BEYOND BAND: PERSPECTIVES ON THE HIGH SCHOOL JAM SESSION

by

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ABSTRACT

This mixed-method case study examined effects of high school musicians' participation in the jam session, a student-directed extracurricular music activity. The single case study site was a rural British Columbia high school exceptional for its support of jamming. Forty-four subjects, including 21 subjects who fully met stated criteria for jammers, 10 subjects who partly met stated criteria for jammers, and 13 non-jamming subjects, were studied over a period of four months.

The general research question was: *Does participation in a band room jam session benefit students cognitively and motivationally?* The specific research questions were: *Do students who informally jam on various forms of music enhance their music skills in the perception and meaningful manipulation of music elements, and if so, how? In what ways does Csikszentmihalyi's flow theory explain the continued participation of students in the jam session?*

Three quantitative instruments were administered to 13 jammers capable of playing a Bb Concert scale on a melody instrument as well as to a comparable group of 13 non-jammers. These instruments included Gordon's *Advanced Measures of Music Audiation* (*AMMA*), Froseth's *Test of Melodic Ear-to-Hand Coordination* (*TMEHC*), and a researcher-developed test of ear-to-hand coordination (*SOR*). Based on ANOVA, the researcher found no difference between jammers and non-jammer groups on AMMA scores ($p<0.05$). ANOVA showed a notable but not significant difference ($p=0.056$) between groups on the TMEHC, while a Repeated Measures Analysis of pre-post test TMEHC scores showed no effect of jamming over a period of 10 weeks. ANOVA showed a very clear difference between groups on the SOR ($p<0.001$).

Qualitative data collected via journaling, interviews, observation, and participant-observer tasks indicated that jammers were perceiving and manipulating music elements in meaningful ways, and also supported Csikszentmihalyi's flow theory as an explanation for jam participation. In particular, flow characteristics including transformation of time, loss of self-consciousness, and challenge/skill balance were both observed and reported.

The role of the teacher, the presence of a music subculture, and the pseudo-curricular nature of jamming were noted as possible topics for further research.

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DEDICATION

I dedicate this work to my family: husband Keith and sons Mike and Marty. Without your help and love I could never have undertaken this wonderful journey

1 INTRODUCTION

1.1 Introduction: Beyond Band

I was in my second year of teaching band at my school. One morning as I arrived for work I saw a group of a dozen or so unfamiliar adults at the other end of the hall. This was not an unusual situation; the principal had designated us as a "Lighthouse School" (our staff shirts featured a dazzling beam of light and read "Lighting the Way"), and he frequently hosted groups of educators wishing to be illuminated. This principal was a good leader, albeit one with a laser focus on two areas: academic excellence and basketball. As the group reached the door of the band room, I had a premonition that I would be invited to his office before noon, with some things to answer for. It crossed my mind to try to stop him, but it was too late; he had opened the door and feedback from an electric guitar, accompanied by manic drumming, was assaulting the ears of the group. He quickly slammed the door shut again, cringing, and I was close enough now to hear him say: "These students are here morning, noon, and night. The new band teacher we hired last year encourages this, says there is educational value in it. What I want to know is this: Are these students learning? What are they learning? How are they learning? And why are they here?"[1]

The *jam session,* (a participant-directed, informal music activity) occurred regularly in band rooms in which I both taught and observed. I found that unless the school or classroom teacher expressly prohibited it, music students were frequently found playing their

[1] Vignettes in this chapter, with the exception of 1.5, are based on pre-study personal experiences.

instruments in the band room during unscheduled and unstructured times of the day. No grade or credit was given for this in-school activity; students appeared to be participating of their own volition. I wanted to know more about student participation in *jamming* (the process of participating in a jam session). I asked myself two questions, knowing that there could be many more: Were students enhancing their music performance through their participation in the jam, and if they were, in what ways were they doing so? Could their continued participation in the jam be explained by an existing theory of motivation?

> *The principal did an abrupt about-face and led the group back towards the gym, where I was certain that large numbers of students were shooting baskets. One member of the group saw me standing at the band room door and came back to talk. "I'd be really interested to see what is going on in there. At my school, that sort of thing is not allowed, but I must admit it does look like fun. Do you really think they're learning anything useful?"*

Beginning in the 1930s, there was a gradual shift in many types of music-related instruction in schools, a shift from extracurricular status to curricular status. This shift meant that many band classes were subsequently offered for credit, although they still differed from many courses in the regular curriculum in that they were elective and required a commitment of time outside school hours. However, some music activities in schools remained outside the formal band curriculum and were considered part of the music *extracurriculum.* As defined by Berk, "the extracurriculum refers to those activities and events sponsored by the school which occur outside the formal school curriculum" (Berk, 1992, p.1002). Whether the band room jam sessions I experienced or observed were activities sponsored by the school or

ones merely tolerated by it was a matter for discussion, but the fact that jamming occurred in the school and involved music potentially placed it in the same extracurricular category as, for example, the "glee clubs"[2] of the 1950s. Surprisingly, I found that very little was known about this common extracurricular music activity.

> *I eased open the band room door, revealing not only the guitar player and the drummer we had heard a moment ago, but also a sax player, a singer with a trumpet in one hand, and a bass player. The music they were playing with such enthusiasm defied description, although I had a hunch that it might be related to ska. Noting my companion's hands over his ears, I blinked the classroom lights to get their attention. The sax player turned to us: "Hey, wanna hear this new song I wrote for the Remembrance Day assembly next week? I was just showing these people how the riff goes, and they were putting a groove and some changes to it."*

I proposed this study because I believed that a greater knowledge of the jam session was critical to our understanding of music participation in schools. I suggested that more information was needed about this musical activity that occurred voluntarily, spontaneously, and occupied a position of significance in the school day for many students. I contended that the jam session was unique among school music activities in that it was student initiated, interactive, and largely student directed. Surprisingly, I noted that there was a dearth of existing research that addressed this common event.

> *My companion surprised me with her reaction: "I was really enjoying that, actually! Could you play it again?" They did so, playing a bit self-consciously at first. Within a minute or so, however, the sax player's eyes closed; as he was playing by ear rather*

[2] Glee Clubs typically involved singing, with a repertoire designed to boost school spirit.

than reading the music; to my companion's surprise, this did not appear to impede his performance. Soon he was in the zone[3]*, swaying back and forth and oblivious to our presence.*

I decided to examine the jam session by means of a case study. It was my aim to provide a thick description that could draw the reader into the world of the jam session, in order that the reader might better understand what was happening. Stake suggested that case study researchers should aim for "...a personal capture of the experience so, from their own involvement, they can interpret it, recognize its contents, puzzle the many meanings while still there, and pass along an experiential, naturalistic account for readers to participate themselves in some similar reflection" (Stake, 1995, p. 44).

My decision was to examine the jam session using a mixed-method approach, using both qualitative and quantitative instruments which were either existing or self-developed. In reporting my research findings, I employed a variety of strategies designed to more fully involve the reader in the world of the jam session. One of these strategies involves the use, throughout this document, of vignettes, some taken from field notes, others taken from past personal experience.

Following my office drubbing on the topic of school tone and my contribution (or lack of) to it, I drifted into the staff room. My arrival was greeted by the staff with some surprise, as I almost always spent my lunch hours in the band room. "What's the matter, couldn't stand the noise?" one colleague joked. "Hey, come on, those guys have really improved since the beginning of the year," said another, in my

[3] In this instance, being *in the zone* refers to Mihalyi Csikszentmihalyi's theory of flow. A flow state is: "The holistic sensation that individuals feel when they act with total engagement, often losing track of time, space, and the self" (Pintrich & Schunk, 2002, p. 404).

defense. "At least it keeps them out of the halls, and the smoke pit," was the statement offered by the noon-hour supervisor, while the councilor added: "At least they are still in school." "Total waste of school equipment!" muttered a grumpy teacher from the corner of the room. I wondered what the jammers themselves would made of this conversation.

When completed, my case study report resounded with multiple voices, different realities, and conflicting views. My aim was to present a snapshot of a complex event, taken in a real-life context. Participant voices, invaluable in describing how things were at a particular place and at a particular time, were a primary focus in my case study report. In my roles as observer, participant/observer, and researcher, my voice also appears in this research report.

1.2 Specific Statement of the Research Questions

My general research question was: **How does participation in a band room jam session[4] benefit students cognitively and motivationally?** My specific research questions were: **Do students who informally jam on various forms of music enhance their music skills in the perception and meaningful[5] manipulation of music elements, and if so, how?** and **In what ways does flow theory[6] explain the continued participation of students in the jam session?**

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4 The jam session at a school was not necessarily limited to one band room. I found that it could encompass several designated areas, which I have referred to as *jam spaces*.

5 In this context, *meaningful* manipulation was understood in the context of the conventions of Western music practices and the variants based on it, including those of popular music.

6 Csikszentmihalyi's flow theory, a theory of motivation, is discussed in detail in Chapter 2.3.

1.3 Brief Description of Method

In order to examine the phenomenon of the high school jam session, I chose an exploratory case-study approach. Yin suggested that a case-study approach was the most suitable method when a 'how' or 'why' question was being asked about a contemporary set of events over which the investigator has no control" (Yin, 1994, p. 9). My general research question, above, asked "how" about a contemporary event over which I had no control. Yin further stated that: "A case study is an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 1994, p. 13). To summarize, I decided that case study was the most suitable method for examining the jam session, where the context of the high school in which it occurred was part of the phenomenon itself.

My case study investigation employed a mixed-method approach. Qualitative methods included observations, participant-observer tasks, interviews, and journaling, while quantitative methods included existing as well as self-developed tests.

At the request of School District personnel, no student was identified by name during the writing of my research report. Instead, I asked the students who were my subjects to choose a pseudonym by which they wished to be represented; these pseudonyms were used in reporting my qualitative data.

1.4 Study Boundaries, Limitations, and Delimitations

Stake defined the case as a bounded system, with integrated parts making up the complex whole, and surrounded by a boundary (Stake, 1995). My single case was a bounded system that encompassed the jam session participants in one school, the Sullivan Campus of

Salmon Arm High School. The musicians were the integrated parts that made up the complex whole.

For purposes of my case study, the main unit of analysis included all students who were part of the jamming community: that is, subjects who were involved in music activities in the band room during unstructured times of the school day. For purposes of comparison in one aspect of my study, I also examined a comparable group of non-jamming subjects.

In describing how things were at this particular place and at this particular time, I feel that it is necessary to caution the reader regarding the atypical nature of this unique case. As I will explain further in the section of this introduction addressing the site, this case was an unusual one in which jamming was well supported both by the physical and instructional school environment. However, I am convinced that this case bears relevance to other cases experienced by many readers of my research report, and that by reading my case study, readers might discover for themselves a "commonality of process and situation" (Stake, 1995, p. 7). Despite this conviction, however, I realize that generalization of my findings to other populations is not necessarily appropriate.

A second limitation of my study stems from the very real possibility that subjects were also involved in music activities outside the school setting, and that some of the skills and characteristics demonstrated by the subjects I examined originated or were developed outside in settings outside of my observations.

One delimitation of my study is that I cannot claim to have examined or observed all jamming subjects equally. Instead, I have given emphasis, in my report, to subjects who were present on a consistent basis during my observations.

A second delimitation of my study concerns the use of quantitative instruments that informed one aspect of my study. As I discuss in some depth in Chapter 3, certain subjects, by reason of skill level or instrumentation, were necessarily excluded from participation in certain measures. Thus, the data gathered are not necessarily complete for all subjects.

1.5 Description of the Case Study Site

> *When I interviewed students, I often asked them if they thought that the music program at their school was similar to other programs around the province. They always said no, and some were able to name and describe another school that a friend attended that was "nothing on what we have here. We've got everything here that a musician could want!"*

"Sometimes a typical case works well, but often an unusual case helps illustrate matters we overlook in typical cases" (Stake, 1995, p. 4). For reasons both physical and instructional, my case study site is an atypical one.

The band room of the Sullivan Campus, where the main study was conducted, is configured in a most unusual way. A relatively small, high ceilinged, horseshoe-shaped main room is used for band and choir classes. This room contains an acoustic piano, a drum kit, and several amps, along with music stands and chairs. Around the outside of this room, and separate from it, are several smaller rooms that are available for students' use even when classes are in session. One of these rooms contains an electronic music composition lab with five keyboard/computer stations.

Attached to the main room is Studio A, composed of a control room with four-track recording equipment, linked to an adjacent tracking room with drum kit, piano, and

amplifiers. Next door is Studio B, a former television production studio which has been converted to a recording studio. The control room of this studio contains a computer with software for recording and mixing, various peripheral effects modules, and speakers for playback and mixing purposes. The main tracking room next door contains a drum kit, an acoustic piano, and several amplifiers. On the other side of the control room is an *iso booth* (a small room used to isolate the sound of certain instruments being recorded). Rooms are well equipped with mic stands and a variety of specialized microphones to be used for recording purposes. Each of these three rooms is large enough to accommodate five or more students at a time. These rooms are used for both jamming and recording at all hours of the day, including before and after class, at noon, and in the evenings. Due to the popularity of these rooms, students usually reserve them in advance.

The Sullivan campus of Salmon Arm High School is also atypical in terms of curricular music courses that are offered to students. In addition to Band, Jazz Band, Choir, and Musical Theater classes, the school offers three fully enrolled blocks of Music Composition and Technology; it is one of very few in the province to offer this course.

In contrast, the band room of the Jackson Campus of Salmon Arm High School where the pilot study was conducted is a traditional band room in which only Concert Band and Jazz Band are offered. It is a large, square room with a high ceiling and sound-absorbing materials on the walls. An electronic piano, a drum kit, and several amplifiers are part of the room's furnishings, along with music stands and chairs. Band classes as well as jamming activity takes place in the main room. No recording facilities are available for student use.

The two campuses of Salmon Arm High School are administered as one school, and

students are frequently shuttled back and forth between them. The school runs on the semester system, with exceptions made for certain courses including Concert Band. Together, the two campuses enroll approximately 900 students. Salmon Arm is a rural community of 15,000 located in the interior of British Columbia.

1.6 Autobiographical Positioning

As I began this study, I believed myself to be strongly positioned, as a result of life experiences, to examine the high school jam session. Sparkes (2002), in his work regarding narrative research, considered an autobiographical statement both beneficial and appropriate to a case study report. He suggested a brief and embedded autobiographical positioning statement to be a useful tool for facilitating reader understanding (Sparkes, 2002, p. 41-54). In the following autobiographical statement, I describe the ways in which my personal experiences with jamming informed the multiple perspectives from which I examined this phenomenon. As these perspective are addressed in the following statement, I note the role that each of these perspectives played in the development of my research questions.

> *I first came to know the world of the high school jam session as a junior-high student in a rural school in which not a single music course was offered. My music education to date had consisted of private piano lessons in which playing from a written score was strongly emphasized and playing by ear was strongly discouraged. Our art teacher, who was also a guitar player, encouraged us to bring guitars to school and learn some chords during lunch hour. I soon discovered I could play by ear, an asset when figuring out songs in the company of my peers. In a short time I was playing along with the records my friends had brought.*

In playing music by ear in this manner, I was drawing upon both music aptitude, which was innate, and music achievement, which was learned.

> *I had found something I was reasonably good at. During those lunch hours, I participated for the sheer joy of it, lost track of time, and even forgot to be self-conscious about playing in front of others.*

I was motivated by my experiences to continue playing music. In my research, I examined continued participation in the jam session from a motivational perspective.

> *At a time when I was struggling to establish contact with a positive peer group, this teacher provided me with a much-appreciated opportunity. Instead of roaming the halls, getting into trouble downtown, or hanging out in the smoking room, I had a place where I felt both comfortable and competent. In a school with no curricular music, this informal music curriculum filled an important need in my life.*

In addition to addressing my specific research questions, I was cognizant of the social and environmental factors that impacted jam session participation.

> *Many years later, when I became a band director, I tried to provide a similar lunchtime environment for my students. Several times, at-risk students told me that jamming was the only reason that they came to school at all. Sometimes what students did at lunch made a difference in curricular music too. I recall one boy, blind due to a hereditary disorder, playing the piano by ear every lunch hour. I talked him into trying the bass clarinet, and I seated him in concert band, next to a good player whom he imitated most competently by ear.*

In a jamming environment, some students whose aptitude was overlooked in regular

band classes were able to use their ear-playing skills to produce music. As well, students who were either over-challenged or under-challenged in curricular music classes sometimes experienced, in the jamming environment, a comfortable balance between their skills and the challenge provided.

> *Currently, I practice once a week with a rock band in which I sing and play keyboards, and have rediscovered, on a personal level, the importance of my two specific research questions. I am delighted when my fingers find on the keyboard, a riff that I last heard 30 years ago; I marvel at the sensation of the notes just being there, without thinking about them. When our bass player suddenly realizes what time it is and leaves for his job at the mill, I find myself wondering where the last three hours went and discover that I have lost track of time. Jamming is also a social activity for me, one in which we all play a leadership role. As well, we figure out out all our repertoire by ear, no one is self-conscious about mistakes, and the culture we share reflects the diversity of a group of musicians whose ages range from 21 to 61.*

My personal experiences with jamming have led me to believe that the two specific areas of inquiry outlined by my research questions plus attention to additional perspectives were all necessary lines of inquiry, if I was to study the high school jam session. Accordingly, in Chapter 2, I first examine literature related to my two specific research questions. Following that, I present a number of additional perspectives and overarching themes, drawn in part from my autobiographical positioning as articulated above. Embedded in these sub-chapters, where relevant, are connections drawn from existing literature that

relate these multiple perspectives to each other. First, however, I present my views regarding the importance of this topic.

