even seek—moments of conflict or friction:

“...in freely improvised music it is possible, maybe even necessary, to sometimes say ‘no’. Without ‘no’ there isn’t any friction, and without friction you basically have new age music. New age music is all ‘yes’. And, to my ear, that’s a much bigger ‘no’” (Corbett, 2016, p.20).

General Discussion

If the qualitative analysis of participant commentaries led to the emergence of the four interacting themes as presented above, what do these themes—guidance, character, environment, and story—and their constituent categories collectively reveal about the cognitive dynamics of the FI performer and the unscripted nature of the FI performance? Towards answering this question, as I previewed in Chapter 3, my study findings ultimately converged on an enactive cognition perspective (Thompson, 2007; Varela et al., 1991). Here I discuss this convergence through an examination of two concepts integral to enactive cognition that directly align with my participants’ self-reports and self-observations: embodiment and environmental embeddedness. As I discuss, both of these concepts show how meaning and understanding are physically enacted. In particular, I propose an overarching theme that FI can be construed as the act of real-time musical ‘scene building’, where not only are the performers deeply embodied and embedded in their environment, they are the autonomous and active *creators* of their own environment (or musical ‘scenes’).

Before getting to that discussion, however, two clarifying comments are in order regarding the outcome of my qualitative analysis. First, the themes of character, environment, and story my analysis revealed are not intended to delineate

specific time-scales in terms of when they are present or emerge within a FI performance, nor do they represent characters, environments, and stories in the literal sense. Instead, these ideas are embodied in the representational, as well as the abstract, and in their varying occurrences, co-occurrences, and durations during the unfolding realisation of an improvisation. Second, and to be clear, my goal was never to specifically support an enactive account of FI or music cognition more generally. Furthermore, in discussing FI through an enactive lens here, it is also not my intention to question the validity of more traditional cognitive perspectives on music performance, FI or otherwise. Rather, the ideas of enactive cognition as a theoretical framework for explaining my findings are, quite simply, where the participants' insights led me. As such, I outline below, literature examining issues of enactive music cognition, followed by participant quotes that appear to align with the two core concepts of enactive cognition: embodiment and embeddedness.

Music and Enactive Cognition

Enactive cognition is founded on the proposition that our knowledge and understanding of the world don't arise from internally "representing" or encoding information that is passively taken in from the external environment as traditional cognitivist accounts have it. Instead, the enactive cognition perspective proposes that "knowledge depends on being in a world that is inseparable from our bodies, our language, and our social history—in short, from our embodiment" (Varela et al., 1991, p. 149). Not surprisingly, the relevance of this perspective for understanding

music cognition and performance has certainly been recognized, with two points in particular ultimately informing on my study findings presented here.

First, by dispensing with the concept of internal mental representations, the enactivist perspective substantially enlarges our understanding of sound as a musical stimulus, both for the performer and listener (Matyja & Chiavio, 2013). As Hogg (2011) explains while discussing FI and sonic intertextuality, sounds do not carry meaning in and of themselves as traditional “representational” accounts might have it, but are instead “complex and mediated sets of relationships between physical sounds, perceptual systems, personal associations, culturally significant gestures, bodily and emotional responses, observed actions and reactions, and culturally learned expectations” (p. 89). In Hogg’s (2011) view FI is thus “a play across memory, history, embodiment, and culturally situated consciousness.” (p. 89). Iyer (2004) also asserts that music perception and cognition are embodied, embedded activities—ones that “are actively constructed by the listener, rather than resulting from a passive transfer from performer to listener. This active nature of music perception highlights the role of culture and context” (p. 159). In framing the environmentally-embedded nature of this, he further draws from Noë’s (2000) view that perceptual experience is a “temporally extended process of exploration of the environment on the part of an embodied animal” (p. 128), and draws parallels with this definition to musical improvisation. Speaking to this same issue, Iyer (2004) suggests that musical improvisation may be understood “as the in-time, temporally

extended exploratory interaction with the structure of one's acoustic, musical-formal, cultural, embodied, and situated environment" (p. 165).

Second, the body itself—or 'embodiment'—is essential to this creative musical process. As outlined in Matyja & Schiavio (2013), Acitores (2011) applies O'Regan and Noë's (2001) sensorimotor contingency theory and Gibson's (e.g., 1977) theory of affordances in her discussion of the interrelation between enactivism and musical consciousness. With relation to Gibson's affordances, she addresses the importance of the two interrelated concepts of 'bodiliness' and 'grabbiness'—the prior referring to body movements changing incoming sensory information, and the latter referring to sensory stimulation grabbing one's attention away from what one was previously doing (O'Regan, Myin, & Noë, 2004). In other words, how we move our bodies shapes and sculpts the nature of what we perceive about the world, but at the same time, what we perceive in the world alters and guides how we move.

For example, Krueger (2009), applies this enactive perspective on embodiment to 'deep listening' of instrumental music, wherein music listening episodes are seen as 'doings' and music is regarded as a mode of active perception—that is, "an exploration, manipulation, and drawing out of selected emotive properties via our sensorimotor engagement with the music" (p. 107). He states that music is an experiential art where the animate body shapes our musical experience, and quotes Nietzsche in saying 'we listen to music with our muscles'. Expanding on this, Krueger (2011) discusses how 'musical affordances'—that is, the

qualities of a piece of music—construct and regulate the emotional and social experiences for a sensitive listener. In outlining the specific kinds of movement involved in the enactment of music perception, Forlè (2017) integrates Krueger’s enactment theory (2009, 2011) with Straus’ (1930) reflections on spatiality—specifically, acoustic versus optic space—and distinctions between goal-directed and expressive movements. More specifically, Forlè suggests that Krueger’s analysis of music enactive perception is compatible with Straus’ specification that “optic space is the one of the measured, practical and goal-directed movement, whereas the acoustic space is the one of dance, and more generally of expressive movements” (Straus, 1930, p. 50, as cited in Forlè, 2017). Finally, in an enactive account of joint musical performance’ with the Danish String Quartet, Schiavio & Høffding’s (2015) suggest that “expert musicians’ experience of collective music-making is rooted in the dynamical patterns of perception and action that co-constitute the sonic environment(s) in which they are embedded” (p. 365).

Taken all together and viewed through this lens, the participants’ commentaries I’ve highlighted in the foregoing chapter sections clearly align with the enactive approach to understanding their musical processes in two key ways. One is by recognizing the embedded nature of the performer in their sound world, and the other is their heightened awareness and use of their bodies in dynamic interaction with, and within, this world. As such, to place Krueger’s description of enactive perception within a musical context, performers and their sound worlds can be described as “dynamically coupled and reciprocally determining” as they navigate

their way through their improvisations, with all elements “co-implicated in the structure of various cognitive processes” (Krueger, 2009, p.100). Indeed, as Hogg (2011) asserts, it’s this dynamic, creative, self-generated process that makes free improvisation accessible to expert and novice alike, as my own study found in terms of its range of participants’ experience with the genre:

“In the ways that free improvisation engages in an articulation of consciousness (understood in terms of the mutual encounter of the mental, the bodily, and the cultural / historical) even the most inexperienced or naïve improviser is always already trained, bringing complex layers and relays of knowledge, learned capabilities, and a creativity that can emerge from the interplay of these factors. This might be a good place, then, to stop ascribing too much significance to origins and the unprecedented, and to celebrate instead the cognitive virtuosity of any creative act.” (p.90)

With this ‘enactive’ understanding of musical improvisation in place, a few additional quotes from my study participants help to illustrate what was a striking convergence between their self-reported experiences during free improvisation on the one hand, and two concepts integral to enactive cognition on the other—embodiment and environmental embeddedness.

Embodiment

In their seminal book on enactive cognition, *The Embodied Mind*, Varela et al., (1991) define the concept of ‘embodiment’ by making two specific points—“first, that cognition depends upon the kinds of experience that come from having a body with various sensorimotor capacities, and second, that these individual sensorimotor capacities are themselves embedded in a more encompassing biological,

psychological and cultural context” (p. 172-173). Together this encapsulates the broader notion that our bodies are the medium by which we live in and experience our world, both physically and mentally. To this end, participants’ often spoke to issues of embodiment, in that their physical bodies were integral to the making and construal of their performances, that the body and mind were not exclusive, and that there is meaning behind one’s embodied actions:

“I’m more interested in movements, I mean in the body than in just sound...that’s a big difference for me between improvising and making a piece.” (P4, VC)

“I need to find myself again in my body so I start moving my feet.” (P15, VC)

“To find balance between body and soul, or mind and body. Or gesture and musical ideas.” (P5, VC)

“If we decide to play only with the body, we will miss...certain levels. If we decide (to focus on) mental (things), it will be a problem. Because it is too close to composition in that way, and to compose, this is another, another way.” (P18, VC)

“I am real impulsive guy, with music, not in real life, I am a very peaceful man [laughing]...some dreams and performance you can have physical pleasure to do things but of course after all, um, I am more interest(ed) if the music is beautiful than if I had pleasure physically. I prefer to have pleasure listening than...another kind of physical pleasure like to be dancing and playing the piano. Um, it’s a pleasure, I mean I, I mostly dance when I play the piano especially when I’m doing solos, but um, it’s because it makes sense for me to what I listen. Uh, it’s not because I want to dance [laughing].” (P17, VC)

And here, a participant talks about the awareness of how one is physically feeling at any given moment, and how that felt physicality directly impacts the performance itself:

“The best thing...and nice thing to do with improvisation is to be doing the right thing in relation with, uh, what you feel at the moment. Because for example if you are completely peaceful it’s quite hard to play fast.” (P17, VC)

Embeddedness

A logical extension of embodiment is that our bodies are also always situated or “embedded” in a physical and socio-cultural environment. From an enactive perspective, cognition thus emerges from the reciprocal, on-going interactions between the body and the environment its activity is embedded within. In the quotes below, we see how participants speak to an awareness of their bodies in physical space as an essential part of the unfolding performance experience and what it means to them:

“Here I’m trying to build intellectually, because I’m not [letting] my internal sensations come into play. So, I’m building, but I’m conscious of my surroundings, and it still interests me regardless. So here my body is starting to take up more space compared to before. Before, there was a bit of apprehension, I was a little scared. Suddenly, intellect takes control and structures it, but I know that’s not good for me so I try to get my body more into it and make my brain take less space. So, then it becomes more interesting... Yes, control, there was control because I wasn’t confident enough. It’s through the body that impulse and sensation happens.” (P15, VC)

“It’s when I start to feel like I want to direct it or be something identifiable to everyone that I lose myself. My system is to come back into the space and my body and to take time. That’s when I can find myself again.” (P15, VC)

“Yeah, if I feel that the control arrives, I move a lot, I move in the space...If I don’t move, the control just arrives like this.” (P15, VC)

But for the free improvisation performers in my study, embeddedness can be seen as more than just speaking to physical bodies enacting within a physical or

even socio-cultural environment. In true alignment with enactive cognition, the very performance itself can be seen as embedding the performers in dynamic, real-time, and enacted characters, stories, and sound environments:

“Going back to this idea of landscapes [laughing], it’s just like I am playing for example...the wind...in the little trees, and maybe suddenly M— will have an idea to build a river and, um, I can feel his height here and I will welcome it in the sound I (am) doing. But, we (would) be stupid at this moment, for example, to stop the wind just because there is a river...So for me...we are just building a landscape together, and sometimes it makes sense to react to what the event is, (what’s) happening, but sometimes you just have to continue developing your own things.” (P17, VC)

“In my case, I have kind of a vision, of what I would like to do, at this special moment, within this special context with these musicians...I have some pre-conceptions in some ways...at the moment, when it starts, of course the preconceptions are completely changed, because of what happens, so I think I build new preconceptions which are always changed by what’s happening.” (P24, VC)

“When he ends his breathing, (he) lets some space (in) also for me and we play, both, a little with the silence to let some tension appear. Because you know something will happen...there is a kind of suspension of the moment that something will happen.” (P17, VC)

But the above accounts are not just about embeddedness per se. They also directly speak to issues of enaction in the social context—echoing Fuchs & De Jaegher’s (2009) positioning that, in group settings, individuals are not engaged in the “solitary task of deciphering or simulating the movements of others”, but rather, enter “a process of embodied interaction and generating common meaning through it” (p. 465).

Solo vs. Group Performance

With the foregoing points made, one final question arises: Does my proposal of enactive scene building differ between solo and group improvisation? Of course, many regard solo free improvisation as very different from group free improvisation (e.g. Bailey, 1993), given the absence of exploring relationships with others, a greater loss of the unpredictable element provided by other players, and no collaborators to musically feed off of or to aid in the generation of new ideas. However, these are discussions of which I am not here to debate. Rather, in removing the human social element from free improvisation, I argue that soloists still engage in the dynamic enactment of their own musical ‘scenes’. Indeed, judging by participants’ feedback, their self- or co-constructed environments are rich with stimuli to interact with, whether self-generated or not. And it is perhaps because of all these possibilities for interaction that solo players in this project described themselves as not actually being alone. For example, soloists still spoke to issues such as synchrony, dialog, combat, and relationship crises (all found under the Story theme)—topics one might normally associate with a fellow human performer. Again, this by no means is meant to take away from the struggles soloists may face in the ongoing desire or need to generate new ideas or material—a challenge that may be alleviated by the presence of another fellow performer. Rather, it’s to argue that a lone player can still be the autonomous creator of his or her own sound world—one that is meaningful, satisfying, and enjoyable to both the listener and performer.