1.7 Significance and Contribution of This Study

Despite the fact that the sight and sound of students jamming in my band room or the band rooms of colleagues is so commonplace that it seldom occasions comment, I found very few references to jamming in music education research literature. I concluded that the jam session was an aspect of school life that was, if not completely unnoticed at least disregarded by those not directly involved. Perhaps the ubiquity of jamming had rendered it, as Jackson put it, one of those features of school life that we have become acclimatized to. (Jackson, 1968)

I wanted to establish, through my research, an understanding of the importance of the jam session as part of the music life of the school. I placed jamming in the context of the school by noting that curriculum presented in schools is often mandated, teacher-directed, compulsory, and competitive. This has resulted in schools that are often extrinsic-reward driven, externally organized, regimented, and, at times, even somewhat uninteresting to the young people involved. However, on occasion, school activities that are quite different from these are encountered. These activities, often extracurricular, are voluntary, involve shared leadership, are intrinsically rewarding, interactive, and sometimes intensely interesting to students as well. [7]

In this document I have suggested that jamming in the band room as I encountered it is one such activity. This jamming took place in a school setting, appeared to result in cognitive and motivational benefits to students, and was voluntary, interactive, and possibly

[7] I am indebted to Tony Clarke for his inspiration and input on this subject (personal communication, 2007),

both intrinsically rewarding and interesting for them. Based on these recognitions, I concluded that jamming had research significance.

In this research document, I provide the reader with thick descriptions, vignettes, and both quantitative and qualitative data. My personal goal in doing so is to make it possible for the reader to experience the musical worlds of the jam session, and, where possible, to do so through the eyes of the jammers themselves.

LITERATURE REVIEW

2.1 Introduction and Overview

As stated in the previous chapter, my general research question was: **Does participation in a band room jam session benefit students cognitively and motivationally?** My specific research questions were: **Do students who informally jam on various forms of music enhance their music skills in the perception and meaningful manipulation of music elements, and if so, how?** and **In what ways does flow theory explain the continued participation of students in the jam session?** In addition to these specific research questions, I was also attentive to other related factors in the environment that pertained to jamming

My first specific research question was approached in this chapter through methods suggested by the conceptual publications of Edwin Gordon and Peter Gouzouasis as well as the empirical publications of James Froseth. My second specific research question was addressed by examining conceptual publications and empirical research by Mihalyi Csikszentmihalyi; empirical publications by others based on his work were also examined. Following an examination of literature relevant to my specific research questions, I explored literature pertaining to these other factors in the form of overarching themes and additional perspectives. Where possible, I emphasized the interconnectedness of my two specific research questions, as well as ways in which they intersect with these other themes and perspectives.

2.2 Literature Addressing the First Research Question

In order to explore fully the ways in which students perceive and meaningfully

manipulate the elements of music, I approached my first specific research question from two different perspectives.

2.2.1 Audiation

During the last four decades of the twentieth century, psychological research in the area of music aptitude has been dominated by the work of Gordon, who coined the term *audiation* to describe an ability that formed the foundation of scholarship regarding music aptitude: "Audiation takes place when we assimilate and comprehend in our minds music that we have just heard performed or have heard performed sometime in the past" (Gordon, 2003, p. 4). As part of his extensive research in the area of audiation, Gouzouasis offered a companion definition: "Audiation is the ability to conceptualize music sound without the sounds being physically present. It is the ability to conceptualize and compare the immediate past in music listening with the present, and to connect that which has been heard and that which we are hearing with our expectations of what we are about to hear" (Gouzouasis, 1992a, p. 13).

Gordon suggested that the ability to audiate was developmental until about the age of nine, after which time it was stabilized (Gordon, 2003, p. xiv). Interestingly, he also stated that it was possible for persons to learn to audiate, regardless of age, but that older subjects would require more time to develop this ability (Gordon, 2003, p. 5). Although it may seem contradictory, Gordon believed that the ability to audiate (the basis for music aptitude) was innate, and also that it could be developed if a child was given proper instruction at a suitable age.

Gordon described six stages of audiation, consisting of: 1) hearing sound, 2)

organizing sound into pitches and durations, 3) recognizing tonal and rhythmic patterns, 4) recognizing tonality, key, meter and tempo, 5) recognizing similarities in tonal and rhythmic patterns, and 6) predicting what will occur next in the music. He also described eight types of audiation, consisting of : 1) listening to familiar or unfamiliar music, 2) reading familiar or unfamiliar music, 3) writing familiar or unfamiliar music from dictation, 4) recalling and performing familiar music from memory, 5) recalling and writing familiar music from memory, 6) creating and improvising unfamiliar music while performing or in silence, 7) creating and improvising unfamiliar music while reading, and 8) creating and improvising unfamiliar music while writing (Gordon, 2003, p. 14-18).

Gordon developed his theory of audiation in response, initially, to the experience of being taught to play string bass by an accomplished ear-player and, later, to the experience of jamming with small groups of Army musicians who played jazz. To clarify the concept of audiation, Gordon used the following illustration:

> Audiation is to music what thought is to language. Consider language, speech, and thought. Language is the result of the need to communicate. Speech is the way we communicate. Thought is what we communicate. Music, performance, and audiation have parallel meanings. Music is the result of the need to communicate. Performance is how this communication takes place. Audiation is what is communicated. (Gordon, 1999, p. 42)

Additionally, Gouzouasis used an example from early childhood to build upon the language metaphor: “As language babble is a young child's early attempt to produce linguistic sounds, musical babble is a young child's first attempt to produce musical sounds” (Gouzouasis,

1995, p. 10).

> Further, Dalby suggested a way of enhancing audiational ability in older children: Teach familiar tunes by ear. Singing and playing familiar tunes by ear are essential for developing the ability to connect audiation to the physical manipulation of the instrument. Unfortunately, many students leave the public school system with seven or more years of instrumental music instruction but little ability to play without notation. (Dalby, 1999, p. 23)

It was my informal observation that jammers play largely by ear. Dalby's connection of audiation to the physical manipulation of the instrument is suggestive of ear-to-hand coordination, the topic of the following section. Gerhardstein made this connection even more strongly:

> Every musician has two instruments of great importance. One is a physical instrument (piano, violin, saxophone, or the voice) while the other is invisible. The invisible instrument is the instrument of the mind, or one's audiation instrument. For understanding to occur between two or more individuals, knowledge must be shared. Audiation is the vehicle by which this sharing of musical knowledge takes place. (Gerhardstein, 2002, p. 115)

Are jammers audiating? In my casual observations of high school jam sessions, I have noted that printed music is seldom in evidence. Often, I noted that a student had brought a recording and that the members of the group were listening to the playback and singing or also playing along in an attempt to internalize and understand what they were hearing. I noted that this behavior fit the fourth and sixth types of audiation listed above. For jamming

musicians to be able to do this requires them to be in the fifth or sixth stage of audiation, as they must not only be able to hear and recognize tonal and rhythmic similarities, but also able to predict what will come next.

Because I was interested in knowing if jam session participants were in fact high audiators, and thus possessed high levels of music aptitude, I examined two tests developed by Gordon for this purpose.

Gordon's *Musical Aptitude Profile* (*MAP*) (Gordon, E., 1995, Chicago, G.I.A. Publications) has been widely used as a test of music aptitude. Unlike older tests of auditory discrimination, where unrelated pitches were presented out of context, the *MAP* is concerned with tonality and melodic contour. The *MAP* is the most comprehensive of Gordon's tests, providing 11 test scores, featuring seven sub-tests including two tonal tests (melody and harmony), two rhythm tests (tempo and meter), and three preference tests (phrasing, balance, and style). The *MAP* was designed for grades four to twelve and was intended to be administered over three class periods. (Gordon, 1995).

Gordon's *Advanced Measures of Musical Aptitude* (*AMMA*) (Gordon, E., 1989, Chicago, G.I.A. Publications) provides, as part of the testing package, United States national norms for older subjects. The *AMMA* is designed for grades eight through twelve, and provides three test scores including scores for two sub-tests (tonal and rhythm) (Gordon, 1989). The short testing time required for the *AMMA* made it more suitable than the *MAP* for use in my research. In addition, the fact that music reading skills were not required in order to take either test was important, as not all jam session participants are fluent readers of music notation.

As the name of the test would suggest, Gordon considers the AMMA to be a test of music aptitude, as distinct from tests of music achievement. However, Gordon's comments regarding this distinction are worth noting:

> It should be kept in mind that although music aptitude and music achievement are different, they are not mutually exclusive. A music aptitude test is designed to measure music aptitude. It is not possible, however, to construct a pure test of music aptitude, just as it is not possible to construct a pure test of music achievement. If a test emphasizes music aptitude, it is considered to be a music aptitude test. If a test emphasizes music achievement, it is considered to be a music achievement test. (Gordon, 1989, p. 8)

With that in mind, I examine next an instrument designed primarily as a test of music achievement.

2.2.2 Ear-to-Hand Coordination

James Froseth defined *ear-to-hand coordination* as "The essential means to transfer what is heard, recalled, or imagined to musical performance" (Froseth, 1985, p.1). As noted previously by Dalby (1999) and Gerhardstein (2002), the connection between audiation, which occurs in the brain, and the physical manipulation of an instrument to produce music, which occurs in the muscles of the face, hands, and limbs, is an important one. Although I could argue that the the mind-body dichotomy suggested here is perhaps not as separate and distinct as that representation indicated, I agree that the important skill of playing by ear is dependent upon this connection. However, as Dalby (1999) pointed out, above, it is quite possible to participate in music activities throughout one's school career while developing

little skill in this area. An ear-training class for first year music majors at university is often the first experience these students have with ear-testing (often initially explored by means of Gordon's third type of audiation, writing familiar or unfamiliar music from dictation), an experience for which school music classes had likely not prepared them.

Convinced of the value of what he termed aural musicianship, Froseth began a longitudinal study in 1982, first, to determine the levels of aural musicianship in first year university music majors, and, second, to determine if those levels could be improved through training and practice. For the purpose of testing aural musicianship, Froseth developed the *Test of Melodic Ear-to-Hand Coordination* (*TMEHC*) (Froseth, J., 1982, self-published). :He administered the *TMEHC* to all University of Michigan freshmen music majors in years 1982 through 1992, testing a total of 1075 subjects. Froseth found ear-to-hand coordination in this group to be extremely heterogeneous, with some students severely deficient in aural skills. Froseth developed the *Test of Melodic Ear-to-Hand Coordination* (*TMEHC*) in order to measure ear-to-hand skills, and, as well, developed the *Aural Skills Training Program* (*ASTP*) as a means of improving ear-to-hand -skills. Froseth emphasized the importance of ear-to-hand aural skills in this way:

> Melodic ear-to-hand coordination is the essential means employed to transfer what is heard, recalled, or imagined to musical performance. Lack of ear-to-hand coordination can restrict an instrumentalist to performance "by eye." Eye-bound (repertoire restricted) performers engage in what might be described as a sophisticated form of musical typewriting. Performing eye-to-hand is, essentially, playing what is seen without hearing what is seen. (Froseth, 1995, p. 1)

When asked, during a recent email conversation, for his views on why *TMEHC* subjects were so heterogeneous in their test scores, Froseth noted:

> The heterogeneous nature of the score for the freshmen we tested at Michigan reflects the preoccupation with eye training associated with a printed repertoire-dominated instrumental curriculum. Many of these students were never given the opportunity or training to play by ear. *Most of the students who did display a strong aural orientation to their instrument developed their ear-to-hand skills outside of school in rock bands, jazz combos, folk groups, and informal church ensembles.* (Froseth, personal communication, 2006, italics mine)

I consider it significant that the music ensembles noted by Froseth as having a strong aural orientation were ensembles where jamming was more likely to take place.

2.3 Literature Addressing the Second Research Question

My second research question addressed *flow,* which is defined as "The holistic sensation that individuals feel when they act with total engagement in the task, often losing track of time, space, and the self" (Pintrich & Schunk, 2002, p. 404).

Flow theory is one of several perspectives on intrinsic motivation developed during the second half of the previous century. Early work in the area of intrinsic motivation included the 1959 scholarship of White, who postulated that individuals had a strong need for efficacy and personal mastery. In the late 60's, Rotter expanded this social learning theory to include locus of control, stating that individuals with an internal locus of control believed that they had control over their own actions and that their actions had impact on outcomes. In the late 1970s, Harter developed a theoretical model that emphasized the need

of individuals to master their environments, while the work of Deci and Ryan in the 1980s suggested that a sense of autonomy and control was a basic human need.

Upon this foundation, Mihalyi Csikszentmihalyi and others developed a related perspective, that of emergent motivation. Emergent motivation theory suggests that individuals are motivated by goals and rewards discovered as a result of interacting with their environments. In emergent motivation theory, interest, affect, and emotion are examined; each of these aspects is thought to play a role equal to that of cognition. Building upon Maslow's work, which regarded self-actualization as the highest in a hierarchy of needs, and Rogers' study of meaningful learning and personal involvement, Csikszentmihalyi identified a holistic state of complete involvement known as flow (Pintrich & Schunk, 2002).

2.3.1 Flow Theory

As a doctoral student at the University of Chicago, Csikszentmihalyi was intrigued by the intensity of involvement he observed in artists at work. He noted that they focused so completely on their work that they ignored the passage of time and their physical discomforts. Most significantly, he observed that once the work was completed, the artists showed little interest in what they had created, as if the effort of creating was the reward, rather than the finished product. Based on these observations and others like them involving many different areas of human endeavor, Csikszentmihalyi developed flow theory.
He first introduced the components of flow in 1990, calling them *elements of enjoyment* (Cskikszentmihalyi, 1990, p. 48). He based his list of elements on studies of such optimal experience conducted with subjects from many different cultures participating in many different experiences. Although his original list contained eight elements, later publications

by Cskiszentmihalyi and others referred to nine dimensions, or components, of flow. Each of the components of flow is briefly described here:

- Challenge-Skills Balance: The flow state is a state of equilibrium, where the subject's capabilities are in balance with the subject's opportunities. If the opportunities, or challenges, are beyond the individual's skill level, worry and anxiety are the result. If the task is below the skill level of the individual, boredom and anxiety are the result. An individual must view a given task as sufficiently challenging, yet believe she has the skill and ability to meet the challenge, for flow occur. Maintaining an optimal ratio of challenge to skill requires constant adjustment, because as skills increase the task needs to become more challenging if flow is to continue.
- Merging of Action and Awareness: The holistic experience of becoming one with the activity is often described as "being in the zone" (Jackson & Csikszentmihalyi, 1999). Involvement is spontaneous; and the activity itself and participation in it become the focus.
- Clear Goals: For flow to occur, the individual must be aware of what she wants to do and be willing to follow through on a course of action.
- Clear and Unambiguous Feedback: Flow is enhanced when the subject is aware that goals are being met.
- Concentration and Focus: In a flow state, irrelevant thoughts are eliminated from consciousness, leaving the mind to concentrate on the task at hand. The person is present and in the moment. Complete involvement and enjoyment of the activity

leaves no room in the mind for disorder or irrelevant thoughts.

- Sense of Control: Knowing that one has the skills to handle the task at hand results in a sense of control, enhancing the flow experience. It is worth noting that: "what people enjoy is not the sense of being in control, but the sense of exercising control in difficult situations" (Csikszentmihalyi, 1990, p. 61).
- Loss of Self-Consciousness: The flow experience transcends the self; the individual is freed from self-doubt and experiences complete concentration on the activity.
- Transformation of Time: Paradoxically, individuals in flow report time passing both more quickly and more slowly, depending on the individual and the activity. This is possibly a result of concentrating deeply on the task, wherein the task takes exactly as long as is required, irrespective of the actual clock time.
- An *Autotelic* Experience: The word autotelic is derived from two Greek words, *auto* which means self, and *telos* which means goal. An autotelic experience is defined as "a self-contained activity, one that is not done with the expectation of some future benefit, but simply because the doing itself is the reward" (Csikszentmihalyi, 1990, p. 67). An autotelic experience is enjoyable for itself, is intrinsically rewarding, and is performed entirely at the volition of the individual.

Before looking at empirical work using the methodological framework Csikszentmihalyi developed to measure flow, here I briefly examine the way in which some of his peers concurred with, collaborated with, and built upon his scholarship regarding flow.

2.3.2 Flow: Related Scholarship

Pintrich and Schunk (2002) stated: “Despite being nebulous, the notion of flow makes intuitive sense” (Pintrich & Schunk, 2002, p. 285). They considered flow theory important enough to summarize it and build upon it by suggesting ways to apply flow theory in the classroom. A music-specific illustration was used, in which the authors suggested that sections of a band be encouraged to find ways to set and meet performance goals as a group.

Beckman and Kazan used flow theory to advance their model of action versus state orientation in athletic endeavors: “Performance-related action orientation indexes the ability to get absorbed in an activity, which is a crucial prerequisite of the so-called flow experience, a functional state of the organism that promotes peak performance” (Beckman & Kazan, p. 440). Despite their use of the qualifier 'so-called' they appeared to concur with the existence of a flow state.

In a more music-oriented discussion, Kenny and Gellrich suggested that “peak experiences or flow states assist improvisers to move not only beyond the literal texts of referents, but also beyond their own cognitive limits in non-flow states” (Kenny & Gellrich, 2002, p. 119).

David Elliott borrowed freely from Csikszentmihalyi in creating a new philosophy of music education (Elliott, 1995); many of the characteristics of flow (challenge-skills balance, deep concentration, clear feedback, loss of self-consciousness) appear in Elliott's work, where he referred to them as *characteristics of self-growth*. Elliott's view on the importance of flow to his philosophy of music education is reflected in this statement by Goble: “Elliott argues that the development of skills and the taking on of challenges in both music making

and music listening (in all world traditions) are unique and important ways of effecting flow and bringing order to consciousness, and that they lead to self-growth, self-knowledge, and raised self esteem" (Goble, 1999, p. 382). However, as Goble also points out, Elliott does not show that these benefits are unique to musical involvement.

Possibly because flow theory is so accessible to the casual reader, there has been reluctance on the part of some scholars to accept Csikszentmihalyi's work as valid. Some of the empirical work subsequently linked to flow theory has had significant limitations. Furthermore, flow appears to be morally neutral: a microbiologist searching for a cure for Alzheimer's disease, a distance runner participating in a marathon, and a hacker stealing data from a bank computer may all experience flow. Nor do flow-producing activities necessarily result in long-term benefits for the individual, as one might conclude after watching a student spend most of his day playing videogames.

One strength of the flow model, its proponents argue, is that it makes quantitative research possible in an area long considered to be in the exclusive domain of qualitative research, namely the study of emotion and affect. Csikszentmihaly, in a 2004 interview, alluded, with some amusement, to the higher status of quantitative data in the research community.

> It's kind of ironic that so many people need the trappings of scientific methodology before they'll pay attention to what they already know in their gut. When people hear about flow, they say, 'Oh yeah, I know that!' But unless you can quantify and measure something, it's not seen to have much significance. Anyway, I have a lot of fun crunching the numbers (Csikszentmihalyi, quoted in

Cooper, 2004, p. 9).

In response to what he regarded as an emphasis on the negative aspects of psychology, Csikszentmihalyi emphasized the contributions that flow theory made to the study of happiness. Speaking in a 1994 keynote address, he put it this way:

> In thirty years as a research psychologist, I have been studying the question, "What makes people happy in their lives?" I decided to ask that question partly because so much of psychology dealt with pathology, with what went wrong with people, what made people neurotic and psychotic and deviant and so forth. No one seemed to know what made people happy about their lives: What made life meaningful? What made it enjoyable? What made life worth living? Csikszentmihalyi, 1994, p. 13)

In order to provide quantifiable data regarding flow, Csikszentmihalyi developed a specific method, as discussed below.

2.3.3 Experience Sampling Method

The *Experience Sampling Method* (*ESM*) has been used to measure the flow state in a wide variety of applications. Csikszentmihalyi first used this method in 1978, and since that time the *ESM* has been the instrument of choice for a sizable body of research. Csikszentmihalyi outlined the use of the pager for data collection in a high school setting.

> Persons who participate in *ESM* studies wear an electronic pager and carry a booklet of self-report forms for a week. Each day, at randomly chosen intervals, signals activate the pagers, and the respondents then fill out a page of the self-report booklet, describing their behavior and subjective states in minute detail.

(Csikszentmihalyi et al., 1993, p. 10)

Typically, subjects wore the pager for seven consecutive days, and signals were transmitted during waking hours, seven to nine times a day. Within 30 minutes of receiving a signal, subjects completed an *Experience Sampling Form* (*ESF*), a questionnaire containing questions addressing both external and internal dimensions of experience. Data were gathered using three scales: nine-point Likert-type, semantic-differential, and categorical. As well, open-ended questions requiring written answers were asked.

2.3.4 Applications of the *ESM*

Csikszentmihalyi's methods were used or adapted for use by a large number of researchers for the purpose of examining flow in various settings. For example, Jackson and Marsh developed a research methodology suitable for examining flow in a sport/physical exercise context, using *ESM* pagers but creating a sports-specific questionnaire (Jackson & Marsh, 1996). Pagers have also been used in flow research in school settings; Shernoff, Csikszentmihalyi, Schneider and Shernoff used pagers in a high school setting to study student engagement from a flow theory perspective (Shernoff et al. 2003), while in the same year, Csikszentmihalyi and Hunter used a similar method in a similar setting to study happiness in teens (Csikszentmihalyi & Hunter, 2003).

As well, Sloboda, O'Neil, and Ivaldi conducted a study related to music outside a school setting, in which *ESM* research methodology was used to explore the context and the content of music listened to by non-musician adult subjects; although listening to music was seldom the main focus, subjects doing so reported present-focused, positive, and alert affective responses to music.

In addition to the above music-related *ESM* study, I found three studies that specifically examined flow in music in an educational setting. The first study used the *ESM* in a conventional way, while the following two represented a departure from the standard *ESM* applications.

O'Neill studied student musicians from one state school and one specialist music school, examining their practice habits and using *ESM* to determine incidence of flow throughout the day. The results were not surprising. High achievers from both schools spent more time practicing than the moderate or low achievers; as well, the high achievers from the specialist school reported frequent incidents of flow experience (O'Neill, 1999). Several years later, Byrne, MacDonald, and Carlton used the *ESF* but not pagers to study the connection between the flow experience and creativity in music composition (Byrne, MacDonald, & Carlton, 2002). I am critical of the interpretation or data employed in this study, for although the compositions produced were rated for creativity by experienced raters, the rating of creativity itself seems questionable.

Most recently, Bakker examined the possibility of a flow experience crossover between music teachers and their students (Bakker, 2003). The method in this study seem problematic; questionnaires addressing the flow experience were filled out by the teacher after a considerable amount of time had passed, and only four students per class, supposedly selected at random, filled out a questionnaire.

The research methodology employed by two other researchers, Balara (2000) and Custodero (1998), were also applicable to my research interests, despite the fact that both addressed flow in subjects and settings very different from my own.

2.3.5 Non-*ESM*-based Flow Study: Balara

In a qualitative study of jazz musicians, Balara asked the question: "What, if any, are the categories, processes, and/or themes to emerge from musicians engaged in the social-participatory experience of creating collective jazz improvisation?" (Balara, 2000, p. 311). Based on a literature review, he identified three constructs: the social construction of the self, social creativity, and flow. Balara observed a group of four jazz musicians in a performance context for three hours on each of three separate occasions. In addition, he conducted post-performance phone interviews with each musician on two separate occasions and interviewed each musician briefly after each set. The data were interpreted in light of the three constructs identified above. This study supported the presence of flow in the jazz context studied. Characteristics of flow theory, including deep concentration, loss of self-consciousness, merging action and awareness, and transformation of time were all noted in the data collected. (Balara, 2000)

Balara's work, an ethnographic case study, was of interest to me in that it used instruments for observations and interviews, a research method I was considering. As well, flow was examined in the social context of the performance in which it occurred. Similar to the jam session, Balara's performing group constituted a music subculture that was part of the culture embodied in the performance venue, but with distinct differences that distinguished it from the audience or other onlookers. Like jammers, these musicians shared an experience with one another in ways that others in the room did not.

2.3.6 Non *ESM*-based Flow Study: Custodero

Custodero developed a research method of her own suitable for studying flow in very young children. Instead of using beepers and questionnaires designed to study flow in adult subjects, she developed a protocol based on observable behaviors thought to indicate flow in children. This protocol was used in several different studies.

In 1998, Custodero studied 11 four- and five-year-olds who participated in weekly one-hour music classes over a period of eight weeks. The classes were videotaped for later analysis, with the video operator instructed to follow one child or group of children throughout one activity and to be as unobtrusive as possible. The videotape was later coded using the *Flow Indicators in Musical Activities* (*FIMA*) form, an author-developed version of the *ESM*. This form contained behavioral indicators in a 10-point Likert-type scale, as well as affective indicators in a semantic differential seven-point scale. The last question, "Was the child in flow?" was answered by observation of focus, affect, and obliviousness to surroundings. Based on these observations, Custodero confirmed the presence of flow in young children participating in musical activities, and she suggested that teacher awareness of the flow state be used to facilitate adaptation of the activity in order to maintain challenge/skills balance (Custodero, 1998).

Custodero built upon this original study in a 2002 longitudinal study of challenge and its role in the musical learning of children. She invited three subjects from the original group of children, now aged 11 and 12, to watch and comment on the videotape obtained in the 1998 study. In addition, the children and their parents were interviewed for further insights into their perspectives on challenge. Her research revealed that children's dispositions

regarding challenge were fairly stable over time, and that a preference for setting challenges either with or without adult intervention was also observable seven years later (Custodero, 2002).

In a more recent study, Custodero again used the *ESM*-based *FIMA* to examine young children in four different music-learning environments. She videotaped an informal music session involving eighteen day-care children under the age of three, six primary students in a Suzuki violin program, and five primary students in a Dalcroze program. These settings provided a diversity of structure suitable for later observation and coding of different indicators of flow. She discovered that self-assignment of musical activity, as well as a desire to continue that activity post-instruction, was most prevalent in preschool-aged children, and declined as children reached school age. Peer awareness during these activities increased with the age of the child, while awareness of adults remained stable throughout the age groups (Custodero, 2005).

Custodero's work is of interest to me because it provides an alternate method for studying flow. While the *ESF* requires beepers that would not be heard in a jam session format, and would disrupt the flow for all participants if they were heard and heeded, Custodero's *FIMA* is based on analysis by a trained observer.

2.3.7 Flow: the Connections

Throughout my review of the literature, I was aware of the connections that could be made between flow and ear-to-hand coordination. I noted that one characteristic of flow, the challenge/skills balance, could be connected to ear-to-hand coordination in that jammers possessing strong ear-to-hand coordination skills might be more comfortable with the high

level of challenge required to copy or compose a song in a jam session format. Conversely, I noted that students experiencing the intrinsic motivation associated with flow may be motivated to practice their instrument more, thus enhancing their ear-to-hand skills. Fredericks and others stated it this way: “Adolescents' perception of being good at their activity seems to motivate them to keep investing effort over time” (Fredericks, Alfeld-Liro, Eccles, Patrick, & Ryan, 2002, p. 78).

Although Csikszentmihali acknowledges the importance of music in both his life and his work, he does not profess to be a musician. In his conceptual writings, references to the school music curriculum, although positive in nature, usually included music in the more general category of fine arts. One exception appears in the keynote address that Csikszentmihalyi delivered to a group of choral teachers. In his speech, he provides a specific choral music example for each of the nine conditions of the flow experience, and he lauds the school choir as an activity providing unique accessibility to the flow experience (Csikszentmihalyi, 1995).

2.4 Emergent Themes and Additional Perspectives

2.4.1 Constructing Knowledge

> *Early in my teaching career, I prepared a lesson for the grade eight clarinet players showing them the new notes they had to learn in order to be able to play the next song in the band method book. During the class, as I began to explain about the break, and the register key, I was interrupted by one of my beginning clarinetists, who blurted out: “I know how to do that! I watched those guys jamming in here yesterday, and then I went home and tried it myself, and it worked!”*

During informal observations made in my own band room, I noted the possibility that jammers were constructing knowledge and deriving understanding from personal experiences that existed outside the formal school music curriculum, and using them to enhance their playing during curricular music. Conversely, I also noted that constructs learned in a band class or other formal music instruction were often used as tools to help build musical understanding useful in the jam session. As Shively pointed out: "It is in the application of the knowledge base developed in the class to musical experiences inside and outside the classroom that understanding is demonstrated. It is in learning a musical idea - such as form - in one context and applying it in another that learners demonstrate further understanding, applying the knowledge in an unfamiliar setting, thus deepening and broadening their knowledge base" (Shively, 2002, p. 203). Campbell, in reporting on garage bands, and particularly the strategies employed by their members in copying (imitating) a song, concurred:

> The lesson to be gained from a glance at garage bands may be more related to an understanding of the nature of music learning than to the matter of curriculum development. Young rock musicians, most of whom received training through the lessons and ensemble experiences of school music programs, seek to learn the performance skills of their preferred music sometime in early adolescence. Contrary to what it may seem, *there may well be a considerable relationship between aural skills honed in school and those utilized in copying a song.* (Campbell, 1995, p. 20, italics mine)

2.4.2 Jamming: Multiple Meanings

Following the early-morning jazz band rehearsal, a guitar player and a sax player stayed to work on a solo for the upcoming music festival. The guitar player played through the chord progression a number of times, while the sax player tried a few soloing ideas based on the blues scale suggested by the teacher. At noon the same day, two students with guitars and one student on the piano were fooling around with a riff that one of the guitar players had come up with. The other guitar player experimented with some bass lines played on the lowest four strings of his guitar, while the piano player, looking increasingly bored with this riff, decided to figure out O Canada by ear instead. Meanwhile, on the other side of the room, a trumpet player worked painstakingly on a song, trying a riff, then laboriously copying it to manuscript paper. Occasionally, he looked up and listened to what the group was doing and added a complementary riff or two of his own. One of these riffs ended up becoming part of the song he was writing. During the first afternoon block, three students from the cooking class down the hall wandered into the band room. None of them were musicians in the generally accepted sense of the word. One played an mp3 of some beats that he had downloaded from the internet while the other two rapped to it, creating two completely different sets of lyrics. In the corner, completely ignored by them, an acoustic guitar player played a lead line that meshed perfectly with the beats. After school, a drummer, a bass player and a guitar player added some tracks to a song they were writing for the graduation ceremony. The piano player, who had to work after school, had recorded a vocal track and a piano

track earlier in the day. They jammed along with it, and when they were satisfied with their musical contributions, they recorded them. Were any of these people jammers? Some of them? All of them?

The term 'jam session' is widely used to describe jazz improvisation, a phenomenon that has been examined in both its social and musical aspects. Monson, in an ethnomusicological study of 14 jazz musicians, argued that "the musical and social context of the ensemble is essential in explaining the sequence of musical events and musical choices that occur during jazz improvisation" (Monson, 1991, p. 2); he found evidence of interdependence among jamming musicians.

Building upon this theme, Berliner emphasized the communication between musicians, likening it to a conversation. In the same way that a conversation could veer off into unplanned territory, unexpected turns could occur in a jam session. "Such events occur typically when the natural flow of ideas conceived in performance leads a particular improviser outside the group's agreed formats or musical arrangements, and other players follow along" (Berliner, 1997, p. 34).

Becker, a jazz musician with extensive experience in the Chicago music scene, provided a unique interpretation of the ways of knowing and understanding during improvisation: "The players thus develop a collective direction that characteristically feels larger than any of them, as though it had a life of its own. It feels as though, instead of them playing the music, the music, Zen-like, is playing them" (Becker, 2000, p. 172).

Ted Aoki, an educator, found meaning in the spontaneous and unique nature of the jam session, and his writing suggested a link to curriculum building in both its formal and

informal aspects. Here, Aoki advocated using improvisation as a metaphor for awareness of the situational aspect of curriculum implementation. He asked jazz trumpeter Bobby Shew to describe improvisation:

> He spoke of how in improvising he and his fellow musicians respond not only to each other, but also to whatever calls upon them in that situational moment, and that, for him, no two situational moments, like life lived, are exactly alike. (Aoki, 1990, in Pinar & Irwin, 2005, p. 368)

In a link to both of my specific research questions, Kenny and Gellrich suggested a connection between improvisation and the themes of flow and ear-to-hand coordination. Discussing the presence of flow in the moments when musicians surrender to the creative moment they stated:

> ... this quasi-narcotic flow state may be one of the most important reasons that motivate improvising musicians to persevere with their craft, despite the often-adverse conditions it is produced under. Once possessed by the moment, musicians begin to forget personal problems, lose critical self-consciousness, lose track of time, and eventually feel that the activity that they are engaged in is worth doing for its own sake. (Kenny & Gellrich, 2002, p. 119)

Later in the same document they addressed the theme of ear-to-hand coordination, acknowledged that kinesthesia was an understudied area, and noted that we are only beginning to understand how the integration of body and mind served to facilitate the improvising process.

Some of the research on improvisation that makes connections between simple

> motoric movement and musical structures, thereby often informing technological pedagogy, may have to be rethought in terms of a more holistic technique. Only then may we more fully understand why some musicians are able to move beyond technical automation to arrive at a more direct and meaningful form of communication. (Kenny & Gellrich, 2002, p. 121)

Coker, a jazz musician, also suggested a link between improvisation and my first specific research question, audiation, when he stated: "The improviser is working with imagined sounds which, when translated, are played on his instrument" (Coker, 1964, p. 34), and later "the brain uses memory and intellect to translate the imagined sound, also emanating from the brain, into fingerings for the instrument (Coker, 1964, p. 35).

In an additional link between improvisation and my second research question, Csikszentmihalyi collaborated with Rich in a systems-model (person, domain, field) examination of improvisation in the contest of the flow experience. They applied the characteristics of flow to the creative process of jazz improvisation, using an interview-based method, confirming both the occurrence of flow and the applicability of improvisation to the systems-model they proposed (Csikszentmihalyi & Rich, 1997).

Although all the above examples of jamming-interpreted-as-improvisation address this phenomenon in the context of adult professional musicians, the research literature also addresses jamming-interpreted-as-improvisation undertaken by school-age amateur musicians. Here, I look at four studies related to improvisation/jamming that involve students, beginning with the youngest subjects first.

My interest in using case study methodology in my own work was informed, in part,

by a case study on improvisation involving two fifth-grade boys. In 1978, Freundlich explored musical thinking and the educational ramifications thereof, through jam sessions involving the two subjects on an Orff instrument (a simple diatonic xylophone) and the teacher/researcher on guitar. The standard 12-bar blues was used as a frame, and the improvised material contributed by the subjects was recorded and later transcribed for analysis using standard musical notation. Freundlich found that subjects of this age "... can generate authentic musical ideas without reference to notation, and that the musical concepts furnished by the improvisation procedure are logically organized and amenable to developmental study" (Freundlich, 1978, p. ii).