Bridging Summary

With my study of free improvisation concluded, I now transition to examining the impacts of applying improvisational principles to non-performance domains. More specifically, in Chapter 5 I will look at how techniques and exercises found in theatre improvisation can facilitate individual and interpersonal development within the social workplace setting. In my concluding Chapter 6, I will then discuss how musical free improvisation presents complementary and alternative methods to theatre improv towards helping patients in clinical and therapeutic domains.

CHAPTER 5:

Applying Improvisation in the Workplace and Beyond

Introduction

In this chapter I present the findings from my internship at Vancity. The project involved facilitating theatre-based applied improvisation (AI) for two top-level management teams, with the aim of improving workplace interactions and experiences. This project grew from a desire to understand the impacts of applying improvisational techniques in non-musical domains (such as the business environment), with the idea of ultimately informing on how the unique improvisational approaches of musical FI might provide complementary or alternative applications to other non-performance areas. Given that specific improv games are used to target certain skills training for participants in the business setting (e.g., active listening, adaptation, thinking on one's feet), I now offer a brief look at the roots of improvisational theatre games.

Roots of Improvisational Theatre Games

Viola Spolin, often referred to as the “mother of improvisation”, was the originator of Theatre Games which came to form the basis of improvisational theatre. As a social worker in the 1920's – 30's, Spolin initially created these games in order to help immigrant children develop confidence, self-expression, and empathy through a form of creative play that crossed ethnic and cultural boundaries. Spolin also worked extensively as an educator and acting coach, where the use of these

acting exercises helped actors hone effective performance and improvisational skills. These techniques—along with her philosophy and teaching methods—were later published in her seminal book *Improvisation for the Theatre*, widely considered to be the “bible” of improvisational theatre. In her book, Spolin (1963) described improvisational theatre as: “Playing the game; setting to solve a problem with no preconception as to how you will do it; permitting everything in the environment to work for you in solving a problem” (p. 383), and she believed that “Everyone can act. Everyone can improvise. Anyone who wishes to can play in the theater and learn to become ‘stage-worthy’” (p. 3).

Business Improvisation

In the spirit of Spolin’s vision for improv, the tools and techniques of theatre games are often used outside of the theatrical setting—and one such area is with business improvisation training. Business improv is the non-theatrical use of improvisation skills in the workplace. The purpose isn’t about providing comedy relief or entertainment to audiences—nor is it to teach participants how to become improv performers. Rather, it’s to show them how to apply improv principles and exercises in the workplace to help improve skills such as effective collaboration, communication, active listening, creative problem solving, change agility, cultural understanding, empathy, and emotional intelligence.

There exists no singular definition or construal of how one might understand the role of improvisation through the organizational lens. As outlined by Moorman &

Miner (1998), these organizational perspective on improvisation span and include a wide range of issues and domains. In the area of communication, Bastien and Hostager posit that “the acts of composing and performing are inseparable, and each composition / performance is different from all previous compositions / performances (1992, p.95). And in the realm of management, improv is described as: “Intuition guiding action in a spontaneous way” (Crossan & Sorrenti, 1997, p. 1); “Intuition guiding action upon something in a spontaneous but historically contextualized way” (Hatch, 1997, p.5); “An activity which requires no preparation and obeys no rules” (Mangham, 1986, p. 65); “The casting around for a precedent or referent that will enable someone to deal with a circumstance for which no script appears to be immediately at hand” (Mangham & Pye, 1991, 41); “On the spot surfacing, criticizing, restructuring, and testing of intuitive understandings of experienced phenomena” (Schon, 1983, p. 147); “Knowing-in-action” and “Reflection-in-action” (Weick, 1987, p.276), and “a just-in-time strategy” (Weick, 1987, p 229); “Improvisation implies attention rather than intention drives the process of designing” (Weick, 1993, p. 351); and “Thinking and doing unfold simultaneously” and “Retrospective sensemaking” (Weick, 1996, p. 19). More recently, improvisation also has been defined as “the conception of action as it unfolds, drawing on the available resources” (Cunha, Cunha, & Kamoche, 1999), and “creativity, adaptation, and innovation under time pressure” (Hodge & Ratten, 2015).

As cited by Ratten & Hodge (2016), Mintzberg (1973) suggests that up to 90

percent of managerial interactions and behaviours are improvised. But only recently has theatre-based improv been incorporated into business school curriculums (Aylesworth, 2008; Huffaker & West, 2005). Indeed, business improv is increasingly being recognized as an effective method for enhancing workplace productivity and satisfaction. Attesting to this, companies such as Google, Microsoft, Ebay, and Citigroup, and many top-tier business schools such as MIT, Stanford, Duke, and Columbia all include theatre-based improv in their student / employee training as noted in articles from a host of web-based outlets: “Why using improvisation to teach business skills is no joke” (Tutton, 2010), “Management training: Improv in the workplace” (Wood, 2012), “Why improv training is great business training” (Scinto, 2014), “Attention, all scientists: Do improv, with Alan Alda’s help” (Chang, 2015), “How improv acting makes better technologists” (Trybus, 2013), and “3 improv exercises that can change the way your team works” (Yorton, 2015).

Importantly, these business developments have not been ignored in the scholarly literature. However, much of this literature is theoretical in nature, with very little empirical research examining the application of improvisational constructs in the workplace. That said, it has been proposed that training in theatrical improv offers an effective approach for enhancing business negotiation (Balachandra, Bordone, Menkel-Meadow, Ringstrom, & Sarath, 2005; Harding, 2004), management development (Gibb, 2004), service recovery (Cunha, Rego, & Kamoche, 2009), new product development (Akgün, Byrne, Lynn, & Keskin, 2007; Magni, Maruping, Hoegl, & Proserpio, 2013), organizational development consulting

(Stager Jacques, 2013), team adaptation (Abrantes, Passos, Cunha, & Santos, 2018), and communication practice (Falkheimer & Sandberg, 2018).

But what do we understand of the training itself, in terms of what social-cognitive-affective skills are actually targeted at the individual level? As adapted from Hogan and Warrenfeltz (2003), Ratten and Hodge (2016) propose that they coalesce under three main themes that collectively interact: task-related skills, interpersonal skills, and intrapersonal skills. These themes and examples of their corresponding literature are presented below.

First, Ratten and Hodge (2016) define task-related skills as “tasks that are performed at work that do not involve interaction with others or self-management” (p. 151). In other words, they concern the operational pragmatics of the given task itself. In support of improv’s capacity to exert positive impacts on task-related skills, Ratten and Hodge (2016) outline suggested ways in which improvisation may improve participants’ ability to craft strategy (Crossan, 1998), focus teams’ thinking on processes rather than outcomes (Vera & Crossan, 2004), and facilitate the development of new products (Moorman & Miner, 1998b).

Second, in contrast to rote task pragmatics, Ratten and Hodge (2016) define intrapersonal skills to be “skills of self-management” (p. 151). Whereas task-related skills will be idiosyncratic to the given task at hand, intrapersonal skills generalize across task situations and thus provide for a direct mapping onto specific improv

concepts that can be targeted in training. In this regard, Ratten and Hodge (2016) list six theatrical improv concepts that, if trained in an individual, are central to developing and promoting effective intrapersonal workplace skills: 1. Being present, and aware of one's own thoughts and feelings in the moment (Stager Jacques, 2013); 2. Creativity (FitzPatrick, 2002); 3. Trust (Aylesworth, 2008; Dennard, 2000; Kirsten & Du Preez, 2010; Koppett, 2002); 4. Self-awareness—also an important element towards improved interpersonal interactions (Stager Jacques, 2013); 5. Flexibility (Vera & Crossan, 2004); and 6. Having fun (Aylesworth, 2008; Huffaker & West, 2005).

Finally, Ratten and Hodge's (2016) third theme—interpersonal skills—concerns those skills involved in effectively interacting with other individuals. These skills are also seen as having a direct mapping onto specific improv concepts, and in particular, those directly associated with collaborating with others in the pursuit of a common goal. Specifically, Ratten and Hodge (2016) identify three concepts under this theme: 1. 'Yes, and', or how to accept and build upon an offer from an interaction partner (Koppett, 2002; Vera & Crossan, 2005); 2. Spontaneity, or the need to "go with the flow" (Crossan, 1998; FitzPatrick, 2002; Hodge & Ratten, 2015); 3. Teamwork, or working collectively towards a common goal (Kirsten & Du Preez, 2010; Vera & Crossan, 2004).

If Ratten & Hodge (2016) have recently identified a three-themed structure under which the positive business impacts of improv training can be understood,

they have also identified two central gaps in the improv literature that my proposal directly addresses. First, quite simply, there is very little empirical work supporting the above cited literature. Rather, the links being made between improv training and positive business impacts are rooted in theory rather than direct evidence—hence, Ratten and Hodge’s call for research grounded in the application of improv principles to actual participants. Second, the analysis of improv in the workplace has mainly been at the team level, with little understanding of what actual effects are accumulating at the individual level. Given these two gaps, my internship project with Vancity Credit Union aimed to address both of these issues and research needs.

Vancity Internship

I completed an internship at Vancity Credit Union in 2016 as part of Mitacs’ Accelerate Internship Program. A national, not-for-profit organization that supports partnerships between academic researchers and industry, Mitacs allowed me to gain valuable work experience with Vancity—from learning about organizational structure and needs, to creating and facilitating business improv training programs for two top-level management teams.

At the start of our discussions about this project, it was clear that Vancity’s *Director of People Innovation and Impact* was familiar with and amenable to the use of improv training in the workplace. As part of a letter he provided in support of the internship application, he wrote: “As an organization in the midst of significant

cultural, procedural and technological change, our leader's ability to be open, resilient and agile is becoming more critical. We have just begun exploring improvisational experiences as part of our management training curriculum, however these experiences are limited to a single session. We are interested in seeing whether we could benefit from a more focused and longer-term experience for our leaders and measuring the impact on the participant's change agility, team dynamics and objective work results."

I will now discuss the general methodology I implemented for the project. Then for each team, I will outline the methods I employed. Following that, I will present the analysis and results of participants' feedback, a discussion of the findings, limitations, future directions, and conclusion.

Methodology

Two top-level management teams at Vancity's Vancouver head office took part in this project, and they will be referred to here as Team 1 and Team 2. There were three main objectives for this project:

1. To improve the general workplace experience for participants, and to help them address specific team goals. Namely, my aim was to gain a deeper understanding of which specific exercises were found to be most enjoyable and impactful throughout the course of the training.

2. To assess whether the immense anecdotal support for business improv training is valid. This was achieved by gathering feedback from employees in order to gain key insights into their individual experiences with the sessions.

3. To highlight any emerging patterns or themes from the data.

Importantly, these project aims targeted gathering data that would inform on the development of more efficient and effective training solutions—critical factors to consider when dealing with fast-paced work environments where organizational change is ongoing and time is scarce. As such, I used a participatory methodological approach (Bergold & Thomas, 2012) in the design of the training. This meant that the participants played an active role in the research process, and their involvement was achieved at four main levels:

1. At the start, I met with the *Director of People Innovation and Impact* at Vancity to discuss logistics, training goals, exercise details, as well as potential team leaders he would approach for the recruitment of their teams for training.

2. I met with the leaders of each of the two teams that agreed to take part in order to understand the skills they wanted addressed in the training. This included brief discussions about team members' personality types, as well as discussions about team background and responsibilities.

3. Within each session, participants provided real-time feedback in the form of their emotional reactions to exercises, explicit statements made to myself or others, and the overall energy in the room.

4. Surveys and feedback questionnaires were completed by participants at different stages of the training schedules.

So why use the participatory methodology for this project? In a non-laboratory based, real-world situation where an organization is looking for effective, time-efficient methods to improve individual skills and employee interactions, there is clearly a need to adapt and adjust training according to the group's work demands. This study was thus trying to capture the results of such a real-world situation. As the facilitator, factors I had to take into consideration included participants' organizational roles, personalities, relationships with other members within the team, and each team's culture.

Training sessions

Team 1 took part in 10 weeks of training and Team 2 took part in nine weeks of training, with each session lasting for one hour (Figure 5.1). Each of the sessions involved a series of theatre improv exercises, usually followed by a debrief of participants' experiences including discussion of its relevance to team topics or to the business environment in general. Each session included warmup games leading to more-focused skills training based on the requested aims of the team leader.

Although the games for each session were preplanned, the final order and inclusion (or omission) of exercises was constantly being adjusted within the session based on a host of factors: the number of participants present that day, the mood or energy of the group, participants' in-the-moment responses to particular exercises, general feedback during training, and the time that each exercise and debrief took. One could say that given these necessary real-time adaptations, each session itself was improvised to some extent. On a broader timescale, the overall training curriculums were not predesigned. Although the plan in general was for the sessions to become increasingly challenging for the participants over time, forthcoming sessions were only designed from week to week based on the progress made and the reception of exercises from the previous session.

Figure 5.1. Photos of Team 1 and Team 2 during improv training sessions.



Vancity Team 1 Methods

As mentioned above, I met with the team leader prior to commencement of the training sessions in order to familiarize myself with the responsibilities and individual characteristics of the team members, and to discuss the skills training she felt would be most relevant and helpful to those taking part.

Some of the participants had been long-standing members of the team while others were relatively new to the group. Their responsibilities included dealing with commercial mortgages, business loans, financing, and cash management. Members were also described as being “out in the community” for their work, as well as taking part in numerous community events. In these respects, the leader wanted to know how they could grow their business portfolios, to become more innovative in different demographics, and to be more adept at “switching hats” in challenging situations. She wanted her members to be more effective coaches and team leaders themselves.

For the group as a whole, the leader wanted the exercises to improve team building and trust, and to create an atmosphere where new ideas would be welcomed and not “squashed”. The underlying ‘Yes, and...’ principle found in improv exercises was discussed as a way to facilitate team support.

On the more individual level, some of the members were described as being over-achievers and over-thinkers. As such, the leader wanted members to work on

a host of skills including spontaneity, mental agility, change agility, risk-taking, becoming more comfortable with failure, building the creative muscle, “getting out of the box”, and “doing things differently”.

Demographic information

Team 1 included 15 team members (6 female). The mean age was 46.3 years. Due to participants' heavy work demands, attendance varied week to week throughout the training period. Before the first session, participants completed a short pre-training survey addressing questions such as their current role at Vancity, how long they've worked in this current capacity, how long they've worked with their current team, how long they've worked with their current supervisor, any past positions at Vancity, and total years at Vancity (Table 5.1).

Table 5.1. Team 1 demographic information.

Participant	Age	Gender	What is your current role at Vancity?	How long have you worked in this current capacity?	How long have you worked with your current team?	How long have you worked with your current supervisor?	Please list any past position(s) at Vancity	Total years at Vancity
1	46	Female	Manager	2 years	2 years	2 years	Account Manager	4 years, 2 months
2	46	Female	Investment Manager	1.5 years	1.5 years	6 months	N/A	1.5 years
3	50	Male	Manager Community Business Support	10 years	10 years	3 years	Analyst	15 years
4	42	Male	Director, Community Business	2 years +	10 years +	2 years +	Manager, Business Banking Support; Regional Mgr; Account Mgr.	10 years +
5	56	Male	Manager, Community Business Support	5 years	5 years	2 years	Account Manager, Community Business	11 years
6	52	Male	Regional Manager, Community Business	4 years	1 year	< 1 year	Manager Operations; Account Manager	11 years
7	41	Female	Regional Manager, Community Business	13 months	13 months	2 – 3 months	Community Business Account Manager	10 years

Table 5.1. Team 1 demographic information (continued).

Participant	Age	Gender	What is your current role at Vancity?	How long have you worked in this current capacity?	How long have you worked with your current team?	How long have you worked with your current supervisor ?	Please list any past position(s) at Vancity	Total years at Vancity
8	42	Female	Manager Operations Community Business	3 months	9 years	8 months supervisor / VP; 2 years colleague	Product Manager; Segment Manager; Employee Engagement Manager; Process Enhancement Manager; Account Manager; MicroCredit Specialist	23 years
9	41	Female	Vice President Community Business	< 1 year	~ 2 years	~ 2 years	Director, Community Capital	4.5 years
10	52	Female	[no answer given]	2 years	2 years	2 years	[no answer given]	28 years
11	50	Male	Regional Manager	10 years	2 years	2 months	Account Manager, Area Manager	11 years
12	45	Male	Regional Manager	2 years	2 years	2 – 3 months	Account Manager	10 years
13	39	Male	Regional Manager Community Business	13 months	13 months	2 months	Branch Manager	17 years

Table 5.1. Team 1 demographic information (continued).

Participant	Age	Gender	What is your current role at Vancity?	How long have you worked in this current capacity?	How long have you worked with your current team?	How long have you worked with your current supervisor?	Please list any past position(s) at Vancity	Total years at Vancity
14	47	Male	Director, Business Member Relationships	2 months	2 months	2 months	Director CMS; Business Team Lead; Sr. Branch Manager; Branch Manager	24 years
15	46	Male	Regional Manager	15 years	2 years	6 months	FSR Loans Officer; Business Analyst; Business Account Manager	22 years

Subjective reports

In addition, participants were asked to rate (on a scale of 1 – 7) their general improv ability, theatre improv ability, and receptivity to the upcoming improv training sessions. The average ratings were: 3.10 for general improv ability, 2.07 for theatre improv ability, and 4.39 for receptivity to the upcoming improv training sessions.

Feedback survey

My goal for this project was to examine the extent to which improvisational exercises would result in employees and managers reporting positive changes in individual and group workplace performance following training—for example, improvements in areas such as thinking on one’s feet, creativity, and communication. As such, participants in both groups were asked to fill out a survey to introspect on their own feelings and behaviours and to provide feedback regarding any noticeable changes in their interactions with others as a result of the improv training.

For Vancity Team 1, 8 out of the 15 participants completed the post-training survey. The survey was emailed to all participants 3 weeks after training via Survey Monkey; this platform allowed them to easily enter and submit their answers online out of acknowledgment and respect for their limited time (i.e., they wouldn’t be required to attend another in-person gathering, and they could fill out the surveys when they had a moment to spare). In terms of overall timeframe, filling out the survey several weeks after the sessions would allow participants to assess whether

they noticed any longer-term impacts of training. Questions also included asking participants to report which exercises were their favourite and least favourite, and which exercises they found were most helpful and least helpful to their workplace (Appendix B).

Vancity Team 2 Methods

As with Team 1, I met with the leader of Team 2 prior to the start of their training sessions. I learned about the culture of the team, member personalities, and the skills I should target over the course of the training. As the team was relatively new, one of our goals was to help build a positive group synergy. The motto for the management area, of which this group was a part, was “One People Solutions”. As such, we talked about creating a flat versus pyramidal hierarchy, and where interactions could move “from child-to-adult to adult-to-adult.”

The leader also described team members as being experts in their particular roles, and that they were prone to “protecting one’s own turf”. Discussion was centered around training that would help participants strengthen innovation, become more vulnerable with one another, and to overcome the fear of failure. The leader wanted members to see mistakes as opportunities, and to feel more comfortable with speaking up and making statements. In also wanting members to exhibit greater spontaneity, he referenced one team member, in particular, who was known as a data guru who had a propensity to think first rather than respond in the moment.

Demographic information

Team 2 included 11 participants (6 female). The demographic forms for participants 5 and 9 were not received. Of the 9 other participants, the calculated mean age was 39.44 years. Attendance, once again, varied week to week due to participants' busy work schedules. Just as with Team 1, participants completed a short pre-training survey addressing questions such as their current role at Vancity, how long they've worked in this current capacity, how long they've worked with their current team, how long they've worked with their current supervisor, any past positions at Vancity, and total years at Vancity (Table 5.2).

Table 5.2. Team 2 demographic information.

Participant	Age	Gender	What is your current role at Vancity?	How long have you worked in this current capacity?	How long have you worked with your current team?	How long have you worked with your current supervisor?	Please list any past position(s) at Vancity	Total years at Vancity
1	53	Female	Acting Director, People Solutions	6 months	10 years	3 years	Business Partner; Sr. Business Consultant; Officer, HR	10 years
2	47	Female	Manager, Talent	8 months	8 months	6 months	OD Consultant, Sr. HR Business Consultant, Recruiter, Account Manager	22 years
3	35	Male	Director, HR	5 months	2.5 years	5 months	Manager, HR	2.5 years
4	38	Male	Manager, Total Rewards	7 months	7 months	7 months	Consultant, Innovation & Impact	1.5 years
6	30	Female	Business Partner	2 years	Couple of months	2 years	PS Consultant	4.5 years
7	38	Female	Manager, PS Support; HRIS	6 years	10 years	6 months	Consultant, Manager - HRIS	10 years
8	38	Female	Business Partner	5 months	5 months	5 months	HR Business Consultant; Manager, Investment Solutions; Manager, Training & Development	12.5 years
10	38	Male	Director; People Innovation & Impact	2.5 years	2.5 years	2.5 years	Bar Project Lead / Director	5.5 years
11	38	Male	Director, Bar Learning	6 months	6 months	6 months	Director, People Support (2 years)	2.5 years

Subjective reports

Participants were also asked to rate (on a scale of 1 – 7) their general improv ability, theatre improv ability, and receptivity to the upcoming improv training sessions. The average ratings were: 3.56 for general improv ability, 3.00 for theatre improv ability, and 6.44 for receptivity to the upcoming improv training sessions.

Feedback Survey

For Vancity Team 2, 10 out of the 11 participants completed the survey which was administered at the end of the 5th session. The decision to move this to the midpoint of the training session was fourfold: (1) to have a better chance of gaining feedback from participants already present in the session (vs. delay or non-response to an online survey), (2) to gain critical feedback on how the sessions were going so far, and to adjust accordingly, (3) to understand what participants would like to see more of in future sessions (hence, this additional survey question compared with Vancity Team 1), and (4) reserving time at the end of a session where participants were already present eliminated the need for them to take extra time out of their already-packed schedules. As with Team 1, questions included asking participants to report which exercises were their favourite and least favourite, and which exercises they found were most helpful and least helpful to their workplace (Appendix C).

Data Analysis

Similar to the musical FI project presented above, the primary method of

analysis for the business improv study again involved the use of qualitative coding to discover possible emergent themes (Saldaña, 2009). All of the survey feedback provided by participants was included in the analysis. By way of initial data organization, a table was created for each survey question with all the participants' answers for that specific question listed within the table. This was to allow for coding of emergent patterns both within and between questions / tables. Once all the data were entered in the tables, hard copies were printed out for manual coding via paper / pen methods. The first phase of coding began with all of Team 1's survey answers, while the second phase of coding included all of Team 2's survey answers. After these initial rounds, the data set for each team was continually revisited on its own—leading to the eventual emergence of common categories and themes between the two teams. That is to say, the end analysis converged on a singular set of categories and themes as informed by feedback from both teams.

Codes: Survey answers provided by the participants were quite brief, ranging from single words to several sentences. Given this, the sub-codes (words or short phrases leading to codes) and the codes themselves were primarily *in vivo*—that is, words that were taken directly from what participants said. With the coding process itself, I began by underlining salient words in the text. Sub-codes and codes were then written out below each table, along with concurrent memo-ing and diagram-drawing with the aim of looking for patterns in the sub-codes / codes.

Categories and themes: In the generation of categories and themes, the coding

process was informed by the patterns of similarity, difference, and frequency amongst the identified codes, as well as their common relation or correspondence to an event or activity (Hatch, 2002, as cited in Saldaña, 2009). During this process a superordinate theme also emerged, as reported below.

Results

Exercises were targeted to the aims of the team leaders as well as ongoing feedback from participants during the training sessions. What became apparent through analyses of written feedback was the common categories and themes found in both groups. I will outline examples of sub-codes and codes found in the self-reports provided by Vancity Team 1, followed by those found with Team 2. Then I will present the categories and themes found in common with both teams, leading us to a final proposed overarching theme.

Vancity team 1

In the initial coding, sub-codes and codes were identified. The sub-codes—both *in vivo* (terms used by the participants themselves) and descriptive (summarization of a basic topic)—were key words and short phrases close to the data that were grouped together to form a code. The sub-codes (in brackets) and codes extracted from participant feedback included: speed (quick, fast), competitive, ice-breakers, invigorating, positive mood and morale (fun, hilarious, enjoyable, lightness, day to day levity, facilitating dialogue), warm-up, focus, observation, not embarrassing, simple, outside comfort zone, difficulty, creativity, initiative, in front of

group, team building (trust, open communication, cooperation, camaraderie, gelling, getting to know one another, understanding peers' communication styles), values, confidence (comfort, less anxiety, improvement and greater ease over time), success.

Vancity team 2

As with Team 1, initial coding once again identified sub-codes (in brackets) and their corresponding codes: team bonding (relationship-building, connection, camaraderie, collaboration, trust), creativity, listening, positive mood and morale (fun, laughter, smiling, humour, happiness, playfulness, silliness, relaxation, lightness, brightens up day), role / scenario playing, support (helping), challenge (push us more, outside comfort zone), group setting, discomfort / increased comfort, overthinking, vulnerability, authenticity (less charade), equality (equal footing, all 'equal'), de-stressor (stress management, stress relief, good distraction), new side of colleagues, confidence (speaking with higher volume, less reserved, willingness to speak, willingness to try, public speaking, coming out of shell, positive voice), spontaneity (thinking quickly, in the moment, thinking on the spot, suspending voice of judgment), thinking laterally, simplicity, 'being on stage', skits, communication, "yes, and-ing" (building off others' ideas, playing off of (and with) each other's ideas, having others build off of my ideas), failure as learning, tangible, open, sharing, agility (mental agility, agile in interactions, adaptation to change), observation, sustainment, incorporation into work (referencing, use of improv language in discussions), everyday impacts (better husband and father, seeing how people

respond).

Common categories and themes

Common categories were found between both teams. These categories included: individual skills acquisition, team dynamics, team bonding, empathy, mental health, simplicity, performance, referencing, practice, and temporal change. The themes emerging from these categories are presented in Table 5.3 with examples from relevant survey questions and participants' corresponding answers.

Table 5.3. Emergent themes from participants' survey answers.