My methodology was further informed by three additional studies, all of which used observation, participant-observation, and interviews to examine jamming among school-age subjects. These three studies also served to expand the multiple meanings of jamming, which included but were not limited to improvisation.

In a study that involved nine male subjects in two different bands, ranging in age from fourteen to sixteen, Campbell observed the processes by which jamming in a garage or basement was employed for the purpose of *song-getting:*

> To get is to copy a song, to learn its melody and words, chordal progressions (and strumming rhythms), the drums' rhythmic accompaniment, the formal organization of sections (introduction, bridge, verses and choruses, and closing), lead guitar "riffs" and all the stylistic nuances identified with the recorded song. (Campbell, 1995, p.16)

Here, in contrast with the previous study, the purpose of jamming was not spontaneous composition, but the opposite, the copying of a song with the goal of sounding

as much like the recording as possible. However, as the older of the two bands acquired more skill, developing a repertoire of original songs became a goal. To accomplish this, the guitarist presented his ideas to the group, and they jammed along and added ideas of their own.

In 2003, McGillen used a similar methodology to mine, including observation, participant observation, and interviewing, to examine an extracurricular school music group called *Jungle Express.* This group was slightly older, on average, than the group Campbell observed, ranging in age from fourteen to eighteen. The group rehearsed after school once a week, and at the time of the study contained 21 musicians, with instrumentation similar to that of a stage band. In contrast to the study above, no songs were copied; instead, all music was written by the students themselves. Jamming was the method used to progress from an idea presented by one of the group to a finished song, with all content learned entirely by ear. McGillen examined this version of the jam session through four lenses: cooperation, identity/ownership, relationships, and belonging (McGillen, 2003).

A 2005 study by Davis examined a band containing older student subjects, in this case one high school senior and two college freshmen. The methodology was similar to the above studies, including observation (field notes as well as audio/video recording) and interviews. Davis related one of many instances where an original composition grew out of an idea presented by one of the members:

> The group played almost nonstop for the first fifteen minutes without a break or discussion of tempo, scale, or stylistic approach. It became apparent that this was not only a jam session but also a type of search or journey for a song. After observing

subsequent rehearsals, I realized it was a common process in their music making. (Davis, 2005, p. 7)

In this case, the jam session was a vehicle for group composition and collaboration. Other themes addressed by Davis included the social characteristics of rock bands, aural musicianship, and music enculturation.

The multiple meanings of jamming discussed so far have included that of traditional jazz improvisation, twelve-bar blues improvisation, jamming for the purpose of song-getting, and jamming for the purpose of collaborative composition.

Recently, advances in technology have expanded the spectrum of meanings that could be applied to the concept of jamming. *Digital jamming*, which takes place with the aid of computer software, involves playing along with computer-generated chord changes in a specified style. Technology is also readily available for those who wish to jam with themselves, recording the backtracks and then improvising on top of them. *Web jamming* or *virtual jamming*, which also involves computer software, enables musicians to jam with other musicians worldwide (Olofsson, 2003, p. 105). In this instance, jamming is a solitary and individual pursuit, in which the technology presents both advantages and disadvantages. Advantages include continual access to backtracks for jamming at any time and an opportunity to improve one's musicianship in private. Disadvantages include the lack of feedback from fellow musicians and various technical difficulties such as unacceptable latency and delay in receiving and transmitting information.

In the vignettes that introduced this section, I questioned whether or not the designation of jammer could be applied to each of the situations described. Given the

multiple meanings of jamming as reviewed in the literature, I conclude that all the musicians so described could be considered jammers.

The above vignettes also revealed another important aspect of jamming: the mosaic of social groupings in which students jammed. As a result of his research, McGillen became acutely aware of the importance of the social as well as musical aspects of the jam session. Indeed, he created both a name and a definition for this phenomenon: *socio-musical engagement*, which he defined as "the dynamic and all-encompassing interrelationship between the sonic product of a cooperative process that is dependent upon specific contextual reference points and the active world view each of the participants (brings) to the situation" (McGillen, 2004, p. 290). The social aspects of jamming are addressed further in the following section.

2.4.3 School Music Subculture

Maher and Midgely view the term school culture as a metaphor for discussions about schools, and they acknowledge the contributions of organizational theory to the development of the school culture concept. They point out that "culture is a matter of the mind. Culture is a thought, perception, or belief; it is primarily part of one's cognitive life but also associated with behavior, objects, form, and function" (Maher & Midgely, 1996, p. 56). They also emphasize the uniqueness of each individual school culture, stress the importance of perceiving each school as a meaningful whole, and point to the importance of school culture as an aspect of education as a whole.

Woody provides a musical perspective:

Many music students around this age will begin to identify with a "musical

> subculture." Most middle and high school music teachers are familiar with "band kids" or choral students who form a close-knit group. Such groups award social recognition to individuals who demonstrate notable musical identities. (Woody, 2004, p. 18)

In a discussion that holds a number of implications for my research, Morrison identifies the world of the school band, choir, or orchestra as an authentic musical culture, one that is part of, but distinct from, the school culture as a whole. Morrison favors Swanwick's definition of a sub-culture: "Any group of peoples sustained by a common interest or a set of shared values will develop customs, conventions, and conversational manners of a more or less specialized kind, creating a subculture" (Morrison, 2001, p. 25, citing Swanwick, 1988, p. 3).

Morrison identifies eight dominant themes applicable to the subculture of the school ensemble; so comprehensive is this list of themes that I use it here as a framework with which to address the contributions of other authors regarding the school music subculture.

Morrison's first theme is *identity*. Students demonstrate personal ownership of the group, and through their participation develop an identity connected to it. "A home away from home" is the way Adderley et al. described what they observed, with student musicians referring to themselves as "choir geeks" or "band dorks" with irony and humor but also with some pride. They also noted the presence of identifiers, such as band jackets, that served to set the band members apart from the school as a whole (Adderley, Kenny, & Berz, 2003).

As well, Lamont looked specifically at the musical identities of children, discovering that participation in school music activities did not necessarily mean that the children would

think of themselves as musicians; a number of cultural and social factors, including a music-oriented peer group, were instrumental in developing such an identity (Lamont, 2001).

More recently, McGillen selected identity/ownership as one of four themes emerging from collected data. Here, the process of group composition served to enhance ownership and define group identity. The presence of Jungle Express as a subgroup of the school was notable: "The creation of a distinctive identity within the school was a significant by-product of the cooperative approach within rehearsals" (McGillen, 2004, p. 287).

Morrison's second theme is *transmission*. He discusses the apprenticeship of new members of the performing group to a senior musician, either a fellow student or a teacher/director. McGillen echoes this theme:

> The presence of a cross-age profile within the group (students were aged from 14 to 18) seemed to be a significant element of its success and the resultant approach to music creation. There existed relatively few platforms within the school for students from different year levels to work together. It emerged that the older members naturally took on a mentoring role with the younger members going through an informal type of apprenticeship in songwriting and improvisation. (McGillen, 2004, p. 288)

Morrison's third theme is the *social dimension*. Group members share goals, interact extensively, and develop their own social structure. Adderley, et al. found that student interviews confirmed this: "Benefits of being in a group included the sense of community engendered in the ensembles, the diversity that was apparent in the membership, the opportunity to participate in something musical as a group, and the chance to improve social

skills" (Adderley, Kenny, & Berz, 2003, p. 197). McGillen concurred: "Successful creative music-making was born out the relationships between students as they operated as small groups and as they related to each other on an interpersonal level' (McGillen, 2004, p. 290).

Morrison's fourth theme is *practical and personal boundaries*. Unlike regular school classes, school performing groups often have expectations that include home practice, concerts, trips, and extra rehearsals. McGillen noted that *Jungle Express*, in addition to meeting for practice once a week after school, performed extensively state-wide (McGillen, 2004).

Interestingly, Morrison points out that for ensemble members to be insiders, there must be also be outsiders, those not part of the group, while Adderley, et al. found conflicting evidence in this area: "Comments indicated that many students viewed themselves as part of the larger school population, while other saw themselves as separate, part of an experience that was totally unique from all others in their school" (Adderley, Kenny & Berz, 2003, p. 194).

Morrison's fifth theme is *organizational hierarchy,* or an internal, formal power structure. McGillen found that the hierarchical lines were blurred in the case of a group like *Jungle Express*. Despite the fact that one or more members of the teaching staff of the school played with the group on a regular basis, leadership was fluid and contingent upon who had composed the song on which the group was currently working (McGillen, 2004).

Morrison's sixth theme is *traditional song,* or the repertoire that the performing organization is associated with. McGillen's *Jungle Express* played exclusively original repertoire, developed in a unique group composition process, for which they were known

throughout the community. Adderley, et al. looked at band, orchestra, and choir classes, whose repertoire was appropriate to the performing group but also offered variety, as the words of one male participant reveal: “We had a guy's group that does barbershop quartet and I really like it 'cause its fun and we pick up the music nicely, too, from, like, spirituals to requiems” Adderley, Kenny, & Berz, 2003, p. 196).

Morrison's seventh theme is *traditional performance practices,* whereby the subculture is perpetuated by emulating groups that are seen as outstanding performance models. Adderley, et al. offered a transcription of an interview where participation in a music clinic was considered an incredible accomplishment by one participant, and served to model performance standards that might inspire current and future musicians in the group (Adderley, Kenny, & Berz, 2003).

Morrison's last theme is the *diaspora*, where members leave the performance group at some point, usually graduation. Thus, the composition of the subculture is constantly changing. Here, Morrison himself makes an interesting point. He suggests that the reality of music performance ending at graduation for many students, does not necessarily signify a failure on the part of school music instructors. Instead, he suggests that losing one's place in a comfortable social structure (the band, orchestra, or choir) means that making new connections in ensemble playing will be, at first, unfamiliar and even uncomfortable.

2.4.4 Ear-playing

> *My beginning band method book contained the song* Are You Sleeping*?, playable with the first six notes the students had learned. The last phrase,* doh *then* sol *below* doh, *then* doh*, had been rewritten to read* doh doh doh*, so that the students would not*

have to learn an unfamiliar note at that point in their instruction. Several students had tried the song before, at home,and one of them had figured out how to play it "the right way." An adult, who was attending the class for the purpose of learning an instrument along with her daughter, was unhappy with this departure from the music manuscript. "That boy is not playing what the notes say" she told me. "Can't you do something about it?"

Priest, in promoting creativity in instrumental classes, stated:

> Should we not be somewhat pleased with our students when they are able to play a melody by ear? Is this not evidence of their musical sensitivity? Playing by ear is a valuable skill. It is integrally related to our ability to perform, to sight read, to improvise, to compose, and to listen to music. (Priest, 2002, p. 47)

Most jammers who I have informally observed play the majority of their repertoire by ear. If printed material is used at all, it is usually in the form of chord slash-charts, lyric sheets, or guitar tabulature. Campbell found this as well: "Oral practices were prevalent, however, in that no melody was ever written, nor any accompaniment parts. While at least seven of the group members could read music, the song-sheets showed only words and the letter names of chords" (Campbell, 1995, p. 18).

In a related research project that spanned three years, Lilliestam examined literature pertaining to ear-playing and proposed ways to analyze the processes associated with aural transmission. He found both a lack of knowledge of, and a general disrespect for, playing by ear, a disposition that puzzled him, as "The vast majority of all music ever made is played by ear" (Lilliestam, 1996, p. 195). Lilliestam makes the point that, in the same way we can

speak without being able to read or write text, we can make music without being able to read or write music. In our Western culture, knowledge of music and traditional academic musicology have come to be associated with a notation pedagogy, a dynamic that Tagg called *notational centricity* (Tagg, 1979, p. 28, as cited in Lilliestam, 1996, p. 196).

Ear players often have developed a number of strategies for recalling musical information in the absence of a written score. Lilliestam suggests that at least four kinds of memory assist in this process, either singly or in combination with each other. The first kind, auditive memory, refers to hearing and remembering music to be reproduced later. The second kind, visual memory, refers to the recalled shapes or forms such as finder placement, that indicate notes on the actual instrument. The third kind, tactile memory or muscle memory, is the way something feels when we play it. The fourth kind is verbal memory, or the naming of certain musical events; represented as mind maps in the brain (Lilliestam, 1996).

In a statement that provides a segue to the following section, Lilliestam further suggests: "A band may improvise together and make songs out of jams. Someone may come up with a basic idea that is elaborated by the members of the group" (Lilliestam, 1996, p. 209).

2.4.5 Composition and Creativity

> *"Hey, want to hear our song? We were just jamming on an idea we picked up at the concert last night, and we made our own song out of it!"*

Lilliestam notes that "when you play by ear the difference between composing and rehearsing is unclear and may cease to exist" (Lilliestam, 1996, p. 210). Davis, observing a

session with the band *Our Delay (*a three-member group)*,* one that started out as a rehearsal and developed into a collaborative composition session, noted something similar:

> Experimentation through *fiddling* (testing and modifying short musical phrases) is a compositional technique the band used to get started in the rehearsal. Ostinato and repetitive chord progression provided a vehicle for moving the members forward. Sometimes players mirrored a riff in unison until another riff could be worked out and then the originator would branch off and play the newly devised riff as a complementary pattern to the original. (Davis, 2005, p. 7)

In a related study, Wiggins, working with groups of elementary students in a general music class, asked her subjects how they came up with their musical ideas. Despite the disparate context in which composition was taking place, the students' replies showed a remarkable similarity to the observations of Davis: “You think of an idea and then you try it again and again until you get it. After you have an idea, you fiddle with it” (Wiggins, 2003, p. 148).

The group Davis observed was completely participant-directed, while, in contrast, the groups Wiggins worked with were within a school setting and directed by the teacher. After many years of teaching composition at the elementary level, Wiggins began to see her role as one less concerned with the monitoring of student work, and instead one more focused on providing the students with time to create, free from interruption.

Challenges faced by those who foster creativity and collaborative composition by means of the jam session include coming to terms with the noise levels and apparent disorder that accompany these activities. In observing the activities of the 21 students in the group

Jungle Express, McGillen described the emerging compositional process as a noisy and messy one.

> The rehearsal and writing process was evolutionary. After extended 'jamming' or 'exploration,' scenarios were explored and the exchanges became more focused. The solution eventually appeared, but only after many varied possibilities were posed and rejected through a process of negotiation.There was a chaotic feel to the rehearsals. The delineation between off-task behaviour and exploration was often difficult to identify, and it appeared that the constant undercurrent of noise was a part of the process just as much as the finite teacher-centred exchanges.(McGillen, 2005, p. 20)

2.4.6 Garage Rock Band[8] Model: Transmission of Knowledge

> "*We jam here at night until the custodian kicks us out. Then we go to the drummer's place and keep going."*

Three studies in my literature review suggested the use of a research model based on the garage rock band. Fornas, Lindberg, and Sernhede (1995) studied three Swedish garage rock bands; these bands met in settings other than schools, although the participating musicians were students in their last two years of high school. These groups used the jamming format to develop repertoire, with improvisation serving as a tool to that end, rather than being the main focus of the activity.

In a study addressed in the previous section, McGillen noted: "The 'garage' model of interactive peer-centered music-making has some relevance to *Jungle Express* and its approach to group composition and the informality of the rehearsal environment" (McGillen,

[8] A *garage rock band*, or, more commonly, a *garage band*, is one that jams in a private setting as opposed to a school setting.

2004, p. 283). He conceded that this model was only partially useful in his research, as there were aspects of both curricular band and garage band evident in the functioning of *Jungle Express*.

Campbell's use of the term *garage bands* in the title of her study acknowledged this model in her examination of two bands, a band of eighth and ninth grade musicians, and a band of ninth and tenth grade musicians. Here, garage bands were groups of young males who met in basements or garages to make music. Instrumentation included keyboards, bass, guitar, and drums. They met regularly (twice a week for two to five hours per week) and pursued, as a group, musical goals that included 'getting' (learning) songs recorded by other bands and attempting to come as close to the original sound as possible. Less commonly, the groups wrote their own songs within the genre (Campbell, 1995).

Regarding the transmission of knowledge, Campbell found that, typically, one member of the group would figure out a song by ear, then show it to the others to learn, also by ear. Campbell used a Vygotskian interpretation of knowledge transmission as a model, examining what she observed in terms that Forman, Minick, and Stone define as the "collective, interrelated zones of proximal development" (Forman, et al., 1993, p. 21).

I found that Campbell's description of the process of writing a song within the genre had applicability to an aspect of my first specific research question, ear-to-hand coordination:

> Not surprisingly, the original song was replete with many of the musical conventions of pieces they listen to and play. Players know an extensive repertoire of standard patterns, which they receive aurally and develop kinesthetically. A short chord pattern, a melodic figure, or a bass line that settles comfortably in the kinesthetic

memory were especially likely to be retrieved and utilized in the band's process of creating an original piece (Campbell, 1995, p. 19).

As the vignette that introduced this section illustrated, and as Campbell observed, the music that students listened to greatly influenced the music that they chose to create. Wiggins, in an examination of students' composition, put it this way: "Students' products are heavily reflective of their knowledge of the songs of their musical environment, particularly when they write songs" (Wiggins, 2003, p. 156).