Theme	Survey questions	Examples from participants' survey answers
Observations of growth in self in a dynamic group setting	<p>Favourite exercises</p> <p>Exercises most helpful / relevant to workplace</p> <p>Changes in self during or after sessions</p> <p>Additional comments / suggestions</p>	<p>- Bad rap was super fun. I like the challenge of thinking on the spot & suspending the voice of judgment. Felt good to let go and feel supported. (Team 2)</p> <p>- All exercises that involved speaking in front of the group. The more reps speaking in front of others, the easier it becomes. (Team 1)</p> <p>- Demonstrating the vulnerable / authentic "you"; Less charade. All "equal". (Team 2)</p> <p>- Dancing across the stage gives you more confidence to introduce yourself & find your positive voice. (Team 2)</p> <p>- Yes, I was more confident in my interactions with others (Team 1)</p> <p>- After the first 2 sessions, my level of anxiety dropped substantially and I looked forward to the next session (Team 1)</p> <p>- Became easier during the course of the improv sessions. (Team 1)</p> <p>- Became more comfortable with each session. Going in, had a fear of being embarrassed or not able to complete the task. Fortunately, the tasks were not difficult and rarely isolated the individual. (Team 1)</p> <p>- Yes – more comfortable with a certain participant in our group; Less reserved to not be perfect. (Team 2)</p> <p>- More confidence; Happier; Willing to speak; Thinking less, doing more. (Team 2)</p> <p>- More relaxed to be myself with the team. (Team 2)</p> <p>- I love learning about how this type of technique can improve both your mental agility but ability overall (at least that's what I have found). (Team 2)</p>
Observations of growth in others in a dynamic group setting	<p>Changes in others during or after sessions</p> <p>Changes in interactions with others</p>	<p>- Others became more confident and comfortable with other team members. (Team 1)</p> <p>- Some quieter co-workers opened up a little more than expected. (Team 1)</p> <p>- Others have come out of their shell; Willingness to try. (Team 2)</p> <p>- Some more reserved individuals have spoken with higher volume in a work setting. (Team 2)</p>

Table 5.3. Emergent themes from participants' survey answers (continued).

Theme	Survey questions	Examples from participants' survey answers
Improved personal well-being	<p>Changes in self during or after sessions</p> <p>Additional comments / suggestions</p>	<p>- I would say I noticed the afternoons were lighter in my attitude and less intense. (Team 1)</p> <p>- I'm much happier after I leave the session. (Team 2)</p> <p>- ↑ Confidence, ↑ Playfulness with team. (Team 2)</p> <p>- I really value the improv session as it helps me grow as a person & also brightens up my day – so much fun to laugh with my coworkers. (Team 2)</p> <p>- I've really enjoyed this experience. It has blown away my expectations and am disappointed if I have to miss it. (Team 2)</p> <p>- Super fun. Can't wait for more. (Team 2)</p>

Table 5.3. Emergent themes from participants' survey answers (continued).

Theme	Survey questions	Examples from participants' survey answers
Elevated group morale and increased enjoyment in a dynamic group setting	Favorite exercises	<ul style="list-style-type: none"> - Group exercises that moved quickly and made you think fast. (Team 1) - Group exercises involving role play because they were enjoyable and funny (Team 1) - I enjoyed the circle group warm-up activities and the games where we observed and had to guess the person's quirk. (Team 1) - I enjoy working with the group and the in the moment creativity required. I like building off of others' ideas, having others build off of my ideas. (Team 2) - Vacation Photo Album – I liked working with people, playing off of (and with) each other's ideas. (Team 2) - The “99 xxx” activity was fun as it allowed us to practice improv in a “group” setting. As someone new to improv, I didn't feel any pressure and got to experience it when I was comfortable to “step up” on stage. (Team 2)
	Exercises most helpful / relevant to workplace	<ul style="list-style-type: none"> - Exercises where you had to improvise in front of the full group. (Team 1) - Exercises that spark humour as they are good stress management – such as the panel interview type exercise. (Team 2)
	Exercises least helpful / relevant	<ul style="list-style-type: none"> - N/A – stretch and some silliness is good for us at 3:00 pm! (Team 2)
	Exercises you would like to see more of	<ul style="list-style-type: none"> - Skits or stand up group presentations; The ‘random’ slides activity was fun. (Team 2)
	Changes in self	<ul style="list-style-type: none"> - Great destresser & excellent team bonding – well worth the time investment. Wish it was all year <u>long</u>! (Team 2)
	Culture / core values of team	<ul style="list-style-type: none"> - Trust is a core value. I believe open communication is something we strive for but may not always succeed and both these are linked to improv. I think another important one is “have fun” which we sometimes forget and improv injected this. (Team 1) - We have a good cooperative team that wants others to be successful – these activities reinforced our team. (Team 1)
	Additional comments / suggestions	<ul style="list-style-type: none"> - I loved our time. It was something I looked forward to every week & I miss it. (Team 1) - In addition to building skills to respond in the moment and enhance team connection, improv has proven to be a good distraction / stress relief from the pressures of day to day work. (Team 2) - More of the team-based “scenes” or games... (Team 2)

Table 5.3. Emergent themes from participants' survey answers (continued).

Theme	Survey questions	Examples from participants' survey answers
Deepening of connections within group	Favourite exercises	- Warmup (group synergy); Where we laugh from belly (bonding). (Team 1)
	Exercises most relevant / helpful to workplace	- Those that help me see a different or new side of my colleagues – this is helping to build relationships. (Team 2)
	Changes in self during or after sessions	<ul style="list-style-type: none"> - I also think it helped me get to know my peers better in a non-judgmental environment. (Team 1) - I actually missed getting together regularly with my colleagues. (Team 1) - Definitely notice that I am connecting with colleagues in a fun / light way. It helps build trust + team in very tangible ways. (Team 2)
	Changes in interactions with others during or after sessions	<ul style="list-style-type: none"> - I enjoy interacting with the other Managers in our group. It was a great chance to get to know them better and understand their preferred communication styles. (Team 1) - I had some good dialogue with others during the sessions; now that the sessions are over, it seems to have been forgotten. (Team 1) - Made the team more at ease with each other. (Team 1) - I think this helped us gel as a team. (Team 1) - Perhaps the group got to know one another a bit better and build some additional trust and camaraderie. (Team 1) - I think it was a great team building activity that brought the group closer together in a way. (Team 1) - Increased camaraderie with colleagues (Team 2) - Happier = more smiling = better / deep relationships. (Team 2) - More connected; Able to laugh about the experience. (Team 2) - ↑ In trust; ↑ In respect. (Team 2) - As a newer member to the team, this has helped me to get to know people on a more personal level. (Team 2) - Yes. Better Listening. Able to articulate failure as learning. (Team 2) - A few interactions have been “lighter” – we can smile at each other even when work stuff is intense. (Team 2)
	Changes in others	<ul style="list-style-type: none"> - Just more bonded; Happier; Open; Sharing. (Team 2) - I think we are a bit more relaxed with each other. Improv puts everyone on equal footing. (Team 2) - Interactions seem a little more relaxed. (Team 2)

Table 5.3. Emergent themes from participants' survey answers (continued).

Theme	Survey questions	Examples from participants' survey answers
Relevance to workplace and everyday life	Favourite exercises	- 'And' 'But' because these are common phrases that can enhance or detract from team. (Team 2)
	Exercises most helpful / relevant to workplace	<ul style="list-style-type: none"> - All are helpful / relevant in one way or another. Particularly helpful are those that require collaboration + helping each other. (Team 2) - Listening exercises are most helpful. We spend so much time in meetings & yet <u>so</u> much gets missed (e.g., need another meeting) because people aren't listening to each other. (Team 2) - The "99 xxx" activity was helpful as we are often asked to comment "in the moment" on various topics. This is good practice to think laterally. (Team 2)
	Exercises you would like to see more of	<ul style="list-style-type: none"> - Those that require spontaneous and / or creative thinking / actions. These are good skills to have and very applicable to what we have to deal with at work. (Team 2) - Communication focused – similar to 'and' / 'but' exercise. This is very applicable and useful to our day to day work. (Team 2) - Group activities (esp. talk show) – I think that we can do better with our "yes, and-ing" and opening up each other's potential. (Team 2)
	Changes in self	<ul style="list-style-type: none"> - My view of improv has changed for the positive; I'm more aware of the fact that I need to incorporate improv in my life to better adapt to change. (Team 2) - Yes – I am a better husband / father when I go home after improv. (Team 2)
	Changes in others	- The management team is using some of the language in discussions or referencing different exercises – usually in a fun matter – it's brought us more connection with each other. (Team 2)
	Additional comments / suggestions	<ul style="list-style-type: none"> - I find I'm practicing the listening one a lot both at work + personal life – so interesting to see how people respond. (Team 2) - This experience has led me to incorporate improv into training for our core banking system. I think that the sustainment through multiple classes is important and powerful. (Team 2)

Given the limited amount of data and time I had with the teams, I could not formulate, in full confidence, a formal theory for this project. However, I do offer a key assertion (Erickson, 1986, as cited in Saldaña, 2009) or overarching theme: The impacts of improvisation training on self and on social dynamics were driven by the presence and actions of others. This overarching theme represents a progression “from the particular to the general” (Saldaña, 2009, p. 13) and infers transfer—“by predicting patterns of what may be observed and what may happen in similar present and future contexts” (Saldaña, 2009, p. 13). This proposed overarching theme was deeply informed by the pattern of correspondence to the social context in which the training took place. In looking at the participants’ feedback, it is clear that the reported impacts of the training—whether it be growth, challenges, or discomfort—were closely associated with the presence and actions of others.

Discussion

To review, the main objectives for this project were three-fold: The first aim was to improve the general workplace experience for participants, and to help them address specific team goals. Second, the goal was to assess whether the existing anecdotal support for business improv training is indeed valid. And finally, the third aim was to highlight any emerging patterns or themes from the data—findings that might prove informative when looking at how musical free improvisation may reveal similar patterns and provide additional, novel ways of application in non-performance domains.

Given the resulting codes, categories, and themes that emerged from participants' feedback, it appears that the overall targeted training for participants did in fact help to improve the general workplace experience for participants, and to address team goals. These reported impacts included stronger interpersonal bonds, increased team morale, much-needed stress relief, individual growth, positive memories, and continued references to the shared experience post-training. These results also corroborate the many anecdotal reports extolling the benefits of business improv training.

Of greatest interest is the overarching theme I present as a result of the data analyses: The impacts of improv on self and on social dynamics are driven by the presence and actions of others. This highlights the importance of the social context under which personal and interpersonal growth can occur. In fact, it's been found that people work better in teams even if they are not communicating, competing, or collaborating with one another (Allport, 1920). Known as the "social facilitation" effect, just being in the presence of others engaged in the same task increased motivation and improved performance. For example, in another study looking at members of a rowing team at Oxford University, it was found that group training significantly increased members' pain tolerance as compared with solo training (Cohen, Ejsmond-Frey, Knight, & Dunbar, 2010). The synchronized physical activity appeared to create a heightened endorphin surge—creating a sense of euphoria and elevated pain thresholds also shown to occur during other social activities such as laughter (Dunbar, Baron, et al., 2012), musical performance (Dunbar, Kaskatis,

MacDonald, & Barra, 2012), and dance (Tarr, Launay, Cohen, & Dunbar, 2015). These findings further seemed to suggest the effectiveness of these activities for encouraging social bonding.

In light of these studies, how might the social context of improv positively impact participants? Is it that the presence and actions of others enable them to tackle ongoing challenges, face mild discomfort, and develop a similar elevated 'pain threshold', and all while overcoming possible internal dialogues of self-judgement, self-criticism, or self-doubt?

Barring the fact that we don't have data pertaining to heightened endorphin surges and possible improv euphoria (perhaps a future study may need to examine the impacts of any improv performance 'high')—we might begin by looking at how the structure of the games themselves might facilitate these impacts. Of course, what I present here is an extremely simplistic, binary view of game structure (as there are numerous ways to adapt any given game to accommodate any number of participants involved), but it strives to illustrate the unique effectiveness of improv. On one hand, an exercise may require that *all* participants take active part. For example, a game called Word Association involves everyone standing in a circle where one person offers a word (e.g., 'afternoon') and the next person in the circle immediately offers a different word that they associate to 'afternoon' (e.g., 'coffee'), and so on and so forth. On the other hand, games may be structured so that some of the participants take on the role of 'audience' while others remain 'on stage' to

carry out the exercise. In this format, the ‘audience members’ continue to be fully vested and involved in the improvisations as their suggestions, sought by the performers ‘on stage’, provide the improvisers with inspiration and ideas for the creation of characters, dialogue, plot lines, and story settings. In other words, even if just one person is standing on the so-called stage completing any given exercise, they are not actually performing on their own, but rather, with the support and input given by their fellow players in the audience. This means that regardless of the format, a sense of group camaraderie and collaboration is always at the forefront of any game. This in turn allows participants to feel safe taking risks and engaging in more challenging roles—such as carrying out an improv exercise on stage in front of an audience.

As an example, through an initiative launched by Google called Project Aristotle (Duhigg, 2016), it was found that “psychological safety” was an important part of facilitating teamwork. In such contexts, improv allows an environment of safety to be established where participants can feel comfortable speaking up, taking risks, and making ‘mistakes’—both in the improv classroom and out. As such, I believe it is this sense of safety that allows participants to reframe or channel feelings of discomfort that are still bound to arise from more challenging improv exercises. This was evident with Vancity team members, as some were able to use the feeling of discomfort as a way to push themselves further and to foster personal growth. Still, empathy was sparked as others found comfort *and* discomfort in seeing others struggle like themselves (Table 5.4).

Table 5.4. Issues related to participants' discomfort and comfort with training.

Discomfort vs. Comfort	Survey questions	Examples from participants' survey answers
Discomfort or challenge leading to personal growth	<p>Least favorite exercises</p> <p>Changes in self from improv</p> <p>Exercises you would like to see more of</p>	<p>- The one on one exercises in front of everyone else were my least favourite. Not my favourite because I'm a bit shy but they were good for me...I appreciate being asked to work outside my comfort zone. (Team 1)</p> <p>- Acting out scenarios. Appreciate the exercising of the creative muscle but just awkward if one is shy or reserved in nature. Shouldn't have to change who we are to be better leaders. Though, I can understand the science in thinking outside the box and doing something outside of one's comfort zone. Just, well, not comfortable. But had fun nonetheless. (Team 1)</p> <p>- Pun – found it hard – but good to think that way. (Team 2)</p> <p>- I don't feel like I have a least favourite exercise. Some present a more difficult challenge – like stepping into a scene & trusting it will go ok. But I like that. (Team 2)</p> <p>- Increased comfort being out of my comfort zone. (Team 2)</p> <p>- I like 'being on stage'. I think feeling this & getting <u>way</u> outside your comfort zone is helpful. (Team 2)</p> <p>- Pushing us more – not sure what that would look like. (Team 2)</p>
Discomfort in seeing others struggle	Least favourite exercises	Where some folks aren't as successful; Actually, each has some advantages! (Team 2)
Comfort in seeing others struggle	Changes during or after sessions	Yes, during the course of the sessions that I attended, I felt a bit more comfortable to do things I wouldn't normally do, probably because I see others that are far more introverted than me doing things they clearly don't look happy doing so it can't be that bad. (Team 1)

Beyond the basic structure of the games, it is also important to consider the underlying, somewhat intangible, nature of the improv games themselves—an ever-present ethos that serves to promote unconditional support and collaboration amongst its performers. That is, despite the use of specific exercises to enhance a particular skill (such as creative problem solving, or active listening), it can be argued that the games are all, on some level, imbued with the seven elements of improvisation as put forth by Leonard and Yorton (2015):

1. “Yes, and”: This is the main tenet of improvisation. In both improv and the workplace, it refers to accepting what’s being offered and then adding to it. Creating a “Yes, and” culture shows that all contributions matter—even small ones. To further break it down: 1. the “Yes” does not mean that everyone automatically *agrees* with what is being offered, but that they *accept* it without any prejudice or judgment. In this environment, everyone is more willing to be involved, to let go of control, and to take more risks, and 2. the “and” not only provides a path towards agreement, but also a path towards respectful disagreement—often an effective tool to use for workplace conflict management and negotiation training.

2. Ensemble: In improv, it is understood that there is no lead actor or actress but that everyone takes on the role of a supporting player, and by virtue of making others look good, that member ends up looking good as well. In business, building an effective ‘ensemble’ means that the group’s goals become the main priority, which in turn negates the need for individuals to seek the spotlight.

3. Co-Creation: Improv ensembles constantly gauge audience feedback, whether it be explicitly given through audiences' direct participation, or implicitly given through responses and reactions—e.g., gasps or laughter. In business, co-creation is not only found in the development of new products or management policies, for example, but also in the building and maintenance of relationships within groups and between different organizational departments.

4. Authenticity: A successful improv moment or scene usually elicits laughter from an audience because of its shared truth—a sometimes painful truth at that. In business, if a culture is created in which members are given the space to acknowledge failures and problems that exist within the organization, this encourages trust and open communication and allows management to learn and grow from past mistakes. Furthermore, improv is not about being funny or witty (as improv is usually associated with comedy). Nor is it about being or becoming an actor or outgoing person. Instead, it is about connecting, collaborating, and communicating with others, and effectively dealing with and adapting to the unexpected.

5. Failure: Once mistakes are acknowledged, they can be woven into the improv or workplace narrative. And when failures are viewed as being a given—or even a necessity—its negative connotations are stripped away and the creative process is allowed to move forward and grow.

6. Follow the Follower: This is about shifting status within an ensemble. In this case, a member takes on the leadership role for as long as his or her expertise is required. This follows from management consultant Peter Drucker's idea that a successful organization embraces a more flat organizational structure, as opposed to a set hierarchical one. An analogy to jazz improv can be found when looking at how ensemble members distribute leadership as individuals take turns supporting others in the spotlight and being in the spotlight themselves (Barrett, 1998).

7. Listening: True listening consists of being in the moment and understanding what others are saying as opposed to waiting for one's own opportunity to speak. Deep, practiced listening is critical for effective communication and can be approached in a similar manner to meditation and mindfulness training.

When the topic of improv comes up and strikes fear into the heart of those directly exposed to it, it is usually due to fear of the unknown and the assumption that one is to make something up out of nothing or 'winging it'. Vera and Crossan (2005) note that when definitions of improvisation are "restricted to the ability to 'think on your feet,' managers risk confusing improvisation with random moments of brilliance and conclude that either you have this ability or you do not" (p. 203). The problem, they go on to identify, is that "(effective) improvisation relies on rules and routines that are pre-established and rehearsed" (p. 203). Thus, 'rehearsing spontaneity' (Mirvis, 1998) and 'preparing to be spontaneous' (Barrett, 1998) are two

concepts that have been used to describe both improvisation and its role in the organization. In line with this, improv is actually based on a general set of pre-established rules and routines. The rules are what make improv so effective because they speak to core principles of how to promote social interactions. It is not about creating something out of nothing or having to rely on random “ah-ha!” moments. With the groundwork of improv principles in place (such as Leonard and Yorton’s seven improv elements outlined above), participants can actually be as free and creative as they want.

In further discussion of participants’ experiences with this project, it might also be important to point out the likely influences I brought to the sessions as both the designer of the training curriculum and as the facilitator. As mentioned earlier, the inclusion of exercises within sessions and throughout the weeks-long training was in some sense improvised, based on participants’ responses and receptivity (or lack thereof). Furthermore, for any facilitator in a real-world setting, the priority is (and should be) to ensure that a supportive and safe environment is created for everyone involved. As such, I would on occasion join in on some of the warmup exercises at the start of the sessions in order to promote group cohesion and to help members feel more comfortable participating (in part by actually demonstrating the rules and components of the exercise). As the facilitator and rare participant, I also contributed a good amount of laughter along with the other attendees, and I tried to end each session with a quick, energetic, and upbeat game—again, all likely influencing the mood of the sessions (hopefully in a positive manner).

That said, improv is not always everyone's idea of a fun and relaxing time. From the feedback, 2 participants—from Team 1—clearly stated that they did not see the relation between improv and the workplace, and that they did not observe any resulting impacts. This could be attributed to two factors. First, some people are just not interested or motivated to engage in any given certain activity. For example, from personal observation and initial survey responses, participants in Team 2 demonstrated increased enthusiasm and excitement for the training. The average rating (on a scale from 1 – 7) regarding participants' receptivity to the upcoming improv training sessions was 4.39 for Team 1 versus 6.44 for Team 2.

Second, I am aware that my choice of exercises may not have appealed to everyone despite my efforts to deliver training that responded to the teams' overall / real-time needs and goals. For example, I quickly learned after one session with Team 1 that participants were largely disinterested and uncomfortable with more open, scene-based role-playing. Rather, the preference was for quick-thinking games that involved group participation and clear, simple rules to follow.

So why engage in improv in the workplace? Certainly, there are nonimprov-based employee activities that involve teamwork and other workplace skills. Common examples for team bonding include scavenger hunts or asking participants to work together in developing an innovative structure using objects and tools. Although teamwork and creativity—and to some extent, listening and

communication—are used in each of these activities, crucial interpersonal skills training are not emphasized. These important interactions include thinking on one's feet, risk-taking, adapting to change, building self- and social confidence, and developing emotional intelligence and empathy, all of which benefit everything from giving presentations, to negotiations, to dealing effectively with clients. And though improv exercises may seem challenging—and at times, uncomfortable, to some—it is precisely in this space that participants are able to grow the most.

Limitations

This research project allowed me to gain invaluable practical experience working within an organization, and to develop industry-related skills that could only be gained by being in such an environment. However, despite the many advantages this real-world context provided, it also presented a number of constraints and limitations for the project, namely—the lack of objective measures, and issues of participant attendance.

First, in addition to subjective feedback, the original intent was to also objectively measure potential improvements as a result of the training. A control group was sought within the organization. However, given the heavy work demands, no additional teams were able to commit to the proposed 10-week training schedule. The participants were also meant to complete cognitive tasks before the first session, and after the midpoint and final sessions to assess for any changes in task performance. The tasks included the Guilford's Alternative Uses Task (1967)

and the Trail Making Test. However, perhaps it might be more practical to administer such tests in a laboratory setting (e.g., with university undergraduates) given the challenges presented by the ongoing demands of the workplace.

In this regard, it was clear by the midpoint of Team 1's training schedule that due to fluctuating participant attendance, it would be unfeasible to properly assess any potential group or individual changes in cognitive task performance. Despite their enthusiasm for the training (e.g., "I've really enjoyed this experience. It has blown away my expectations and am disappointed if I have to miss it."), some members in both teams were unable to attend all the sessions due to intense work deadlines, ongoing meetings, and the responsibilities of managing their own teams. In fact, part way through the project, one participant from Team 2 moved into a new leadership role for a different team and one participant from Team 1 left Vancity altogether. In addition, during my time with Vancity I was told that the organization was going through major structural changes, hence part of their desire to have employees take part in the business improv training. Teams were also under immense pressure in the midst of rolling out their new core banking system with the Banking Application Renewal (BAR) program—described as the single biggest project in their 70-year history.

Future Directions

This project presents an important starting point for understanding the effects of business improv training for teams and individuals. In this regard, firsthand

feedback from the participants themselves plays an indispensable role in beginning to understand such impacts. That said, there remains a lack of empirical work examining the impacts of improv at the individual level and in the context of quantitative research (Ratten & Hodge, 2016). As well, I propose the need for more targeted exercises and outcome measures in order to more specifically inform on any potential effects of improv training at two levels: individual improv performance, and cognitive task performance. In light of this, I will present two specific skills that appear worthy of further study: 1. Resilience to failure (measured by individual improv performance), and 2. Creativity (measured by cognitive task performance).

First, given Vancity participants' reports of increased social confidence over the time period of the improv training sessions, one line of further research may be to selectively target improved resilience to performance failure and stress via a traditional group, multi-session improv training program, and to assess outcomes via subjective report. The idea is that one's ability to increase creativity and innovation in large part depends on overcoming the fear of making mistakes, becoming more open to taking risks, and stepping outside of one's comfort zones. With this in mind, over the course of any given training period, one strategy may be to present participants with exercises that increase in difficulty and challenge. As an example of a group-based, low-risk exercise that participants might try in the first session, we can look at a storytelling exercise where each player in a circle is asked to contribute only one sentence to the story—with each successive sentence building on the last participant's contribution. In terms of making 'mistakes', no sentence can be

necessarily 'wrong', although any clunky contribution can be supported (or used as comic relief) by the next participant in the circle. Later in the training period, a more challenging exercise may move away from the circle format to one of performers 'on stage' in front of an 'audience'. As an example, a presentation skills exercise called *PowerPoint Slideshow* asks participants (solo or small groups) to stand in front of their peers and improvise a presentation based on PowerPoint slides they have never seen before. Both of these exercises challenge participants to face the unknown and to adapt.

A second targeted skill to train—with specific cognitive task performance outcome measures—is that of creativity. Creativity is a vital part of workplace performance—perhaps most obviously for departments such as marketing, or those in the innovation and development of new products. 'Spontaneous flexibility'—which the following creative cognitive tasks measure in part—is essential for general everyday problem-solving and brainstorming, as well as more specific tasks such as writing job descriptions for new roles or drawing up employee policies. As such, in trying to measure the impacts of improv training on participants' creativity skills, one may include the aforementioned Guilford's Alternative Uses Task (finding unusual uses for everyday objects), Plot Titles (writing original titles after given the plot of a story), and Remote Consequences (generating a list of consequences of unexpected events) (1967). Using Guilford's scoring guide, creative potential can be operationalized by the constructs of originality, fluency, flexibility, and elaboration. The Creativity Achievement Questionnaire (Carson, Peterson, & Higgins, 2005) may

also be included in order to measure general creative ability, as it is a self-report test that measures prior achievements in a number of domains such as architecture, humour, and inventions. As such, cognitive task performance can be controlled for by these general creative ability scores.

In taking a broader look at these two proposed studies, it may prove ideal to carry them out within a controlled lab setting. Given the limited time employees might be able to devote to a project in the cost of company hours, and in an effort to be sensitive to the potential unknowns regarding the temporal course of any possible effects, a controlled lab-based study would also allow one to err on the side of a longer versus shorter training period. In this way, possible short-term (at the midpoint) and/or long-term gains could be assessed.

Furthermore, we may find different longitudinal effects of training on improv performance versus those on cognitive tasks. In other words, one could assess how both improv abilities and cognitive impacts change over time, and within each of those domains—improv and cognitive—whether there are different aspects of performance, and different aspects of cognition to measure. This would help isolate for a company what gives them short-term versus long-term results with training. An additional way to measure the temporal effects of training—and which I was only able to start exploring with Vancity Team 1—would be to ask participants to fill out a survey several weeks after the final training session in order to provide feedback regarding any noticeable changes in their work (e.g., interactions with others,

approaches to problem solving, dealing with sudden change) as a result of the improv training. In addition to asking people to introspect on themselves, each trainee could also have two peers who interact closely with them provide independent ratings, with managers also providing a report of any noticeable differences, if any, in workplace interactions or performance. Of interest here is how one's own self-perceptions compare to their peers' and employer's perceptions of them.

Finally, in an effort to further include a control variable, video recordings of the initial, midpoint, and final sessions (for example) for later analysis may also be attained. Independent viewers could then rate the videos of the improv performances on the specific metrics of interest (i.e., creativity or resilience to failure)—offering a more objective measurement of the effects of training. As such, it would provide an important control for interpreting the objective cognitive measures. That is, if improvements are seen in improv ability but not cognitive performance on any of the chosen cognitive measures, measures of videoed improv performances could be critical for interpreting possible null results in the cognitive measures. In particular, one could conclude that at least the particular cognitive measures tested may not be sensitive to the effects of improv training, rather than simply a lack of improvement in improv performance itself.