2.4.7 Popular Music In Schools

> *The school orchestra was playing a piece of music of the type usually sold as "popular music," in this case a song with almost no melody called* Mony Mony. *As I listened to the violins saw their way through this barren landscape (root, root, b7, root, repeat ad infinitum) I had to conclude that some popular music was never meant to be transcribed for school band. Yet, many of us have picked music like this with the best of intentions; we were trying to connect school music to student music, to find something that would sound familiar to teenage ears. And, although no one would say so, we were often desperately trying to keep our enrollments up.*

"Music, according to sociologists, is an aspect of peer-group organization" (Frith, 1983, p. 217). Perhaps this is why the names of cliques in secondary schools are so often given the names of music genres: metalheads, punks, rappers. Some school music peer groups organize around traditional choir, band, and orchestra participation, regardless of what music they may listen to outside of school. However, students whose musical performance interests lie outside the formal music curriculum, in one of the popular music

genres, may not find nor seek acceptance as part of the school music subculture.

Relatedly, Shepherd (1991) discusses the dearth of popular music in post-secondary music studies:

> It is possible to make two generalizations concerning the situation of popular music teaching within university music departments. Firstly, given contemporary patterns of 'serious' and 'popular' music, it is grossly under-represented. Secondly, if it is included in the curriculum, its presence is controlled in one of two ways. Either it is subjected to examination in terms of categories derived from traditional academic discourses in music, or it is marginalized and exploited. (Shepherd, 1991, p. 197)

Tagg, addressing the lack of popular music studies at post-secondary institutions, offers a possible solution: ".. .rather than deplore the undemocratic character of academe and its elitist attitude to the vast majority of the population and their music, it is more productive to consider what can be done to improve the quality of music studies" (Tagg, 1999). He goes on to suggest that both musicologists and sociologists need to be open to change regarding the meanings ascribed to music.

The type of curricular music offered in schools, usually concert band, jazz band, choir, and orchestra, provides opportunities for learning to play an instrument. or use the voice. It also offers the opportunity to learn to read notation, and as well the opportunity to be part of a large ensemble. For many students, curricular music provides the music experience they seek. However, for a number of reasons including lack of confidence, lack of funds, or lack of interest in certain types of music, not all students in a school choose music as it is currently offered. Should we be complacent about this situation, or, do we ask, as

Kuzmich does. "...should we broaden our base of operation by including students who are outside our regular music classes?" (Kuzmich, 1991, pg. 51).

Declining enrollments in traditional ensemble classes is a matter of concern amongst music educators internationally. In the UK, concerns have been raised regarding the low numbers of students involved in school music (referred to there as *Music Service*): "Currently available data relating to Music Service provision indicates that about 10% of children and young people within the state school sector are accessing music making activities (primarily instrumental tuition) via music services" (Youth Music, 2006, pg. 6). A move is afoot to drastically alter school music organization, with the offering of programs more in line with student interest: "Schools and music providers need to connect their music provision more meaningfully with young people's own interests, passions, and motivations" (Music Manifesto, 2006, p. 6).

In the US, as one example, the garage bands studied by Campbell contained students passionately interested and motivated by music who were pursuing their interest outside the school setting. Campbell, in a statement that evoked the challenge/skills balance aspect of Csikszentmihalyi's flow theory, asked why they were no longer enrolled:

> By the time of the interviews, all had "quit" their school bands, three had begun to study guitar through formal arrangements, and both drummers were taking lessons from private teachers. For some, the decision to drop band from their school schedules had to do with the slow pace of the rehearsals or the "simple, easy music" of the band's repertoire. Most, however, did not explain their reasons for quitting beyond noting their boredom at rehearsals, their disinterest in the concert (or

marching) band sound, and the greater meaning of rock music to them. (Campbell, 1995, p. 16)

Davis, a fellow US music educator, has a clear vision for bringing students interested in music back into the music classroom:

> Formal music education certainly has much to learn from the ways that young people learn music informally outside the walls of the classroom. We need to find ways to bring into formal music learning the ownership, agency, relevance, and means of personal expression that will enable our students to begin to feel as passionate about school music experiences as they do about non-school music experiences. (Davis, 2005, p. 17)

In an examination of the Canadian music classroom with regards to creativity, Lowe summarizes the current shortcomings of the classroom music curriculum. He notes a serious attitudinal decline as students enter the secondary school years (Lowe, 2002) resulting in low enrollments in music once an option to avoid it exists. Could a focus more inclusive of popular music in schools reverse this trend by changing student dispositions regarding school music?

In Australia, the success of contemporary composition ensembles such as *Jungle Express* is not an isolated phenomenon. Such groups are enrolling students in school music by providing options for alternate instrumentation and a larger focus on popular music. However, such performing groups are most attractive to students who already possess strong music skills. Are those without such skills necessarily lost to curricular or extracurricular music?

High school general music, long the poor relative to the more elitist performing groups such as concert bands, has been suggested as one way of including the less skilled musician, thus increasing school music enrollment. As far back as the 1980s, educators recognized the potential value of general music classes. In discussing appropriate curriculum and instruction for a general program, and in a statement that evokes Csizkszentmihalyi's flow theory, discussed earlier, Hughes suggests that "The instructor must balance an appropriate degree of challenge with the possibility of achieving success in the near future" (Hughes, 1987, pg. 35). Perhaps the general music designation will prove to be more amenable to the inclusion of popular music culture than the standard high school performance-based groups have been.

Relatedly, Reimer's vision for general music classes suggested that students should be actively engaged while taking into account the possible roles music could play in their lifelong learning. He noted that, while it was important to understand music as experienced by the professional, it was equally important to consider the role of the *amateur* (a person engaging in a musical role for enjoyment, as opposed to for a career) and the *aficionado* (a person seeking musical experiences in a multitude of other ways) (Remier, 2003).

Would the offering of of classes in rock musicology necessarily solve the problem of inclusion? Campbell expresses her reservations about including rock music in schools:

> Do we open the curriculum to the inclusion of 'rock music appreciation' courses? This is probably not necessary, as rock music is already widely accepted. Furthermore, the genre demands the listener's thorough engagement rather than the passive listening associated with appreciation courses. Rock music may be less an academic discipline,

> to be dissected and dulled by discussion of its features, than it is intended (and rightfully interpreted by its young listeners) to be a visceral experience. Do we consider the rock band as a chamber ensemble worthy of our coaching? Perhaps, although the contextualization of rock music in its rehearsal and performance is closely wedded to its sound; rock music in a school band room may be blatantly out of context. As well, rock music has historically contained within it an element of rebellion, and as such, has been intended to be heard and performed by adolescents and 'twentysomethings' beyond the reach of parents, teachers, and other adults. Uninformed teachers might not make convincing coaches. (Campbell, 1995, p. 19-20)

Lilliestam is even more direct:

> The guitarist Jimmy Page, from Led Zeppelin, says: "The good thing about the guitar was that they didn't teach it in school. Teaching myself was the first and most important part of my education. I know that Jeff Beck and I enjoyed pure music because we didn't have to. I hope they keep it out of the schools. (Davis, 1985, p. 16, as cited in Lilliestam, 1996, pg. 207)

Page's wry comment says volumes about about music educators' track record when it comes to developing school music programs that are viewed as relevant by students, or at least by the ones who become famous rock guitarists! In reality, the picture is probably nowhere near that bleak. It is interesting to note, however, that historically, the tension between what designers of curriculum feel is appropriate for school music, and what students themselves might like to learn, is ongoing. As an example, a 1987 issue of the *Music Educators Journal* contained a dialog regarding the

evolution of band programs, from concert bands to marching bands to jazz bands, and possible meanings that could be attached to this progression. Howell offered a contentious but thought-provoking point of view:

> The educational establishment has always been much more conservative than we would like to admit, and throughout history no musical ensemble has ever been admitted to the school curriculum until the life cycle of that ensemble was on its downcurve. For example, in the 1940's when jazz was still growing and developing, jazz in the schools was strictly forbidden. Today we have jazz ensembles in the schools and university degrees in jazz studies, but nothing comparable in rock music, which is still developing. (Howell, 1987, pg. 430)

By the time we are ready to recognize rock, will something different be on the horizon?

Although a suitable direction is not completely clear, it is possible that, if we remain open to change and alternate possibilities, the inclusion of popular music in schools in some form may prove to be a positive direction. As an extracurricular activity, an examination of jamming in schools may help to point the way.

My final theme addresses not the jam session itself, but instead one of the means of reporting observations regarding the jam session.

2.4.8 Reporting Culture: Van Maanen's "Tales Of the Field"

> *My own culture was a small-town, middle-aged, teacher-oriented one. Given that, some of my most revealing glimpses of other cultures and other lives lived have come from conversations with my two grown sons, one a North Vancouver music*

producer and composer, and one who is an officer with the Vancouver Police Department. When I convince them to tell me a few tales, I vicariously experience other worlds.

During the period between 1973 and 1980, John Van Maanen embarked upon a field study of the culture surrounding police work. His embedded perspective (as a police recruit, and as such at least a ride-along, and often a participant) enabled him to experience what few outsiders could, the world of a city policeman.

In writing up his fieldwork account, he used what was at the time best described as a somewhat unconventional form of ethnography, which he defined as "... the peculiar practice of representing the social reality of others through the analysis of one's own experience in the world of these others" (Van Maanen, 1988, p. ix).

To emphasize the storytelling aspect of the ethnographic write-up, Van Maanen used the word *tales*, highlighting the once-removed representational nature of these accounts. He considered *realist tales*, in which the writer was generally absent, and the opposite, *confessional tales*, in which the writer's presence was paramount, before describing *impressionist tales*, which, he stated: "... are personalized moments of fieldwork cast in dramatic form; they therefore carry elements of both realist and confessional writing" (Van Mannen, 1988, p. 7). It is the impressionist tale, a term borrowed from a form of visual art and capturing an impression of a scene at a moment in time, that I consider most appropriate for representing some of the qualitative information included in this study.

"Impressionist tales are not about what usually happens but about what rarely happens" (Van Maanen, 1988, p. 103). I hope to see what others might miss: the unusual, the

interesting, the atypical. Indeed, “Impressionist tales suggest that we learn more from the exceptional than from the topical” (Van Maanen, 1988, p. 108).

Ideally, the tale combines the worlds of the observed, the participant-observer, and the reader, who brings to the tale his own experiences through which he interprets what he reads. Characterization and rising action are tools that may be employed in the impressionist tale in order to more thoroughly involve the reader. It is worth noting that the profile of the reader I imagine viewing my work spans a range from the fellow researcher, to the musician/colleague, to the more general reader with an interest in school culture.

There is a great deal of trust involved in my asking to be part of a subject's musical experiences and privy to my subject's private thoughts; because of this, my list of characters is relatively small. As well, I realize that even when my presence is accepted without question, I am not one of them. “Researchers are to a degree always alien to the social worlds they study if only because of their detached and professional interests in those worlds” (Van Maanen, 1982, p. 105).

Throughout this dissertation, I have inserted into the larger blocks of regular text short impressionist tales in the form of vignettes. These vignettes include reflections of personal experiences from a time prior to my research proposal, illustrating events that piqued my interest in jamming as a phenomenon worthy of study. As well, vignettes based on observations made throughout the period of my research are presented in the form in which they were recorded in my field notes. It is my hope that these will serve to inform, add characterization, and more thoroughly involve the reader.

3 METHODOLOGY

3.1 Introduction and Overview

"The case is a specific, complex, functioning thing" (Stake, 1995, p. 2). My case, which examines informal music participation (jamming), was specific to one unique school (the Sullivan Campus of Salmon Arm High School, or SAHS), complex (involving interactions on many levels in favor of many purposes), and functioning (units of analysis, though loosely defined, displayed a degree of organization focused on the pursuit of some musical long or short term goal). My case study focused on a single case, the jamming musicians at one school, the Sullivan Campus of SAHS; a group of non-jamming music students were also studied briefly for comparative purposes. Prior to beginning my main study, I piloted all instruments at the Jackson Campus of SAHS.

My decision to study jammers at a single school, rather than to compare multiple populations of jammers, was one I made only after a great deal of deliberation. After all factors were considered, I concluded that what I could learn from one unique case would have the most benefit for me as a researcher. I also believed that this initial exploration of a previously unexamined phenomenon would make the greatest contribution to the field through the examination of one case, in depth and with attention to its complex and multifaceted nature. Because a review of the literature served to convince me that no single method would provide the information I sought, I chose to conduct a mixed-method study. I was convinced that this was the only way to achieve my goal stated in Chapter 1, that of describing how things were at this particular place and time.

To summarize, my dissertation is a case study of the jamming population of the

Sullivan Campus of Salmon Arm High School (SAHS). Non-jamming subjects at this same school played a small role in my case study for comparison purposes. Jamming subjects at the Jackson Campus of SAHS served as my pilot case subjects.

In writing this chapter, I first addressed my criteria for selecting the specific mix of different types of instruments. Next, I looked at each research instrument in depth. Then, I looked at my plan for administering these instruments.

3.2 Rationale for Mix of Methodology

"Case studies can be based on any mix of quantitative and qualitative evidence" (Yin, 1994, p. 14). Although this statement may initially appear too general to be useful, it was an important starting point in the evolution of my research plan. My original interest in the jam session stemmed from a desire to know more about the way jammers, who usually play by ear, were perceiving and manipulating the elements of music. In order to explore this interest further, I chose to use two existing quantitative instruments, the *Advanced Measures of Music Audiation* (*AMMA*) and the *Test of Melodic Ear-to-Hand Coordination* (*TMEHC*). The two tests were designed to test different aspects of musicianship; the *AMMA* was chosen because it addressed music aptitude, and the *TMEHC* was chosen because it addressed music achievement. As well, I believed that observation and participant observation would reveal additional information regarding the perception and manipulation of music elements by jammers. Thus, I decided that my first specific research question would best be explored using both quantitative and qualitative data.

However, as I recalled jam sessions in which I had both participated and observed, I was certain that there was another perspective that merited inclusion in the form of a second

specific research question. The degree of motivation that participants displayed, as well as the feeling of being "in the zone" that I had experienced, led me to consider Csikszentmihalyi's flow theory as a possible explanation for these phenomena. As previously discussed in Chapter 2, despite the fact that a quantitative instrument was available for this purpose, I was not convinced that it was suitable for my research purposes. For this reason, I developed several qualitative instruments, one of which was also designed to produce quantitative data.

In addition, I predicted that my case study would be a journey presenting me with both expected and unexpected outcomes. For this reason, I developed qualitative research instruments of an open-ended nature, with the intent of allowing for perspectives on jamming that I had not anticipated to emerge.

I was convinced that both qualitative and quantitative modes of inquiry were necessary for my exploration of this case. As Eisner suggests, quantitative instruments provide data in terms of representational symbols such as numbers, while qualitative instruments provide data in terms of presentational symbols such as words (Eisner, 2002). I strongly believed that both were needed; the quantitative data would provide me the opportunity to compare within and between groups by means of numbers, while the qualitative data would give me the opportunity to provide thick description, to "allow the reader to experience what he or she has not experienced directly" (Eisner, 2002, p. 235).

3.3 Research Instruments

I organized the following descriptions of instrument protocol by research question addressed: first specific research question, then second specific research question, followed

by the general area of inquiry.

3.2.1 First Research Question Instrument: *AMMA*

Gordon's *AMMA* was designed for large-group use, and I thus planned to administer it to all subjects present in the concert band and music composition classes.

The *AMMA* asks subjects to determine if pairs of melodies are the same or different. This test, which does not require formal music skills to complete, is designed to examine and quantify the audiation levels of subjects.

The *AMMA* consists of three practice exercises followed by 30 actual exercises. Each exercise consists of a music phrase which is played twice; the subject is then asked to determine whether the two phrases are the same or different. If a subject concludes that the two phrases are the same, she marks the 'same' column on the bubble sheet provided. If a subject concludes that they are different, he is asked to identify the way in which the phrases are different by selecting 'tonal' or 'rhythm' on the bubble sheet. The cassette tape accompanying the test contains all verbal instruction and all music phrases (played on a synthesizer), resulting in a high degree of test standardization. The *AMMA* takes16 minutes to administer.

Scoring is accomplished by means of a mask which enables the marker to determine the scores for T1 (tonal correct), T2 (tonal incorrect), R1 (rhythm correct) and R2 (rhythm incorrect). Twenty points are added to the correct scores, then wrong answers in each category are subtracted from right ones to penalize guessing. This process results in a raw score for each of tonal and rhythm as well as a total raw score based on both. From these scores, percentile ranks for each subject are selected from the age-specific norms provided.

3.2.2 First Research Question Instrument: *TMEHC*

Froseth's *TMEHC* was designed to be administered to subjects on an individual basis. I thus planned to administer it to students taken individually from band classes.

The *TMEHC* asks subjects to replicate a short music phrase on their instrument. This test is designed to examine and quantify the ear-to-hand achievement of subjects.

The *TMEHC* consists of 100 patterns, divided into nine sequences of variable length with a five-second break between each. First, a sequence of practice examples is given in order to familiarize subjects with the procedure. A synthesizer is used to produce melodic patterns, each of which is four beats long. A click track provides the quarter note for both the pattern and the subject's imitation of that pattern. Thus, the subject hears a melodic pattern and is required to perform the pattern upon his or her major instrument in the following measure. The test administrator records the subject's responses on the coding sheet provided, with responses being identified as either correct or incorrect. The number of correct responses out of 100 constitutes the subject's test score.

The starting note in concert pitch is given for each sequence. The sequences contain intervalic patterns that increase in difficulty from the first sequence to the ninth sequence. Early sequences consist of stepwise melodic patterns, diatonic intervals, and arpeggios based on major and minor chords. Later sequences also contain intervals up to a perfect fifth, non-diatonic intervals, and arpeggios based on augmented and diminished chords.