Much may be learned from future research that selectively targets specific facets of improvisation's profile of positive impacts for intervention (e.g., failure and

stress resilience), and by enlisting more focused outcome measures. By bringing these two ideals together, we may begin to close critical gaps in the improv literature by building empirical evidence to support the theoretical, and by focusing efforts to operationalize the unit of analysis at the individual level.

Conclusion

My overall goal for this project was to directly enhance the workplace experience of Vancity employees and address the specific needs of the two teams involved in the project. In examining participants' feedback, the responses were overwhelmingly positive. Furthermore, the practice in exercising the improv 'muscle' over time seemed to yield increased self-confidence, comfort levels, and the willingness to take risks—in what can sometimes be an uncomfortable or stressful situation for those not naturally inclined towards improvisational activities. Most intriguingly—and perhaps counterintuitive to what might be expected—the reported positive impacts at both the individual and group-interactional levels seemed to be facilitated by the social context itself.

Finally, organizations are becoming more aware that in an increasingly competitive, complex, and changing business environment, it is not enough to simply employ those who possess exceptional hard skills. Rather, in order to build a motivated, engaged, and productive workforce—one that ultimately leads to an improved bottom line—employers must hire those who also possess the necessary soft skills to interact and communicate effectively with supervisors, fellow team

members, and others within and outside the organization. Specific examples of such situations include the development of marketing campaigns, the invention of new products, the building of trusted partnerships with clients and customers, the crafting of thoughtful responses to customer complaints (Leonard & Yorton, 2015), and the maintenance of employee loyalty and satisfaction. And as can be seen by the feedback given by the participants in this project, the dynamic, interpersonal, and stress-reducing nature of improv greatly facilitates the cultivation of these skills and that of a positive workplace culture.

In final conclusion, for individuals and groups alike, adapting to change can pose a daunting challenge. Any lasting and successful adaptation—be it to a change big or small—requires altering perspectives, attitudes, and behaviors, all factors amenable to improv interventions (Leonard & Yorton, 2015). Through consistent practice and exposure, improv can facilitate these beneficial adaptations by promoting cognitive agility, flexibility, and executive function. In fact, Griffin, Humphreys and Learmonth (2015) speak to the issue of preparedness as an absolute necessity towards achieving ‘free organizations’—that is, organizations inspired by the ideals of free jazz—and “places that have a completely improvised feel, while still following the ‘laws’ and ‘rules’ of conventional organizational forms” (p. 32). But beyond their application in the workplace, the greater impact of this project is that it provides preliminary evidence for understanding how to target specific cognitive / affective outcomes through specific improv training exercises,

and it sets the necessary foundation to begin exploring the utility of improv interventions in a broader spectrum of settings, such as the classroom and clinic.

Chapter 6:

General Discussion

Summary

In summary, my FI project yielded in-depth insight into the subjective experiences and on-going cognitive dynamics of the musicians during performance, insight that helps to explain what factors guide a performance in the absence of traditional musical structures (Chapters 2 – 4). Furthermore, in wanting to understand how the underlying principles of improvisation could be applied to a dynamic, real-world setting, the examination of the impacts of improv training in the workplace also yielded informative results regarding how the individual is positively impacted by basic improv training exercises (Chapter 5). The findings from both these projects will be presented below by revisiting the main research questions initially outlined in Chapter 1 of this dissertation.

Main Research Questions Revisited

The first research question concerned examining the predominant themes that arise as individual performers negotiate the cognitive and social-cognitive dynamics of free improvisation. Analysis of the qualitative data revealed four main emergent themes, consisting of the broad issues of guidance, character, environment, and story. As brought together in Chapters 3 and 4, these themes provide a novel window into the real-time creation of improvisational ‘scenes’—

whether it be through a solo performance, or through the ongoing negotiations occurring between a group of players.

My second research question looked at the individual and interpersonal impacts of business improv training, and whether these findings would support the many positive anecdotal reports given by others outside of this study. On a general level, the response of the two Vancity teams very clearly supported these anecdotal claims, with participants citing improved spontaneity, creative thinking, and team bonding. These subjective reports also aligned with training goals as presented by team leaders before the start of the improv sessions. Of most interest though was the resulting overarching theme of the study, a theme showing that individual and interpersonal growth over the course of training appeared to be facilitated by the dynamic, group context itself. As discussed in Chapter 5, this finding seems to suggest that when conditions are created that promote positivity, support, and safety in failure, participants are more willing to take risks and move beyond personal comfort zones.

My third research question then asked: how do the themes and cognitive dynamics found in musical free improvisation parallel and differ to those found in theatre improv? The goal of this was to then inform on the fourth research question, which was to look at how improvisational approaches in FI could be used in interventions in conjunction with—or as an alternative to—improvisational theatre. As such, I will discuss these last two research questions in greater detail below.

Parallels and differences

To start, in addressing the parallels between these two improvisational forms, I turn to the four main themes found in the FI study and discuss how they relate to general concepts found in improvisational theatre. With the first theme of guidance, there was much discussion with the FI players regarding the issues of impulse, control, and a number of other associated concepts. As one might surmise, participants of improvisational theatre also often grapple with issues of impulse and control in terms of mediating between the desire to be spontaneous versus the more conscious awareness and self-judgement of whether their contributions are ‘good enough’ or ‘funny enough’. One might also juxtapose the ideas of freedom versus more controlled behaviours to the idea that freedom exists despite an understanding of the underlying approaches and ‘rules’ of either improvisational form (e.g., the “yes, and...” principle found in theatre improv, and the mostly non-idiomatic nature of musical free improvisation). Of course, this convergence is perhaps not surprising, given that irrespective of the improv domain, there is a need to guide the performance that reflects a blend of both the freedom to pursue spontaneous expression while at the same time having constraints or control on how that might be manifest.

In looking to the remaining three emergent themes—character, environment, and story—we also find clear parallels to theatre improv on at least two different levels. First, theatrical improv schools offer classes that focus on these very topics

as part of their core introductory training for students (e.g., Vancouver TheatreSports). Second, with respect to improv exercises themselves, we need look no further than what's called the Five Element Game. In one common variant of this exercise, five players stand in a circle with each player consecutively contributing one of the following elements in order to collectively build a story: the establishment of a setting (i.e., the when and where of a scene, and the environment); a specific relationship between two characters; a problem or conflict that arises; the raising of stakes (i.e., a worsening of the problem in order for the audience to feel vested in the story); and the final resolution where the conflict is solved. Although the concepts of conflict and resolution were not themes themselves in the FI study, they were certainly issues that were raised (and coded) within much of the FI participants' data—evident in the players' quoted commentaries throughout.

Finally, it's been recognized that both musical and theatrical improv can be conceived through a common "guiding" metaphor. Specifically, Bermant (2013) looks to Varela et al.'s (1991) metaphor for enaction—"laying down a path in walking"—as capturing the intrinsic nature of both theatrical and musical improv performance. As Bermant states, Varela et al.'s "guiding metaphor" expresses:

"...their world-view that individuals are causal agents in the lived world whose every move changes that world just as the individual is changed by the world" (p. 2).

Bermant then goes on to say:

“Musical and theatrical improvisation exemplify the principle: each step in improvisation changes the context in which the subsequent steps will be taken. The boundaries of shifting contexts are limited only by the skills, courage, and mutual trust of the participating individuals as an ensemble” (p. 2)

All this said, it is also clear that each style of improvisation still presents its own unique differences. First, theatrical improv creates a special performance situation in that the improvisers often encourage and build a direct relationship with its audience members by outright requesting—and subsequently honouring and incorporating—their suggestions into the improvisational games and scenes. In this manner, a fully-acknowledged and engaged relationship between performers and audience members is developed—one that is arguably distinct from musical free improvisation. (That said, one participant in the FI study did mention that he would at times use objects given to him by audience members in his improvisational performance.) Second, musical free improvisation also clearly sets itself apart from theatrical improv simply through its non-verbal nature. That effective and fulfilling self-expression and interpersonal communication can take place without the use of words is a key factor in addressing the fourth and final research question.

Future Directions

My final research question addresses how the findings from my free improvisational study might provide support for the inclusion of FI as a complementary or alternative treatment method to the more well-known application of improvisational theatre in non-performance domains. I begin by briefly outlining

examples of how musical free improvisation has been applied in therapeutic settings. I then discuss the issue of failure through the presentation of the FI participants' feedback regarding performance 'accidents' and 'mistakes'. And finally—taking into account these specific notions of failure and mistakes—I will present novel ways in which FI can be used alongside, or in place of, improvisational theatre to help those struggling with social anxiety.

Applied free improvisation

Applied free improvisation can be understood as the application of the underlying principles and approaches of musical FI to non-performance domains such as music therapy. To be clear though, I am using applied free improvisation as a term adapted from the theatre-based domain of 'applied improvisation' as there does not seem to be any standard name attributed to the application of musical FI in clinical or therapeutic settings. However, the term may not be entirely accurate, since novice players engaged in FI-based therapy will likely *not* be concerned with avoiding musical conventions such as melodies, chords, tonal centers, repetitive rhythms or the like (as the performers in my FI project did). Perhaps an alternative term may be used—such as 'instant play' or 'instant sound play'. That said, the earliest applied use of FI has been referred to as:

“...the method of free atonal rhythmical improvisation by the individual or by a group, a technique sometimes called 'instant music' or 'collective improvisation' according to the circumstances and for which no specific musical ability is needed when used as therapy” (Alvin, 1975, p. 105).

Pioneers of the use of free improvisation in music therapy included Juliet Alvin (1975) and Mary Priestly (1975). Alvin used free improvisation in working with disabled children and adults, stating that “free improvisation may be a new musical experience not related to any failure or memory of the past, in which he can succeed in expressing himself” (1975, p. 108). Furthermore, Alvin believed that through FI, a patient’s character and pathology would be reflected in their playing—thus allowing the therapist to address issues the patient brought to the session. Priestly included improvisation in psychotherapy work with verbal adults by using verbal processing before and after improvisation to bring unconscious materials into conscious (Eschen, 2002). As such, the improvisations themselves were based on the clients’ concerns as she had them improvise sound portraits that represented feelings, events, and relationships. Since then, FI has also been used in music therapy settings for examining: family dynamics as musical representations (Nemesh, 2017), communication and social interaction for cancer patients (Pothoulaki, MacDonald, & Flowers, 2012), and the sensory-motor projection of psychodynamics (Langenberg, 1997).

One of the main reasons FI has been used in therapy is the safety in self-expression it allows. Due to the nature of FI itself—with no rules, pre-planned structures, expectations of having to play the ‘correct’ notes, or even to play an instrument in any ‘correct’ way—the player is afforded unbound freedom in communication, creativity, spontaneity, exploration, and discovery. Furthermore, when a safe and supportive environment is created where participants are

continually assured that they can do no ‘wrong’, critical self-judgement regarding one’s playing and fears of not sounding ‘good enough’ is lessened. Of course, the facilitator plays a vital role in creating this safe environment, and the following quote pertaining to the classroom setting can also be easily applied in the therapeutic setting—or applied to *any* FI context, for that matter:

“In musical terms, to approach a new music maker in one’s classroom or community music group with a charitable stance is an act of ethical idealization. The hidden assumption in such an “en-actment” includes (or should include) the belief that this unfamiliar music maker’s aspirations, and your aspirations for him or her (as your fellow music maker), deserve your respect and that they are achievable simply because he/she is a person” (Elliott & Silverman, 2017, p. 36).

As such, free improvisation presents the ideal mode for dealing with the fear of failure, and in providing a space for nurturing and developing greater self- and social confidence. The issue of failing or making mistakes is not restricted to those in clinical settings, however, as demonstrated by the large amounts of unprompted discussions on the topic by the FI performers in this dissertation. As such, this next section will present some of the FI musicians’ perspectives on this matter in order to provide a basis for understanding the underlying issues at hand, and how they may be applied to mental health areas such as social anxiety disorder.

Practicing failure

One of the topics that frequently arose amidst my discussions with the FI musicians was the presence of self-perceived ‘accidents’ and ‘mistakes’, and the role and impact these played in their performances. Participants often addressed these ‘mistakes’ throughout their discussions—with quotes on the topic included in the tables for Segmentation in Chapter 3 (Table 3.1), and the themes of Character and Story as presented in Chapter 4 (Tables 4.2 and 4.3).

Although I did not include ‘Failure’ as one of the main emergent themes of my study, it is a topic that certainly deserves closer examination given its prevalence in the participants’ commentaries. Why is failure such an important topic to address? Facing the terror of the unknown and accepting failure as it happens can be difficult and challenging, whether it be in performance, the workplace, or everyday life. However, the practice of improvisation—in any of the above circumstances—also allows us to practice jumping into the unknown, to trust our own ability to adapt, and to shift our mindset to that of seeing failure and mistakes as opportunities. This is why improvisation presents an ideal art form for helping participants develop empathy for oneself and for others, and for helping those struggling with social confidence.