The entire test, including the practice sequence, takes 13 minutes to administer. Froseth provides interpretation guidelines for the *TMEHC* based on student scores; these norms are designed to be used with first-year college music majors.

3.2.3 Second Research Question Instrument: Flow Observation

As suggested in Chapter 2, the presence of flow may be detected by a trained observer. Based on Custodero's *Flow in Musical Activities (FIMA*), I developed the following form, *Observation of Flow Indicators* (*OFI*) for use with older subjects. In addition to writing field notes, I used this form to code my jam session observations.

Coding Form For *Observation of Flow Indicators* (*OFI*)

Semantic Differential (v-very, q-quite, s-somewhat, n-neither)

happy	v	q	s	n	s	q	v	sad
involved	v	q	s	n	s	q	v	detached
cheerful	v	q	s	n	s	q	v	irritable
excited	v	q	s	n	s	q	v	bored
focused	v	q	s	n	s	q	v	distracted
comfortable	v	q	s	n	s	q	v	uncomfortable
engaged	v	q	s	n	s	q	v	disengaged
satisfied	v	q	s	n	s	q	v	frustrated

Likert-type Scale 1-9 (1=not at all, 3=somewhat, 6=quite a lot, 9=very much so)

music appeared to be appropriately challenging	1	2	3	4	5	6	7	8	9
student appeared to possess suitable skill levels	1	2	3	4	5	6	7	8	9
student lacked self-conscious behaviour	1	2	3	4	5	6	7	8	9
student appeared to lose track of time	1	2	3	4	5	6	7	8	9
student appeared focused throughout the session	1	2	3	4	5	6	7	8	9
student demeanor appeared confident	1	2	3	4	5	6	7	8	9

student concentrated despite distractions	1 2 3 4 5 6 7 8 9
gaze/"thousand-yard stare"	1 2 3 4 5 6 7 8 9
kinesthetic involvement of body/limbs	1 2 3 4 5 6 7 8 9

3.2.4 Second Research Question Instrument: Questionnaire

As noted in Chapter 2, Balara examined the flow experiences of jazz musicians. Based on Balara's work, I developed the following questionnaire to be used in either written or spoken form following a jam session.

Post-Jam Session Flow Questionnaire

1. Was today's music session fun? Why or why not?

2. Did you feel that you made a contribution to the session today? If so, can you give an example?

3. Were you happy with how you played today? Why or why not?

4. Did you feel distracted at any time? If so, because of what?

5. Did you ever feel "in the zone" today while playing? If so, when? Can you describe the feeling?

3.2.5 Instruments Addressing the General Area of Inquiry

The following instruments were developed to provide qualitative data in support of the general area of inquiry. As well, because I planned to remain cognizant of other factors that might be pertinent to my study of the high school jam session, some of the instruments I used (below) contained open-ended questions or tasks.

I developed three scripts to assist me in better understanding jamming from the

subjects' point of view. I used questions in the first script, below, as journaling prompts. Selected subjects were given the set of questions and asked to respond to them in journal form.

Journaling Prompts

1. What instruments do you play? Which one do you like playing most, and why?
2. Have you ever taken private lessons on an instrument? If so, did the teacher use printed music most of the time, or did he/she show you things to play in another way? If so, how?
3. Let's say you had to learn a new song on your own. How would you do that? For instance, would you be more likely to look on the internet, or look for printed music in a store, or ask someone to show it to you, or listen to it and figure it out?
4. What music courses are you taking this year? Despite the fact that you take actual music courses, you come to the band room during your free time and play – why?
5. Did you practice an instrument at home this week? If so, why did you do that?
6. If a class in the school was canceled for the day, how would you spend that time?
7. Do you think you are good at reading music, say, in band class, or in piano lessons?
8. Do you think you are good at playing by ear? Why, or why not?
9. Do you tend to jam with the same people most days? Why these people?
10. Are you as good a musician as these people you jam with, or are they better or worse than you? Why do you think so?
11. Are these people you jam with your friends too? Do you tend to hang out together?
12. Five years from now, what role do you think (or hope) music will play in your life?

13. When you jam in the band room, are you nervous? Why or why not?
14. Is your band teacher supportive of jamming? If so, what does he do that helps?
15. Does what you have learned in choir, concert band, jazz band or music comp help you in your jamming? If so, in what way?
16. Would you say you are fairly happy when jamming? In what ways might this activity make you feel good? Do you ever feel bad after you jam? Why or why not?
17. What do you think other people in the school think of people like you who hang out in the band room and play? Does this matter to you? Why or why not?
18. What do you think you learn musically from this experience?
19. In what ways is this a positive experience for you?
20. Does jamming have any effect on the rest of your life?

I also developed two interview scripts, one for use with individuals, and one for use with a group. I used these scripts to gain knowledge in support of my general research question. As well, these instruments were designed to inform me regarding other aspects of the jamming environment, as explored in the Additional Perspectives and Overarching Themes section of Chapter 2.

Script For Individual Interview

1. (*Name*), please tell me a bit about yourself as a musician. How long have you played the (*jam session instrument*), and why did you choose this instrument?
2. Tell me about what it was like to learn to play this instrument. How did you get started? Did anyone help you, and if so, in what ways?
3. What are some of your favorite things about (*what do you like best about*) playing the

(*jam session instrument*)?

4. Have you learned anything in regular music classes that has helped you play here? What classes, and what did you learn, specifically?
5. Do you see yourself as a good student overall? Are there some parts of school that are more satisfying for you than others?
6. Why do you come here, as opposed to, say, going to McD's to hang out?
7. Would you say the people you play with are your friends? Why do you think that is?
8. Sometimes, other students come in the band room and listen to you and the others playing. Why do you think they do that? What do you figure they think of you and your music?
9. Do other people in this school think of you as a musician? Does that matter to you?
10. Do you like figuring songs out by ear? Why or why not?
11. Do you write your own songs? Do you share them with others? (*if so*) How would you explain to other musicians what to play on one of your songs?
12. Do you play alone sometimes? Why, or why not?
13. Are you nervous playing in front of an audience, and can you tell me about a time when you were not nervous?
14. Have you ever been surprised that the time has gone so quickly when you were playing? Can you tell me about a time when that happened, what it felt like?
15. If somebody offered to give you money to practice your instrument, or perhaps a really good mark on your next report card for doing so, would that make you practice more?

16. Are you good at this? (*jamming*) Are the others you play with just as good?
17. Do you have any plans for continuing in music after you leave school? If so, what do you see yourself doing musically?
18. Has this ever happened to you: you are listening to a song with your (jamming instrument) in your hands, and your fingers seem to just know where to go, without you thinking about it? If so, can you give a specific example of this happening?

Script For Group Interview

1. How long have you been working together as a group?
2. Do you think you work well together, generally speaking? Why do you think this is?
3. How close are you? Do you ever finish each other's sentences, or read each other's thoughts, figuratively or musically speaking?
4. Do any or all of you bring your own music ideas to a practice to show the others? If so, do you encourage the others to contribute different ideas that might fit? Can you give an example?
5. Do you, as a group, see yourselves as part of the music program at this school, even though what you are doing here is not a course?
6. Do you get musical support and help from anyone in the school, and if so, from whom?
7. Do other students think of you as musicians? Do they know you have a band going here? Do they support you in any way?
8. What would be your usual way of learning a new song? Or do you do this in several ways? Can you give an example or two?

9. Does what you are doing here help all of you to become better musicians?
10. Looking back to when you first started doing this, do you think you are a better musician now than you were then? In what ways?
11. Let's just say you all became band teachers, five years from now. Do you think any of what you learn from playing together as a band would help you in that job? What, specifically?
12. If you were a band teacher in a school like this one, in what ways do you think you would be able to help others to have a similar music experience to what you have had?
13. Do you like playing by ear? Do we, as band teachers, do a good job of teaching people to play by ear? How do you think this could be improved?
14. Why do you play? For grades? For status in the school? Because your parents want you to? For some other reason?
15. Lots of people play in band in this school, yet I don't see them here, like you are. Why do you think this is?
16. When you are playing together, I often get the impression that you are really into it, really involved. Can you describe what that feels like?
17. If you were not allowed to do this in school, could you and would you find another way of playing together?
18. What do you get from this personally?
19. Does jamming make the rest of your life better in any way?

I was also interested in knowing more about the strategies employed by groups of

musicians (rather than individual musicians) when learning a song by ear, or when transmitting that ear-based knowledge to other musicians. I wanted to know if musicians who jam together frequently employ some type of strategy for capitalizing on individual strengths, and if so, how they build upon the synergy created. With this purpose, I created two participant-observer tasks designed to provide me with insights into the ways in which musicians working in groups perceive and manipulate music elements.

The first task involved asking a group of musicians to learn, by ear, an unfamiliar song provided by me. Below is the script for this task:

Script: First Participant-Observer Ear-to-Hand Task for Group

> "Today I would like you to show me how you would approach the task of figuring out a song that you don't know, one that might not even be the sort of thing you play normally. I have a recording of it here, and I can tell you that it is short and it could be played with the instrumentation that you have in this band. Don't worry too much about the words, it's the way you figure out the music that is of more interest to me. Would you like me to tell you the key it's in? I have paper and pencils here if you want to write anything down; that's up to you, though. Discussing things out loud with each other while you are doing this will help me understand what you are doing. Because I don't want to take too much of your jamming time, I'd like to set a time limit for this task. It's not a very complicated song. Would 15 minutes be a reasonable amount of time? OK, then, let's see how much of this song you can pick up in 15 minutes. Ready?"
>
> The song was the theme from cartoon show *King of the Hill.* I have used this song for

similar purposes a number of times in the past; students have usually found it vaguely familiar, but no student has ever actually known it. The chord changes in this song were somewhat predictable, though not to the extent that a 12 bar blues would have been. There was an identifiable, repeated guitar riff to figure out. The bass line was easy to hear, and the groove (pattern that the drummer plays), while unusual, was not particularly difficult in terms of either tempo or technique. The form was one frequently used in rock music.

The second task was in some ways the reverse of the first. I asked a group of musicians to teach me one of their songs, reasoning that observing the way in which subjects transmit music knowledge might give me insights into their perception of music elements.

Script: Second Participant-Observer Ear-to-Hand Task for Group

> "Today, let's just say you needed a keyboard player on one of your songs for a gig you were doing. I play keyboards, and I wondered if you would be willing to teach me your song? I am most interested in how you would explain it to me, or show it to me, so please think out loud as much as you can. I would also be interested in how you might see an additional instrument fitting into the arrangement of the tune, so you can ask me to play something that is different to what you are playing on the guitar, if you feel that is appropriate. Again, I don't want to take too much of your jamming time; would 15 minutes be a reasonable amount of time? OK, then, teach me your song."

This session was audiotaped, and from this tape, field notes were produced.

3.4 Administration of Instruments

3.4.1 Consent Forms, Demographic Information and Pseudonyms

Prior to administering any instrument, written consent of both the subjects and the parent/guardians of those subjects was obtained. Then, demographic information on each subject in both the pilot and the main study was obtained from school administration, and each subject, in alphabetical order, was assigned a subject number. In accordance with school district regulations regarding privacy of information, subjects were asked to choose their own pseudonym to represent them.

3.4.2 Research Plan

After providing potential subjects and their parents/guardians with written and verbal information regarding my study and obtaining consent forms from interested subjects, I piloted my study at the Jackson Campus of SAHS over a period of two weeks. For the pilot study, I first administered the *AMMA*, following the protocol as outlined above. Then, I observed noon hour jam sessions and wrote field notes. Next, I administered the *TMEHC* to pilot subjects, following the protocol outlined above. Finally, I conducted individual and group interviews with pilot subjects.

For the main study at the Sullivan Campus of SAHS, I first offered information about the study and distributed consent forms to potential subjects, in the same manner as I did for the pilot study. Then, I administered the *AMMA*, on a group basis, to all consenting subjects in the Concert Band and Music Composition classes. Next, I administered the pre-test of the *TMEHC* to individual subjects. Following that, I administered the *SOR* , another aural skills test, (described in a following section, 4.2.2), to subjects, and concurrently observed noon

hour jam sessions, using both the *OFI* coding form and field notes to record my observations. At this time I also distributed journals and prompts to individuals selected on the basis of consistent jam session participation, conducted individual and group interviews, and presented participant-observer tasks. Finally, I administered the post-test of the *TMEHC*. This research activity occurred over a period of four months.

4 PILOT STUDY AND ADJUSTMENTS

4.1 Pilot Study

I began my pilot study on February 5, 2007, and concluded my pilot study on February 14, 2007. During that time period I was at the Jackson Campus of SAHS a total of eight times.

> *My arrival at Jackson Campus, on the first day of my pilot study, was greeted with enthusiasm by a small group of students who were just finishing their lunches. "Are you our sub?" they asked hopefully, perhaps anticipating a fun-filled hour putting a new teacher through her paces. The arrival of the regular band teacher, Mr. J., made it clear that I was not a sub. In the brief time before classes began for the afternoon, I asked Mr. J. about his noon-hour jammers. "I don't really have many this year," was his reply. "Some years they appear, some years not."*

I explained my study to the grade nine and ten band classes, and told them that I would be in the band room the following lunch hour to distribute information and consent forms to interested students.

> *When I entered the band room on the following day, a small group of students were clustered around the piano, eating their lunches, talking, and occasionally playing a little on the piano and an electric guitar. I talked to the students and handed out several consent forms. As Mr. J commiserated with me regarding the small number of jammers this year, I glanced over his shoulder. Two young males, one with a violin and one with a classical guitar, had entered the room quietly and set up in the back corner. "What about those two?" I asked. "I've never seen them in here before!" he*

replied. I hastened to give them information and consent forms, and I asked if they planned to be back the following day.

Based on the recommendations of the band teacher as well as my personal observations, I identified six potential subjects, all of whom returned consent forms and agreed to participate. Over a period of two weeks I observed these subjects and piloted the instruments to be used in the main study.

Finding a place to administer the AMMA*, my first instrument, proved to be problematic. It was very difficult to find a place without distractions, quiet enough to be able hear clearly, and in a spot where we wouldn't be disturbing others. Sporadic student attendance proved to be a problem as well; in the two-week period of my pilot study, the best I could do was to administer the* AMMA *to five of out of the six subjects.*

I interviewed the six subjects either individually or in pairs, using the script that I had developed. Questions examining aspects of flow usually produced the strongest responses.

For example, Rose, a tenth grade bass player with a great sense of humor, described her experiences with the flow characteristic *concentration and focus.* "People tease me because of my look of concentration, they say I look like I am waiting for the bus! (laughs) but I am really thinking of the rhythm, and thinking ahead!" Rose also told me about an instance when she *lost track of time,* another characteristic of flow. "I look and there is 20 minutes left and then five seconds later the bell goes and the time has gone, and I haven't noticed because I am having so much fun."

Peanut, a diminutive tenth grade guitar player, had also experienced this: "Sure, when

something is a lot of fun, the time goes by really quickly!" She also discussed two other characteristics of flow, *loss of self-consciousness* and *sense of control. "*I am used to being on stage, I'm not nervous. Actually, I am always a little nervous, but I don't show it, because if you do, it is a domino effect." As well, Peanut revealed her *autotelic* personality when answering my question about practicing: "I practice all the time anyway. It is up to the student, you know, if they really want to do it."

Alexandra, a confident tenth grade trumpet player, told me how comfortable she was performing, and how she lost track of time in a concert situation: "Yeah, it often happens that we are playing a concert or something, and we are just started and then, wow, we're done!"

With regard to the social aspects of jam participation, Rose and Bertha (a clarinet player) talked about their identities as musicians: "My friends call me 'bass girl' and we both get called 'band geeks' but we don't mind!"

Dante, a classical guitar player, and Virgil, a violin player, provided me with opportunities to look for observable indications of flow. My field notes stated, in part:

> The guitar player played a theme based on a classical composition. The violin player listened intently with his eyes closed, then started weaving an intricate countermelody. They both played for a good five minutes without stopping, exhibiting the "thousand-yard stare"and moving their bodies in time to the music they were creating. When the bell went, they looked up, surprised.

I was also able to interview the band teacher at the Jackson Campus, Mr. J, and get his perspective on why students jammed and what they learned from doing so.

He stated that he believed students were learning important skills from jamming:

"When you figure they have to organize and analyze music, the structure, the form! It's so good for the right-brain musician." He also noted that jamming provided an important practice opportunity: "they are practicing and enjoying it!" He also had an explanation for why students jammed: "It' s good motivation, they find it feels good to do it, and things sound good."

> *In order to gain practice at administering the* TMEHC*, I first tested Mr. J. Not surprisingly, as he is the best ear-to-hand player I have ever met, he scored 98 out of 100.*

Pilot subjects found the *TMEHC* very difficult. Bertha, whose score was 5, was visibly upset by the experience. Dante scored 8, Virgil scored 16, while Rose scored 12. Peanut scored 13 and immediately wanted to try again. Only Alexandra displayed characteristics of flow while doing the *TMEHC*; her score was 48. Intrigued by this score, I asked more questions about her background and experience. She indicated that her parents had been very involved in music as a result of their occupations, and that she had shown "early promise." Alexandra had been playing her instrument for about seven years.

Administering the *TMEHC* as part of the pilot study revealed the difficulties of using this test with relatively inexperienced players. Based on my pilot experiences, I developed and piloted another ear-to-hand instrument, as discussed in 4.2.2, below.

4.2 Modifications to the Research Plan

4.2.1 Limitations of the *TMEHC*.

At the proposal stage, my research methodology specified the use of two quantitative instruments, the *AMMA* and the *TMEHC*, as introduced in Chapter 2 and outlined in

Chapter 3. However, during the pilot study it became clear to me that my intended use of the *TMEHC* with subjects of this age and level of musicianship was problematic. The limitations of this test, given my research purposes, were apparent in three main areas.

First, the item difficulty was clearly inappropriate for most of this group; it was not uncommon for students to become discouraged even on the practice patterns, and many found it impossible to continue with the test past the first sequence of 16 patterns. I consider it significant that Froseth's subjects were two to five years older than my subjects, were college music majors, and most importantly, had an estimated eight or more years of experience on their instruments. By contrast, my subjects were high school generalists with six months to four years of experience on their instruments. Many lacked the skill to play the notes required fluently, often during the Bb concert sequences, and especially when non-diatonic notes appeared in later test sequences.

Second, I found that certain characteristics of some of the instruments played by the subjects during the test contributed to test inequalities related to key. The *TMEHC* was in the key of Bb Concert (or the relative minor of G minor Concert), a key that most beginning concert band students learned first, and were generally comfortable with. However, string players, and particularly guitar and bass players who had played only in the rock genre, had seldom or never encountered this key during these early years of their playing and were therefore at a disadvantage from the outset. As well, given the tuning of these instruments (with open strings including E, A. D and G), the key of Bb Concert appeared to be noticeably non-intuitive for less experienced string players.

Third, although Froseth tested all percussionists as well as all vocalists on piano, I did

not find this feasible, as in most cases the subjects lacked the rudimentary piano skills required for the task.

> *My non-jamming subjects represented a fairly typical concert-band instrumentation; clarinets, flutes, trumpets, and a smattering of low brass and woodwinds. The jammers, however, were weighted heavily in favor of the rock-band type of instrumentation, including six guitar players, a bass player, three piano players, three drummers, and two subjects who were vocalists with no instrumental skills whatsoever. Wouldn't comparing these two groups on the basis of* TMEHC *scores be a bit like comparing oranges and apples?*

During my pilot study, when the above problems with the test first became apparent, I contacted James Froseth with my concerns. He replied, in part:

> The difficulty of a test is always an issue. However, *TMEHC* is a highly sequenced test that includes virtually all of the diatonic vocabulary in our tonal system including scale patterns and harmonic patterns. It is sequenced, beginning to end, with easy, moderately difficult, and difficult test items. Testing to the limit of the students ability is a modification that you can describe in your report. I should mention that whenever we halted a test we offered the student an opportunity to try again, usually the same day (Froseth, personal communication by email, 2007).

Where possible, I followed Froseth's suggestion for "testing to the limit of the students' ability" as well as offering the subject the opportunity to try again. However, I found that, for some subjects, even with this degree of test modification the *TMEHC* was not workable. It soon became apparent to me that to insisting upon pre- and-post-testing of all

subjects using the *TMEHC* would create undesirable levels of anxiety in some subjects.

> *This test was so hard on some subjects that I was surprised that there weren't tears, or worse. I took to marking the "practice" exercises so that I at least had something positive to comment on when we stopped. To be fair, there were several subjects who got all the way through the test, turned to me, and said, "Can I do it again? I'm sure I could do it better because now I know what to listen for!"*

For this reason, I decided upon a criterion to limit *TMEHC* participation to those subjects for whom it would not cause undue discomfort. Before testing, I asked each subject to play a Bb Concert scale, in two octaves if possible. If they were unable to do this, I concluded that further administration of the *TMEHC* would be counterproductive, and I did not continue with it. For those subjects able to play the required scale, I followed Dr. Froseth's suggestion to "test to the limit of their ability." In most cases, this meant stopping the test after the third sequence, although a small number of subjects was able to continue well past that point. Observing subjects as they performed the test also served the purpose of augmenting my qualitative data regarding flow.

Because administering the *TMEHC* to all subjects was not possible, I implemented an alternate strategy for defining the study group required for answering one of my ancillary questions. By asking subjects to play a Bb Concert scale prior to doing the *TMEHC*, as mentioned above, I obtained a roster of 13 jammers. I already had a comparable group of 13 non-jammers, bringing the total number of subjects to be tested using the *TMEHC* to 26 in total. Upon examining subject demographics, I found the subjects in these two groups to be highly comparable.

4.2.2 Additional Instrument: *SOR*

Based on the limitations of the *TMEHC*, as noted above, I decided that an additional quantitative instrument was needed in order to more fully explore the ear-to-hand capabilities of the jamming population. For this reason, I added to my research instruments a self-developed task based on the melody for *Somewhere Over the Rainbow* (*SOR*). I chose this melody for two reasons: First, it was likely to be familiar to subjects, but unlikely to have been learned. Second, all the diatonic notes within the range of an octave, plus an interval based on the relative minor appeared in the 'A' section, while several of the most common non-diatonic notes appeared in the more challenging 'B' section. Furthermore, I expected that the nature of this test, with its more relaxed, exploratory dynamic, would be ideal for ascertaining whether or not subjects could hear common music intervals and transfer them to their instrument.

With the intention of using the *SOR* during my main study at the Sullivan Campus, I piloted it on several subjects at the Jackson campus. I hoped that this test would examine ear-to-hand skills in a manner better suited to the capabilities of my subjects as developing musicians. For that reason, test protocol was developed in response to the three main limitations of the *TMEHC* discussed earlier.

First, I sought to provide item difficulty more appropriate to younger, less experienced players. Therefore, I produced a task based on the melody of an actual song, wherein all the intervals (ranging from a minor second to an octave) required to be reproduced were diatonic ones. For subjects who easily performed this task correctly, I provided an optional task, based on the melody of the bridge of the same song and requiring

subjects to correctly perceive and play a non-diatonic interval, as well as play a more challenging rhythm.

Second, I sought to overcome the disadvantages placed on non-wind-instrument players by offering each subject his or her choice of key. Most keyboard players picked the key of C, most wind instrument players picked the key of Bb Concert, and string players usually picked the key of A or E, often the most comfortable choice for each group.

Third, I was able to involve some of the previously untestable vocalists and drummers by first showing them the C scale on piano (all white notes) and then asking them to do the task. In this way, I was not only able to provide an atmosphere more conducive to success, but also put myself in a good position to observe emerging ear-to-hand skills.

*A number of subjects, having had a fairly discouraging experience on the pre-*TMEHC*, were, while not exactly avoiding me, noticeably lacking in eagerness when I brought them into Studio B to take the* SOR*. Several of them were actually shaking with fear. It delighted me to see, at the end of the five minutes, many confident smiles. "Can we figure out another song? That was fun!"*

One additional benefit to *SOR* was the more relaxed demeanor that most subjects immediately displayed, in contrast with the *TMEHC*, where the relentless pressure to perform each pattern to a metronomic beat impeded, in my observation, the demonstration of fragile but emerging ear-to-hand skills in some subjects. The more subject-friendly method of administering the *SOR*, however, also contributed to a limitation of this test. The fact that I played (on the piano) the patterns to be reproduced by the subject, rather than recording them on a CD and playing it in a similar manner to the *TMEHC*, did make it possible to adjust the

key to the subject and probably lowered the anxiety level of the subject, but it also made standardization of the *SOR* more difficult.

I took several steps in order to increase standardization. First, I placed a time limit of five minutes on the task, with the task ending when time was up. Second, I placed a music stand in such a way as to conceal my hands and the piano keyboard from the subject, lest visual clues might contaminate the results. Third, I used the same coding form (below) in the same way with each subject, providing continuity in the way scores were recorded. Fourth, I followed a script (below) for my presentation of the task to each subject.

If the subject completed the main task in less than five minutes, the remaining time used on one or both of the optional tasks (shown below as part of the coding form). At the end of five minutes, test results were shown to the subject immediately, and each subject was briefly interviewed in order to obtain possible insights into her or his perception of task performance. It should be noted that although every subject who performed this task found the melody familiar (many could name it), no subject had ever actually played it.

> *"Oh, I know this! It's something from American Idol, right?" I had to admit that I had no idea.*

Illustrated below is the coding form that I used in the administration of the *SOR*. Note that the melody was broken down into four, four-measure phrases. Each of these phrases was played for the subject as many times as was required for the subject to duplicate it. Each phrase was further broken down into intervals to facilitate my coding of the task, although being able to name the interval was not required of the subject. As the subject replicated each phrase I played, I circled the number of tries the subject required in order to correctly play

each interval. In this way, the task proceeded uninterrupted while still maintaining the integrity of the coding process.

Coding Form for *SOR*

MAIN TASK

Circle the number of tries necessary for successful replication of each interval

PHRASE ONE					
Octave	1	2	3	4	5
falling m2	1	2	3	4	5
falling M3	1	2	3	4	5
scalewise tones	1	2	3	4	5
PHRASE TWO					
recognize tonic	1	2	3	4	5
M6	1	2	3	4	5
implied P5	1	2	3	4	5
PHRASE THREE					
recognize la	1	2	3	4	5
m6	1	2	3	4	5
recognize M3	1	2	3	4	5
recognize do re mi	1	2	3	4	5
implied P4	1	2	3	4	5
PHRASE FOUR					
recognize re, ti	1	2	3	4	5

scalewise tones	1	2	3	4	5			
recognize tonic	1	2	3	4	5			
FIRST OPTIONAL TASK								
PHRASE FIVE (Four measures):								
P5	1	2	3	4	5			
m3	1	2	3	4	5			
M2	1	2	3	4	5			
la	1	2	3	4	5			
PHRASE SIX (four measures)								
P5	1	2	3	4	5			
#4	1	2	3	4	5			
ti	1	2	3	4	5			
re	1	2	3	4	5			
P4	1	2	3	4	5			
SECOND OPTIONAL TASK								
Circle number of times appropriate chord/bass note/harmony note is chosen								
1 (tonic)	1	2	3	4	5	6	7	8
IV (subdominant)	1	2	3	4	5	6	7	8
V (dominant)	1	2	3	4	5	6	7	8
vi, (relative minor)	1	2	3	4				
ii or iii	1	2	3	4				
V of V (in phrase 6)	1	2						

I also developed a standard procedure for marking the *SOR*. Each "1" circled on the form received 5 marks, each "2" received 4 marks, each "3" received 3 marks, each "4" received 2 marks, and each "5" received one mark. If the subject required more than 5 tries to find the interval, an *x* was put at the end of that line and no mark was given for that interval. A perfect score for this portion of the task was 75.

Time taken to complete the task was also marked, with completion in one minute or less given 25 additional marks, one to two minutes given 20 marks, two to three minutes given 15 marks, three to four minutes given 10 marks, and four to five minutes given 5 marks. If the subject did not complete the task before five minutes were up, no time marks were awarded.

The two marks were added together, resulting in a score out of 100. Although I coded the optional tasks if required, performance or non-performance of this task did not affect the mark out of 100. Instead, I made field notes additional to the coding form regarding the completion of optional tasks, with this information adding qualitative data regarding the *SOR*.

As mentioned above, I followed a script during the administration of the *SOR*. This script appears below.

Script for Administration of *SOR*

> "I am interested in observing the way in which you figure out, by ear, a melody on your instrument. First of all, we need to decide on a key that is comfortable for you. It should be a key in which you feel comfortable playing a major scale. What key would you suggest? Now, just listen to the whole melody first." [Here, I play eight measures

of Somewhere Over the Rainbow in the agreed-upon key.] "Do you recognize it? Have you ever played this melody before? Now I am going to play it again, two measures at a time. When I finish each two-measure phrase, I'd like you to try to play it. If you think you have played a wrong note, just correct it as you go. When you think you have the phrase figured out, play it through once, correctly." [Using the coding form, I evaluate their efforts, repeating the process for each of the four, two measure phrases.] "On a scale of 1 to 10, with 10 being most difficult, how difficult did you find this task? [Check if there is time remaining in the five minute limit.] "If you found it easy, would you like to continue? Could you play the bridge, or the B section, of this melody, if I was to play it for you first? [If time still remains, continue.] "How about if I play the melody and you play chords (or a harmony line or a bass line) that you think would fit?" [Chords would be used for a polyphonic instrument such as piano or guitar, a harmony or bass line would be used in the case of a monophonic instrument, giving me an insight into their skill at harmonizing a melody ear-to-hand.] "Thank you for your efforts, what you did was very interesting."

As noted above, I became aware of the necessity for an additional instrument during the pilot study phase of my research. My research plan was then modified to include the *SOR* in the main study.

4.2.3 Ancillary Questions

During the pilot study I also became aware of the need for greater organization of the data I was collecting. Although I was satisfied that my research questions were suitable to

my research purposes, I found it increasingly helpful to consider each of the several facets that made up each question. Based on this, I decided to examine (and, below, italicize) key words in each question, and then break each question into several ancillary questions.

My first specific research question asked "Do students who informally jam on various forms of music *enhance* their music *skills* in the *perception* and *meaningful manipulation* of *music elements*, and if so, *how*?"

My first ancillary question based on this question addressed a quantitative measure of music aptitude, the *AMMA*, and examined the *perception* of *music elements* aspect of my first specific research question. My purpose in including the *AMMA*, as a measure of *aptitude* in the *perception* of *music elements*, was twofold. First, administering the *AMMA* provided quantitative data permitting comparison of aptitude between my sample jamming population and my sample non-jamming population. Secondly, administering the *AMMA* provided insights regarding the aptitude of single jammer subjects profiled in my case study. Relating to my first purpose in using the *AMMA* I asked this ancillary question:

How do the AMMA *scores of the jammers in my sample compare to the* AMMA *scores of the non-jammers in my sample?*

My second ancillary question addressed a quantitative measure of music achievement, the *TMEHC*, and focused on the *enhancement* of *skills* aspect of my first specific research question. My purpose in including the *TMEHC* as a measure of *achievement* in the *enhancement* of *skills* was twofold. First, administering the *TMEHC* provided quantitative data permitting comparison of ear-to-hand achievement (an enhanced music skill) between my sample jamming population and my sample non-jamming

population. Secondly, administering the *TMEHC* provided insights regarding the ear-to-hand achievement (an enhanced music skill) of single jammer subjects profiled in my case study. Relating to my first purpose in using the *TMEHC*, I asked this ancillary question:

How do the TMEHC *scores of the jammers in my sample compare to the* TMEHC *scores of the non-jammers in my sample?*

My purpose in including in my research the *SOR*, a self-developed test of achievement, was, as noted previously, to provide an additional measure of ear-to-hand coordination more suitable for subjects of this age, experience, and instrumentation. As also noted previously, data gathered using the *SOR* had both quantitative and qualitative aspects. This test, which, like the *TMEHC*, focuses on the *enhancement* of *skills* aspect of my first specific research question, served a twofold purpose. First, administering the *SOR* provided quantitative data permitting comparison of ear-to-hand achievement (an enhanced music skill) between my sample jamming population and my sample non-jamming population. Secondly, administering the *SOR* provided insights regarding the ear-to-hand achievement (an enhanced music skill) of single jammer subjects profiled in my case study. Relating to my first purpose in using the *SOR*, I asked this ancillary question:

How do the SOR *scores of the jammers in my sample compare to the* SOR *scores of the non-jammers in my sample?*

My second purpose in using all three of these instruments was to provide insights into both the music aptitude and the music achievement of single jammer subjects. I used information taken from all three tests, as well as other results, in order to create profiles of individual jammers, as presented in Chapter 5.

In addition to quantitative data comparison, I also addressed my first specific research question by means of qualitative data, obtained through the processes of student journaling, interviews, field notes based on observations, questionnaires, and participant-observation tasks. Corroborating evidence was collected to discover *how* music elements were being both *perceived* and *meaningfully manipulated*. In order to facilitate interpretation of this qualitative data, I asked an additional ancillary question:

What quantitative evidence was gathered that supports my contention that jammers are perceiving and manipulating music elements in a meaningful way?

Next, I used a similar process to develop ancillary questions to support my second research question.

My second specific research question asked: In what *ways* does *flow* theory explain the *continued participation* of students in the jam session?

As noted in previously in Chapter 2, Csikszentmihalyi's flow theory contained nine observable characteristics .Based on observations made during my pilot study, I determined that two of these characteristics were of primary importance to my research and required exploration singly by means of separate ancillary questions. The remaining seven characteristics were addressed together.

First, I asked this ancillary question:

What evidence was gathered that supports my contention that the challenge/skills balance aspect of flow theory could explain the continued participation of students in the jam session?

Then, I asked:

What evidence was gathered that supports my contention that merging of action and awareness, clear goals, clear and unambiguous feedback, concentrations and focus, sense of control, loss of self-consciousness, and transformation of time (all aspects of flow theory) could explain the continued participation of students in the jam session?

Finally, I asked:

What evidence was gathered that supports my contention that an aspect of flow theory, the autotelic personality (self-developed goals, and participating in an activity for its own sake) could explain the continued participation of students in the jam session?

With the modifications of an additional instrument as well as ancillary questions based on my research questions, I was ready to collect data at my main study site.

5 MAIN STUDY

5.1 Research Timelines

I began my main study on February 14, 2007, and concluded my main study on June 20, 2007. During that time period, I was at the Sullivan Campus of SAHS a total of 40 times. I arranged for my observations, interviews, and tasks to be conducted at the convenience of the classroom teachers; as well, I had to allow for times when school was not in session.

During the first week of my study, I collected consent forms, then administered the *AMMA* during two regular band classes.