The following commentaries by the FI participants regarding their self-perceived mistakes, and the many accompanying feelings, reactions, and outlooks they elicited are presented below. The intention is to allow one to see how FI can

provide a creative platform for the practice of processing ‘failure’, and for developing the skill of adaption to unexpected—and at times, undesirable—outcomes. To begin, FI participants may initially feel discomfort with the lack of musical direction in any given performance or training session, or experience feelings of self-doubt:

“My feeling was still not comfortable [laughing]. I mean, I don’t know what will happen after.” (P21, VC)

“In this part where I start playing I don’t feel very comfortable yet. I felt that it wasn’t easy to find my place...It’s an example of there being a choice to make, and you have to make it and play to the end of the idea.” (P3, TC)

“For everyone who starts to play improvisation, (there’s) the doubt...you’re doubting if what you’re doing is good enough because it’s not maybe based on history...right now, the work is a lot and the not judging and not making it a question of taste. So, it’s more of...not (having) this fear and doubting so...in improvisation you can make a picture of a thought but not necessarily the other person needs to have this.” (V8, VC)

That said, simple, exploratory free improvisation may be used as a warmup for more focused use (e.g., expressing one’s feelings), or as a warmup for other kinds of activities or therapies:

“We decide, for example, the concert in Milan, we decide to do an improvisation to begin, before the first piece. But (this) improvisation...is at the same time a kind of warming (warmup). That’s something between music and not music. Something between tuning and...also to prepare (your) listening, to prepare you. And because music was like that before. I was thinking not in the context of the concert but (that) we are all together, we are playing together.” (P5, VC)

One may also encourage a participant to try FI by explaining that playing is more about the in-moment performance experience. Only after the performance, if

recorded, might it be listened to as a musical piece—albeit one open to criticism. Presumably though, sessions in a therapeutic or clinical setting wouldn't normally be recorded (but see Langenberg, 1997 for an exception), thus providing players opportunities to just enjoy the in-moment process:

“When you hear it, (it) sounds like a piece but when you play it, it's a performance...it's just an experience. So now I see it, and just the sound is not good at this moment because I wasn't with M—.” (P4, VC)

That said, some moments in an improvisation may feel uncomfortable. However, pushing beyond one's comfort zone and taking risks is how positive growth can occur:

“So, if you want to learn improvisation, you cannot just only do what behooves you all the time. It's cool to get into these moments where you don't...where actually you're forced to play improvisation that's not just like, oh, I *feel* like playing. But it's also work. I mean it's like practicing classical music and jazz music...but then keeping this openness...It's not some way, some place you want to be all the time but it makes you also capable of doing something different maybe. I mean, I like experiencing the world and (in) just a lot of different ways. And then sometimes, of course, the things that I like—I put more in my life. But also...having a balanced life...made me more profoundly happy than, uh, just following my cravings and what I want all the time, what I like, what is comfortable.” (P8, VC)

“Here I remember trying to expand on mistakes and ideas at the same time, trying things and taking risks, feeling uplifted by something I felt (was) good and disappointed by others.” (P29, TC)

The following participant's quote falls in line with well-known approaches found in theatre improv training regarding the novice mistake of trying too hard. For

example, Keith Johnstone (1999) was known for shouting, “Be more boring!” and “Don’t concentrate!”, and for advocating that “sometimes being average is the best possible strategy” (p.65). Furthermore, Johnstone states that “improvisers who are ‘determined to do their best’ scan the ‘future’ for ‘better’ ideas and cease to pay any attention to each other” (p. 66). A direct parallel to free improvisation can be found below as a performer comments on the impact of a fellow player who seems to be trying too hard:

“The guitar riff is not ok. That’s a technical beginner mistake who (tries) to make some complex riff, but it’s impossible for me to be really (involved) in that kind of flow.” (P7, VC)

If one must construe occurrences as mistakes, perhaps an important step towards overcoming them is to acknowledge them in the first place:

“...it’s a mess...plus, I had already made some wrong notes.” (P7, VC)

“Here with the bow, I had an idea of the sound I wanted, but the realization was not so good.” (P12, TC)

Finally, and perhaps most intriguingly, a significant portion of participants’ impressions regarding accidents and mistakes was that they were events to be sought after, accepted, incorporated, and necessary for music-making. Importantly, the musicians framed these moments as not really being mistakes at all, with parallels being drawn to the unexpected in everyday life.

“I was waiting for accidents, something (to) break.” (P6, VC)

“I really like making the mistakes musical. When you asked me ‘what is improvisation’, I think (it’s) like this. In that way, there is no more mistakes.” (P12, VC)

“I go softer because I screwed up my stroke on bass tom. Error makes music no(?)” (P12, TC) (parentheses by participant)

“Yes, sometimes during the session with the energy we can...accept to play even if there’s some mistake or some irregularities, you know, that the song, the energy...the structure is not perfect, there’s something strange.” (P7, VC)

“So (an) accident happens and you gain control over this situation and you make an immediate decision that this is becoming a feature of the piece so in the following section I start exploring then the, um, the texture of circular bowing and like, um, short impulse sound, so, uh, I hit the clothes peg a few more times...so no one would know I made a mistake, ‘cause like it’s all planned [laughter].” (P16, VC)

“Sometimes in improv there is some good things that are not on purpose and that’s why I like to play with, um, some beginners, too, you know, because it is sometimes there is something that the musician (doesn’t) want and (is) not able to do but it produces you know, it exists because of the random, because of the mistake.” (P7, VC)

“This is what I love about improvisation, it’s that like, like maybe there are no mistakes really. Like, there are only mistakes if you don’t like, take it into playing.” (P16, VC)

“Here I don’t (have) any idea about what to do after. Maybe use this transition to do something really different, but with the risk that it won’t be good...and in fact I didn’t (find) a new good idea. So, I came back to the piano sustaining notes. Pity...things (don’t) go always as we expect in life!” (P26, TC)

Given the reported frequency and importance of ‘mistakes’ found in FI—and the practice of adapting and dealing with such events, how might these concepts be harnessed to help those dealing with mental health issues such as social anxiety?

Social anxiety

Social anxiety is one of the most common anxiety disorders, and those who suffer from it experience a persistent fear of being negatively judged and criticized in social contexts—including performance situations and interpersonal interactions (AnxietyBC). That said, theatre improv is fast becoming a tool used to help those struggling with this mental health issue. In fact, a growing number of schools and independent facilitators are starting to hold improv classes specifically geared towards those with social anxiety. For example, a collaboration between the famed improvisational comedy theatre Second City and Chicago’s Panic / Anxiety Recovery Centre offers a program called “Improv for Anxiety”. The School of Laughter in London runs a workshop called “Improv for Anxiety: Laugh in the Face of Fear”, and Vanderbilt University’s Psychological and Counseling Center runs a semester-based program called the “Improv Socials Skills Group”. Importantly, much about the nature of improv is already recognized by clinical practitioners and social anxiety sufferers themselves as being beneficial to combating this mental health issue:

“Sometimes stepping outside yourself makes it easier to be yourself. Maybe this is due to the realization that everybody, and almost any type of character you can dream up, has value. And playing off other characters that materialize in front of you can make spontaneity in the real world a lot more feasible” (Decker, 2015).

“Basically, I’d done everything: years and years of individual therapy and group therapy. I feel like eight weeks of improv has done more for me” (Crane, 2014).

“For people who feel anxious socially, getting up in front of a crowd repeatedly would create an excellent opportunity to reduce their fear—no matter what the outcome. It will either turn out better than they thought so they’ll feel less

anxious next time, or if it does not go well, they will learn that they can cope with it” (Toohill, 2015).

“Improv makes failure safe, which is exactly what’s needed for the socially anxious” (Fortenbury, 2015).

Clearly, there exists a large amount of anecdotal support for improv programs geared towards the socially anxious. Furthermore, there seems to exist an inherent understanding of the benefits of improv related to this domain. For instance, when I took part in my very first introductory improv class and everyone was asked to share their reasons for signing up, the overwhelming responses were “to build confidence” and “to improve public speaking skills”. In addition, theoretical support for the use of comedic improv therapy for social anxiety disorder (Sheesley, Pfeffer, & Barish, 2016), and discussions on similarities between improv and applied psychology, and how improv theatre can enhance well-being can also be found (Bermant, 2013). With research so far looking at the cognitive processes of theatre improv performers themselves (Magerko et al., 2009), and how playback theatre (a form of community-building improvisation theatre) can positively impact patients with schizophrenia, bipolar disorder, PTSD, and major depression (Moran & Alon, 2011), further empirical work is needed to examine the impacts of improv practice for both performers and non-performers alike—and specifically, those struggling with social anxiety. As such, future research may focus on having participants practice ‘failing safely’ through selectively targeted exercises, and where specific outcome measures are utilized in examining associated factors such as failure resilience, perfectionism, social confidence, and self-esteem.

As mentioned earlier, I also support examining the use of musical free improvisation in conjunction with—or as an alternative to—the more well-known, oft-used improvisational theatre in specifically addressing social anxiety. With respect to musical improvisation as a way to address anxiety and confidence, there is research showing the effects of music training on happiness recognition in social anxiety disorder (Bodner, Aharoni, & Iancu, 2012), the effects of group free improvisation on improvisation achievement and improvisation confidence (Hickey, Ankney, Healy, & Gallo, 2016), and the impacts of free improvisation on reducing public performance anxiety for piano students (Allen, 2011). As outlined by MacDonald & Wilson (2014), musical improvisation has aided individuals with anxiety and depression in perceiving and maintaining a more positive identity or sense of self (Erkkilä, Ala-Ruona, Punkanen, & Fachner, 2012), and experiencing enhanced self-esteem, self-confidence, self-awareness, and emotional wellbeing (Magee, 2007; Oldfield, 2006; Pavlicevic & Ansdell, 2004; Pothoulaki et al., 2012; Ruud, 2010; Solli, 2008). Furthermore, improvements in biomarkers of tension, stress, or anxiety have been found in cancer patients following group improvisational music therapy, positive effects that have co-occurred with self-reported benefits (Burns, Harbuz, Hucklebridge, & Bunt, 2001; Logis, 2011; Pothoulaki et al., 2012). Once again, however, empirical work is further needed to inform on the possible impacts of musical free improvisation training for populations dealing specifically with social anxiety.

In light of all this, the argument for the inclusion of FI in social anxiety therapy focuses on the non-verbal aspects of FI and the immense benefits afforded by this key characteristic. Alvin (1975) speaks to this non-verbal element of “free atonal rhythmical improvisation” (p. 105):

“...The technique aims at developing the patient’s awareness and assertion of self, either alone or within a group. We may then avoid the pitfalls of verbalization and of association with past events. This is an essentially non-verbal musical technique. It answers a deep creative need which is often frustrated. In the process, the patient can overcome his self-consciousness, his sense of fear, and reveal an untouched side of his inner life. There he may find a bridge between his world of fantasy and a concrete experience at his own level of performance through an instrument with which he may identify” (p. 106).

Furthermore, in research looking at the impacts of FI on cancer patients, Pothoulaki et al. (2012) reported that participants found musical communication through instruments easier than verbal interaction, with the freedom of musical expression playing a primary role in their increased comfort with communicating musically versus verbally.

“In musical interaction one does not need to adhere to the same rules of verbal communication. This allows a freedom of expression with no boundaries involved. Communication through music does not require politeness or following certain rules in order to make a “good” impression on other people” (p. 61).

Musical improvisation also allows for participants to play simultaneously, and to pick up or join in on certain rhythms or sounds as they like—engaging in the

acknowledgement and communication of feelings without having to abide by social roles and norms, and without having to worry about the specificity of words and any of their attached implications (Pothoulaki et al., 2012). As a result, any accompanying fears of negative evaluation, miscommunication, or misinterpretation by fellow participants can be assuaged. Pothoulaki also cites Aldridge's (1991) suggestion that creative forms of expression such as musical improvisation can help patients with chronic illness regain a sense of autonomy and control over their immediate environment—issues that those suffering from other debilitating illnesses such as social anxiety may also be dealing with. In the end, the use of free improvisation in Pothoulaki's study showed a host of social and psychological benefits including the facilitation of peer-support and group interaction, increased self-confidence, relaxation, stress relief, the forming of strong bonds, communication, and free and creative self-expression through music.

Given all this, the idea here is that the socially anxious would also benefit most highly from also engaging in this practice—with the notion that communicating and interacting with others through sound and gesture alone might be more attainable, less daunting, and perhaps, even enjoyable. Furthermore, given the many reports my FI participants made regarding the presence of 'mistakes' and their impacts on performer and performance alike, engaging in FI may help those with social anxiety engage in a creative outlet of self-expression where (in theory) no social expectations abound with respect to sound content or in the use of the instrument itself. Of course, this can only arise when a safe and supportive

environment is cultivated, where participants are reassured that there is no ‘right’ or ‘wrong’, and that the ‘yes-and’ principle of accepting and building on others’ offers is paramount. In addition, for those suffering with extreme social anxiety disorder (e.g., those who struggle to leave their own home), the nature of FI may also allow them to take small steps in exploring elements of risk-taking and self-perceived ‘failure’. For instance, initial sound exploration may take place in their own home in a solo context, with the player / patient then gradually progressing towards musically interacting with a therapist. Perhaps eventually, the player may venture towards experimenting with a small group of players.

Finally, as the emergent themes of my FI study showed, participants of FI seemed to innately create dynamic ‘scenes’—whether on their own or with fellow players—through the thematic elements of character, story, and environment. Importantly, these themes may provide an important guiding tool for self-expression for the socially anxious who may benefit from minimal guidance in an otherwise free context. For example, consider the exercise found in theatre improv called “Gibberish”—where players ‘communicate’ with each other using nonsensical sounds, but where meaning and intention can still be expressed. In adapting this exercise to FI, participants would simply be communicating through instrumental sound instead. To encourage the participants to engage, facilitators may offer a scenario in which the players will ‘converse’ about while guiding them through the elements of character, environment, and story (e.g., Who are you? Where you are? What do you want to say to the other player through your instrument and creation of

sounds?) Other helpful guidelines may also include asking players to communicate only one line at a time, and to be very specific in their emotions and intentions through their gestures and physicality. And finally, a more advanced version of this exercise may involve partners, where one player communicates their opinions about a specific topic through FI one 'sentence' at time, and the partner 'interprets' the sounds and gestures by translating them into speech. Again, the facilitator or therapist must create a supportive environment where both partners feel safe expressing their emotions and thoughts—whether through sound or word—without any worry of judgement or 'getting it right'.

A second example comes from the aforementioned study by Moran and Alon (2011) involving playback theatre and its impact on recovery in mental health. Playback theatre is “a community-building improvisational theatre in which a personal story told by a group member is transformed into a theatre piece on the spot by other group members” (p. 318). Through qualitative reports, their study found recurring themes of enhanced self-esteem, fun and relaxation, enhanced sense of connection, and empathy for others. Furthermore, this improvisational format allowed the original storytellers to view their own stories as observers, enabling them to gain perspective and self-knowledge. That said, as with the “Gibberish” exercise described above, one can also adapt this storytelling exercise to musical free improvisation. Once again, a patient or therapist begins by relaying a story, with the other participants re-authoring the story through musical interaction. It is through this sharing, enacting, and re-authoring of personal stories that Moran

and Alon believe to be important processes in mental health recovery. Furthermore, it was found that most of the stories did not center around issues of mental illness—suggesting that participants may experience relief from thinking about symptoms and instead focus on other aspects of their lives. In sum, playback theatre and improvisational exercises such as the “Gibberish” game can be adapted in its use of verbal or non-verbal components (e.g., progressing from non-verbal to verbal expression and / or interaction) in order to maximize training accessibility and resulting benefits for participants such as those struggling with social anxiety.

Limitations

Given the vast amount of qualitative data collected in my FI project, and the complexities that often are associated with the collection and analysis of such data, I recognize a number of limitations that may exist as a result.

First, is it possible that the topics of interest I brought to the project influenced what participants focused on discussing—something perhaps akin to demand characteristics? Clearly, as a researcher, I needed to arrive with some general starting questions for the musicians in order to open up a wider range of discussions. As previously mentioned, group coordination as well as the issue of performers’ mediation between impulsive and controlled behaviours during performance were the initial general interests for this study. However, it quickly became apparent that the breadth of issues discussed far exceeded these initial topics, and thus the concern of guiding the participants into narrow foci of discussion

was alleviated. Furthermore, as also previously noted, topics such as the environment, self, and others were offered as ideas to discuss during the verbal commentary portion of the study. However, the specific coded elements that eventually led to the main emergent four themes of the study were gathered from all discussions throughout the entire course of their text and verbal commentaries. For example, one's 'environment' became a theme, while 'others' became a key category that arose within more than one theme. Finally, the musicians also broached numerous topics independent of any semi-guided or open-ended questions. Most notably, performers' references to 'mistakes' during performance was not a topic that I specifically addressed—rather, 'mistakes' became an important and seemingly inherent aspect of performance that the musicians naturally brought up on their own.

Second, might there be a selection bias in the quotes that were ultimately present in this dissertation? To try to mitigate this, I tried to select quotes that were representative of participants' lengthier discussions on any given topic. If the participant emphasized a multitude of aspects for a topic, I also tried to represent this occurrence by including additional quotes from them. As such, I do believe that the commentaries included in this thesis are my best attempt to indicate the frequency and importance of issues addressed by the musicians—while recognizing the challenge and complexity of complete accuracy when it comes to analyzing large amounts of qualitative data.

Third, as initially discussed in Chapter 2, performers engaged in both group and solo performances were included in this study. Might this difference affect performers' feedback? As the study progressed, the videoed performances and subsequent participant segmentations—regardless of whether they engaged in group or solo playing—became a framework that spark detailed discussions on the players' cognitive processes and subjective experiences. As such, discussions were not centered around group coordination / cohesion, or on how soloists navigated playing alone. In other words, the issues raised by musicians were not solely bound by the group / solo context, but also included commentary related to solo versus group attention, their relationship to their instruments, their ongoing challenges, and their personal preferences. Commentaries also included insights into the creative, musical, social, and cognitive dynamics of performance—often relating these concepts to personal and generally-accepted ideologies of free improvisation.

Fourth, a few participants chose to provide text and verbal commentary in French—a choice I offered and encouraged with the aim of having the musicians comfortable expressing their thoughts and opinions with clarity and ease. That said, it is understandable that some expressions may have become lost in translation. However, the examination of the qualitative data did not include discourse analysis (Starks & Trinidad, 2007)—that is, the close examination of how the story was told, or the meanings created through language. Rather, the main goal was in understanding the concepts and ideas that were prevalent amongst the free improvisational performers. Furthermore, the coding of categories focused on

specific words of which translation did not pose a problem. That said, within the transcriptions, we still tried to capture the sentiments and nuances of musicians' recollections as much as possible with the inclusion of pauses in speech, different types of laughter, repeated words, prolonged sounds, breaths and sighs, and notable occurrences such as participants' use of tapping as a way to demonstrate rhythmic elements of sound events.

The fifth limitation involves the possible impacts of the study context on musicians—both with respect to the improvisational performances themselves, and the subsequent commentaries on those performances as provided by the actual participants. First, in terms of how a performance may be impacted by the study context, one participant talked about closing her eyes while playing as the studio environment was unlike the stage or concert hall—although she went on to say, “We are musicians and we work with the environment. I mean, it’s the first...space. It’s the first condition that you feel”. A few performers also noted the dryness of the studio they were playing in. However, none of the musicians construed any of these conditions as hindering their performances—rather, as with any given improvisational situation, they could choose to either ignore certain elements of their environment or to incorporate them into their piece. In addition, there is no ‘standard’ performance space when it comes to free improvisation; adapting to idiosyncratic environments (e.g., a dry studio) is part of the improvisational ethos. In a similar vein, when discussing the possible impacts of performance videoing and my presence as the researcher, musicians seemed undeterred given their

experience performing in front of others. For example, one musician asserted that he still imagined performing in front of the public even when playing alone.

Second, with respect to context effects on the performers' commentaries, it's vital to consider how their unfolding narratives and "the identity work involved in improvisation may be shaped by the context or mode of interview" (Wilson & MacDonald, 2017b, p. 117). For instance, when an interview is taking place within a research context, the study's academic setting and the promise of participant anonymity may allow improvisers to feel greater ease in expressing frustration with themselves and with their fellow performers, relative to when the interview is within a media context (Wilson & MacDonald, 2017b). In the latter situation, performers may instead emphasize the positive aspects of FI in anticipation of readers' negative reactions towards the music and be less willing to speak disparagingly about other musicians in the public domain. Such factors underline the importance of considering identity work in the qualitative examination of musical improvisation.

The final limitation is the possible impact of time passing between the musician's recorded performance and their subsequent commentary on recall. In asking whether the passing of time did in fact affect their memory, the general response was that the watching of the video helped them to remember specific events and to place them back in the moment of performance. One participant did respond that, surely, given a longer timeframe of a year or more their recollections would be different. Of the 30 total participants, 13 musicians did meet with me at a

later date to provide their commentaries. The mean time that passed between the two meetings for these performers was 15.8 days, with a range from 2 to 35 days. Given such variance in time-to-recall, one possibility for further investigation would be to examine whether such delays result in qualitative shifts in the nature of what participants report regarding their subjective experiences during performance.

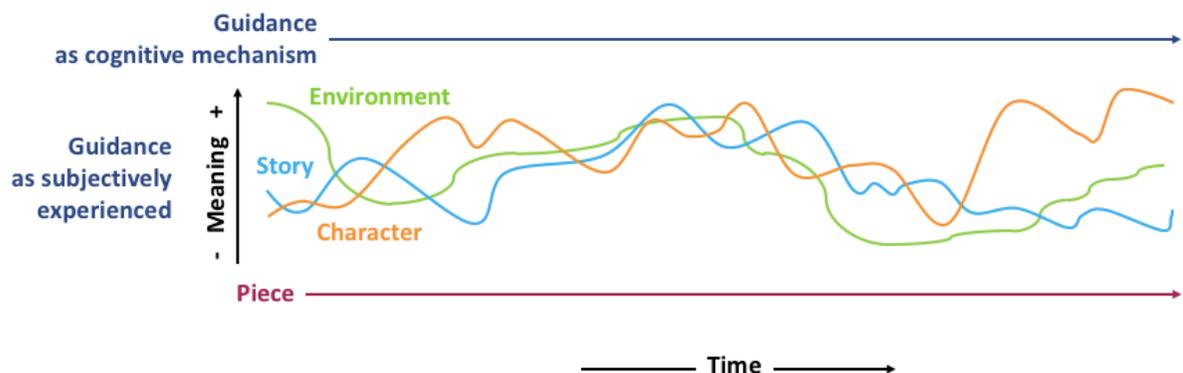
Final Conclusions

In conclusion, this dissertation presents key findings pertaining to two improvisational domains: 1. With free improvisational performance, an in-depth understanding was gained of the subjective experiences and cognitive dynamics of performers—resulting in their creation of musical ‘scenes’, and 2. With theatrical improvisation, the application of its principles and techniques in the organizational setting resulted in individual and interpersonal growth with respect to self- and social confidence—outcomes facilitated by the dynamic, group context itself. In looking forward, the emergent themes from the FI study have promising implications both in terms of pushing our basic cognitive understanding of FI forward on the one hand, and in terms of advancing the targeted application of FI on the other. By merging the qualitative study of FI with an enactive perspective, this crystallizes an empirically-tractable vocabulary for further, hypothesis-driven investigations of FI performance and its neurocognitive underpinnings.

Towards advancing this goal, my FI findings can be graphically summarized in a manner that helps to clarify how my phenomenological evidence can be

integrated with more traditional, cognitive / mechanistic accounts of guidance in FI. The starting point is to anchor guidance to the real-time unfolding of the FI piece, as illustrated at the bottom of Figure 6.1. As a cognitive mechanism, guidance in this view becomes a process that also takes place over time as a piece is performed, but this unfolds in two complementary ways: as something that can be studied as a cognitive mechanism (top portion of Fig. 6.1) and as something that can be studied from the first-person or phenomenological perspective (middle portion of Fig. 6.1). With respect to the latter, my findings suggest that not only does guidance at the phenomenological level have three interacting qualitative dimensions but that the relative contribution or meaning that a performer gives to each dimension varies over the time-course of the piece. To be sure, a performer may talk about guidance as independent of these dimensions, but guidance is also inextricably linked to the dimensions. Importantly, the interplay between these dimensions reflect the embodied and embedded context of the performance itself.

Figure 6.1. A unified model of guidance.



Beyond this graphical understanding of FI guidance, my findings provide a strong starting point for understanding how FI can enhance or supplement alternative methods to theatrical improv for application in the mental health domain. And by engaging in empirical study of the impacts of both theatre and FI training, we can better position ourselves to include an informed range of improv tools in the development of new clinical interventions. Overall, the examination and understanding of improvisation offers many exciting new potential benefits—whether it be music- or theatre-based, and whether it be applied in the workplace, clinic, or beyond.

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Appendix A: Free Improvisation Participants' Demographic Form

Musician #:

The following questions will ask you for some key demographic information. The information gathered will only be used for data collection and analysis purposes.

Age: _____ Ethnicity: _____ Country of Origin: _____

Gender: Male _____ Female _____

What is your native language? _____ If your native language is not English, how many years have you been speaking English? _____

Program of study: _____ Year of study (if applicable): _____

Program major (if applicable): _____

Right-handed _____ Left-handed _____

Below, please list all the instruments that you play (one instrument per box)	Were you formally trained or self-taught? What level did you reach in your training? Please be specific for each style you play (eg., free improvisation, classical, jazz, etc.)	How many years of experience do you have playing this instrument? Do you perform professionally? If so, how often?	On average, how many hours / days of practice / rehearsal do you engage in per week?

Appendix B: Improv Training Survey Questions for Team 1

1. What were your favourite improv exercises or type of exercises? Why?
2. What were your least favourite improv exercises or type of exercises? Why?
3. Which exercises did you find most helpful / relevant to your workplace? Please explain.
4. Which exercises did you find least helpful / relevant to your workplace? Please explain.
5. Did you notice any changes in yourself: a) during the course of the improv sessions? b) in the weeks following the sessions? If so, please elaborate.
6. Did you notice any changes in your interactions with others (work or otherwise): a) during the course of the improv sessions? b) in the weeks following the sessions? If so, please elaborate.
7. Did you notice any changes in others in the group as a result of the training: a) during the course of the improv sessions? b) in the weeks following the sessions? If so, please elaborate.
8. What would you say is the culture / core values of your team? Do you feel there is a link between improv and your team's culture / core values?
9. Are there any other comments / suggestions you would like to add?

Appendix C: Improv Training Survey Questions for Team 2

1. What have been your favourite exercises or type of exercises so far? Why?
2. What have been your **least favourite** exercises or type of exercises so far?
Why?
3. Which exercises do you find **most helpful / relevant** to your workplace? Please explain.
4. Which exercises do you find **least helpful / relevant** to your workplace? Please explain.
5. What kind of exercises would you like to see more of in upcoming sessions?
Why?
6. Have you noticed any changes in yourself as a result of the improv sessions so far? If so, please elaborate.
7. Have you noticed any changes in **interactions with others** (work or otherwise) as a result of the improv sessions so far? If so, please elaborate.
8. Have you noticed any changes in others in the group as a result of the improv sessions so far? If so, please elaborate.
9. What would you say is the **culture / core values** of your team?
10. Are there any other comments / suggestions you would like to add?