> *I handed out the special* AMMA *bubble sheets to all subjects, then started the tape. I was looking out at many tense faces. When it came to the part in the instructions where the voice explained that they would be asked to tell if a melody was the same or different, most of them visibly relaxed. "Oh, this will be easy," I could almost see them thinking. Then the first practice example was played. As the melody went on, and on, and on, the tense faces reappeared. "Whoa, these examples are so long! This is going to be tough after all."*

Because a number of subjects were not present in class the day I administered the *AMMA*, I offered an opportunity to do the test the following week.

> *Sixteen minutes and thirty examples might not seem like much, but most subjects looked like they had been running a marathon when that tape finished. I wondered about several of the students that I knew had been diagnosed with Attention Deficit Disorder (ADD) and who appeared to find it very difficult to concentrate for that long. How well had they coped? How accurate were their results likely to be?*

Despite being given several opportunities to do so, four subjects did not take the *AMMA*. The reason for this was the students' irregular attendance during the time I was in possession of the test.

During weeks two and three I observed the jam sessions taking place at lunchtime, and administered the *TMEHC* pre-test individually to students during class time in an adjacent room and with permission of the band teacher. As well, I distributed journals and journaling prompts to the six subjects who, based on my observations, were the most consistent jammers.

I finished the pre-test *TMEHC* just before Spring Break (a period of two weeks during which school was not in session.)

When the students returned, I spent the next two weeks observing noon jam sessions, using both the *OFI* and field notes to record indicators of flow. I also interviewed individually four subjects who were consistent jammers; I audio-recorded these interviews and made field notes as well.

> *Of all the research instruments I used, the personal interview was, by far, the one that subjects responded to most positively. Here was an adult, another teacher in fact, asking them how they felt about things, and really listening to their answers. This kind of personal validation must be rather rare in a school setting.*

At this time I also took photographs of subjects jamming (school district regulations required that I not show their faces) as additional indicators of flow.

During weeks six and seven, I administered the *SOR* on an individual basis. Some subjects did the test in another room during class time, while others were tested during their

spare block or over the lunch period.

In week eight, I post-tested the *TMEHC* on an individual basis. My decision to do this at this time was based on two factors: first, the school bands were going on a tour/retreat the following week, and second, when they returned, preparations for final exams and the graduation ceremony would be taking much of their time. I was disappointed with this time line; the pre-and-post-test TMEHC was separated by a period of only ten weeks, with school not even in session (and therefore a cessation of school jamming) for two of those weeks.

Weeks nine and ten of my research were spent in the administration of the flow questionnaire, group interviews, and my two participant-observer tasks. At the end of my research, I collected artifacts related to jamming (including recordings and transcripts of songs written and recorded while jamming) and interviewed the band teacher.

5.2 Identification/Designation of Subjects

For the main study at the Sullivan Campus of SAHS, I identified potential subjects in several ways: by observing in the jamming spaces, by speaking to curricular music classes, and by interviewing the band teacher. In each situation, I gave a brief overview of my study, pointed out that I was seeking both jammers and non-jammers as subjects, and I offered to potential subjects consent forms and letters of information regarding the study.

> *Following my presentation at the main study site, the Concert Band class was silent, even a bit suspicious. I asked if there were any questions. One very large male student blurted out: "Forget it! There is no way I'm going to do any more tests and stuff!" When I moved about the room to hand out consent forms, he turned angrily away as I came closer.*

Initially, a total of 40 subjects returned the consent forms and were identified in this manner. Over the next two weeks, during my initial observations, I identified an additional four potential subjects who were not part of curricular music but were frequent occupants of the jamming spaces. At my invitation to join the study, these subjects received and returned consent forms, bringing my total number of subjects to 44.

> *In the Music Composition class, following my brief presentation, the mood was the opposite; lively bordering on raucous. As I looked around, I recognized at least a dozen of the students I had seen in the jam spaces earlier that day. I was pleased when consent forms were seized eagerly by a large number of curious students. Satisfied that I had given forms to each interested student, I prepared to leave so that the teacher, Mr. PJ, could get on with the class. "Hey, what about me?" came the shout from the corner of the room. It was the same very large student, the one who had snubbed me in the previous class. "I'm gonna do it now. I changed my mind."*

At this point in my study I was satisfied that I had identified and obtained as a subject any student who could currently be considered a jammer at the Sullivan Campus of SAHS. As well, I had obtained a pool of demographically similar non-jamming subjects, useful for comparison purposes in one of the quantitative aspects of my study.

The process of separating the pool of subjects into jammers and non-jammers was more problematic than I had initially thought it would be be. In most cases, the designation was clear: some subjects were occupants of the jam spaces on a very regular basis and were always playing an instrument during those times making them easily identifiable as jammers.

Conversely, some subjects were never seen in the music rooms outside of class time, making them easily identified as non-jammers. For a few subjects, however, the designation was more nebulous and resulted in a number of questions.

> *Was a subject who was always in the jam spaces but never played an instrument a jammer? Was a subject who appeared in the jam spaces only occasionally, but always participated musically during those times a jammer? Could a subject who never jammed at school but jammed every day at home, or every week at a local music store, really be considered a non-jammer for comparison purposes? What about the subject who was a rapper and played no instrument, but was frequently in the jam space creating a musical product; was he a jammer or a non-jammer? What designation could I put on a subject who appeared in the jam spaces for the first few days, and was never seen there again after that time? How could I define a subject who became interested in jamming only part way through the study, and was a regular occupant of the jam spaces by the end? It appeared that my initial observations had raised a number of questions.*

Clearly, a defensible set of criteria was required. Defining jammers as musicians occupying the jam spaces on a non-curricular basis would serve my research purposes only as a generalization. In order to help me further define the category of jammers, I used four sources of information. First, during the course of my observations, I took note of which subjects were in the jam spaces and details of their participation, particularly as to whether they were musically involved or merely observing. Second, I spoke to all subjects personally, asking if they considered themselves jammers, and if so, where they did their jamming.

One male student eagerly identified himself as a serious jammer, both at school and at home in his basement, where he practiced with not one but two bands. He invited me to come to his next gig. I left the school that day very pleased indeed; I had definitely found a model subject. Over the next 12 weeks, I did not see him with an instrument in his hand even once. His friends said that he was now into psychology.

Third, I gathered artifacts in the form of music room log book entries used by some subjects to reserve a jam space for their use. Fourth, I developed a questionnaire that I subsequently administered to subjects. My purpose in administering this questionnaire was to compile more specific information from the perspective of the subjects themselves regarding their jamming, as well as to provide me with information regarding certain aspects of each subject's musicianship.

Using the information thus gathered, I compiled a list of 21 subjects who were musicians and also met my criteria as jammers. The selection of non-jamming musicians for comparison purposes was much more straightforward. If subjects stated that they never jammed, and if my observations confirmed that fact, they were considered part of the comparison group of non-jammers for a quantitative aspect of my case study. Thirteen subjects qualified for status as non-jammers.

I also became aware, as my research progressed, that variables beyond my control might influence my results, particularly when comparing jammer and non-jammer *TMEHC* scores.

Subject #12, a non-jammer, attributed her reasonable degree of success on the TMEHC to something she called a "Perfection Ear-Training CD." I was beginning

to realize that out-of -school experiences with ear-playing, over which I had no control at all, could have major effects on my results. In this instance, I would have never known about the ear training she was undertaking unless she had volunteered the information herself.

An additional ten subjects expressed interest in being part of the study and returned consent forms. Some of these subjects appeared in the jam spaces at least occasionally, and were part of my observations during those times, but did not fully meet my criteria as jammers for several reasons. Several subjects neither played an instrument nor sang during my observations, and thus I could not consider them musicians for purposes of my study. Three subjects called themselves rappers; they were jammers, but whether or not their participation qualified them as musicians in the traditional sense was a matter of debate. One subject had graduated the previous year and thus did not meet my criteria because he was not currently a student of the school. However, his frequent presence, his musicianship, and his musical interactions with others in the jam spaces required me to mention his participation in my field notes from time to time.

As my research unfolded, I became increasingly aware of the evolving nature of what I was observing. Bands formed and dissolved, songwriting partnerships developed from the ranks of individual composers, musicians devoted only to heavy metal in February became mellow acoustic performers by May. Sometimes the catalyst for change was clearly due to a single, readily identifiable cause, but in other situations there appeared to be multiple factors at work. As well, unlike a regular curricular band class, patterns of leadership were diffuse and constantly changing. In the terms

of complexity thinking theorists, each organism appeared to be interacting with the environment in dynamic ways, manifested as disequilibrium and constant change.

To summarize, the main unit of my study included 13 subjects who met the criteria for jammers and were capable of playing a Bb Concert scale on a melody instrument, 8 subjects who met the criteria for jammers but who were not capable of playing a Bb Concert scale on a melody instrument (and thus unsuitable for testing using the *TMEHC*), 10 additional subjects who did not fully meet the criteria for jammers but were part of some jam sessions observed, and 13 non-jamming subjects, for a total of 44 subjects in total.

5.3 First Specific Research Question

My first specific research question was examined in terms of both quantitative and qualitative data. Here, I examine first the quantitative data collected by means of the *AMMA*, the *TMEHC* and the *SOR*. My results are summarized in Table 1, below. fs

Table 1: ANOVA Analysis of *AMMA*, *TMEHC*, and *SOR* Test Scores

TEST	*AMMA*	pre-*TMEHC*	post-*TMEHC*	*SOR*
Mean of total sample n=26	66.54	26.23	33.50	60.20
Jammers n=13	66.73	35.15	41.23	72.90
Non-jammers n=13	66.35	19.31	25.77	47.50

5.3.1 Quantitative Results

To address the first research question I performed several statistical tests using SPSS.[9] The results of three tests, the *AMMA*, the *TMEHC*, and the *SOR* were used in the analysis.

Before beginning my analysis, *AMMA* raw scores, which were measured on a scale from 1 to 80, were converted to percentages. This was done for convenience of use when presenting data as part of individual jammer profiles, as *TMEHC* and *SOR* scores were already in percentages.

As examined in detail in a previous section, Identification/Designation of Subjects, the two groups (13 jammers and 13 non-jammers) were highly comparable as to grade, gender, and overall letter grade average. As also noted, the sample of 13 jammers was selected on the basis of possessing the skills required to play a Bb Concert scale. Thus, for all three comparisons below, the study group was n = 13, the comparison group was n = 13, and the total sample was n = 26.

As noted in a previous section, my first ancillary question, regarding *AMMA* scores, asked:

How did the AMMA scores of the jammers compare to the AMMA scores of the non-jammers?

I looked first at the distribution for all subjects (n=26) to determine if *AMMA* raw scores constituted a normal distribution. The mean for the group taken as a whole, at 66.54, did show normal distribution. Then an ANOVA test was performed to determine if a significant difference existed between the means of the jammers (n=13) and the non-jammers (n=13) groups. The mean of the jammers was 66.73 while the mean of the non-jammers was 66.35. Based on the ANOVA test, there was no significant difference between jammers and

[9] Statistical Package for the Social Sciences, version 14.0 (2006). Chicago:SPSS Inc.

non-jammers groups on *AMMA* scores ($p<0.05$).

My ancillary question regarding *TMEHC* scores, asked:

How did the average TMEHC scores of the jammers compare to the average TMEHC scores of the non-jammers?

Before comparing jammer and non-jammer groups, I first looked to see if the pre-test/post-test protocol would reveal a possible effect of jamming. For this purpose I used a Repeated Measures Analysis. For the pre-test, the mean of the total sample tested (n=26) was 26.23. The mean of the jamming group (n=13) was 33.15, and the mean of the non-jamming group was 19.31. For the post-test, the mean of the total sample was 33.50. The mean of the jamming group was 41.23 and the mean of the non-jamming group was 25.77. Both groups improved over time, but overall there was no significant difference between the pre-test and the post-test. Although no treatment was applied during that time, based on the results of this sample, jamming (as a self-applied form of treatment) had little or no effect over a period of ten weeks.

Since the mean scores for each group appeared to be quite different, I decided to compare their average scores between pre-test and post-test. The average score of the total sample was 29.87. The average score of the jamming group was 37.19, while the average score of the non-jamming group was 22.54. I used a One-way ANOVA test to compare these average mean scores by groups. The difference, while not statistically significant, was notable ($p=0.056$).

My ancillary question regarding *SOR* scores asked:

How did the SOR scores of the jammers compare to the SOR scores of the non-

jammers?

A One-way ANOVA test was performed to compare the *SOR* scores of jammers (n=13) and non-jammers (n=13). The mean of the total sample tested (n = 26) was 60.2, the mean of the jamming group was 72.9, and the mean of the non-jamming group was 47.5. The difference in the mean was 25.4 in favor of the jammers. Based on the results of the ANOVA test, I noted that the *SOR* scores showed a very clear difference (in ability to play a familiar melody by ear) between jammers and non-jammers ($p<0.001$).

5.3.2 Conclusions Based on Quantitative Results

My first analysis (above) addresses this question: *How did the AMMA scores of the jammers compare to the AMMA scores of the non-jammers?* There was no significant difference between the scores of the jamming and non-jamming groups. In the present study, subjects who jammed were not more audiationally capable than subjects who did not jam.

My second analysis (above) addressed this question: *How did the average TMEHC scores of the jammers compare to the average TMEHC scores of the non-jammers?* Pre and post test administration of the *TMEHC* showed no significant difference between groups over time. Therefore, in the present study, jamming as a self-applied form of treatment in popular music contexts did not improve hear-to-hand coordination skills. While it seems that there could be an impact on jammers, the results were not significant, thus no definitive claims can be made.

My third analysis (above) addressed this question: *How did the SOR scores of the jammers compare to the SOR scores of the non-jammers?* The *SOR* did show a very clear difference between jammers and non jammers. In the present study, subjects who jammed

did show greater skill at working out a familiar melody by ear than did non-jammers.

The results and conclusions based on the quantitative data above constitute one element of my mixed-method case study. It is important to keep in mind that my study is not primarily a quantitative study, instead, it is a case study with both quantitative and qualitative elements. It is to the qualitative elements that I turn next.

5.3.3 Qualitative Interpretations

In addition to the quantitative data that addressed my first specific research question, I collected qualitative data with regard to another ancillary question, which asked:

What quantitative evidence was gathered that supported my contention that jammers were perceiving and manipulating music elements in a meaningful way?

In Chapter 2, I suggested the possibility that jammers were constructing knowledge, meaning, and understanding from their personal experiences while jamming. I further suggested that meaning constructed in informal music settings might have a reciprocal relationship with meaning constructed in formal music settings. In answering my first specific research question, I looked for evidence that jammers had constructed knowledge of music elements and were using that knowledge to perceive and manipulate these elements, as knowing more about this relationship could have pedagogical implications for teachers of curricular music. My corroboration strategy was to gather evidence from multiple sources (sometimes described as triangulation of qualitative data) in support of this question.

Subject responses in both journaling and interview sources are shown, below, in quotation marks. Field notes based on observations, are shown, below, as block quotes. As I introduce each case study subject, I provide a jammer profile containing both qualitative and

quantitative information regarding that subject; for easy identification, these profiles appear as italicized block quotes. As well, in order to both assist the reader and clarify my thinking, the elements of music that I believe were being manipulated in each example, below, are italicized. As previously discussed in Chapter 1, all subject names are pseudonyms selected by the subjects themselves.

Directed Journaling

Directed journaling, the first of my multiple sources, provided insights into student perceptions as to how jamming had improved their ability to perceive and manipulate music elements. Some students also alluded to a reciprocal learning relationship between formal and informal music activities.

Jammer profiles were included here the first time each of the jammers was discussed or quoted. Profiles of jammers who appeared in my transcriptions but were not identified in my results or my discussion were included in the Appendices.

> *Jammer Profile: Brandon*
> *Instrument played, number of years: guitar, 4 years*
> *Jam participation: always*
> *Jam notes: facilitator and capable leader of the jam*
> AMMA *percentile rank: 89*
> TMEHC *average score: 14*
> SOR *score: 65*
> OFI *score: n/a field notes used instead*
> *Notes re Q1: very skilled at manipulating the elements of music*
> *Notes re Q2: autotelic, flow very evident when playing*
> *Other: quit school part way through my research*

Brandon wrote about combining knowledge obtained from jamming with what he has

learned in music composition in order to enhance his ability to solo: "Learning to identify *keys/key changes* by ear helps you to know which *scale* to use, and knowing which scale to use tells you which notes to play."

Jammer Profile: Snoop
Instrument played, number of years: guitar, 1 year
Jam participation: always
Jam notes: seldom joins a group, usually jams from the other side of the room
AMMA *percentile rank: 18*
TMEHC *average score: test not taken*
SOR *score: test not taken*
OFI *score: 122 out of 128*
Notes re Q1: large repertoire from which he extrapolates music elements
Notes re Q2: autotelic, embodies flow whenever he plays
Other: does not often choose to play in close proximity to others

A journal entry by Snoop indicated that music theory learned in curricular music was useful to him in jamming for the purpose of writing a song: "I learned that songs are based upon chord progressions but that the notes and *rhythms* played within two *identical chord progressions* can make them sound entirely different."

Jammer Profile: Doris
Instrument played, number of years: guitar, 1 year
Jam participation: half the time
Jam notes: records frequently with others
AMMA *percentile rank: 12*
TMEHC *average score: 28*
SOR *score: 67*
OFI *scores: 117 and 125 (two observations) out of 128*
Notes re Q1:very adept at using the elements of music to compose

Notes re Q2: flow is evident when she plays, autotelic

Other: confident and bubbly, jams off site as part of a church youth group

Doris agreed, and added that working with others, whether jamming for fun or in order to compose, helped her learn to work with others and refined her *technique*: "Working together in a group has taught me how to conform to different music abilities and helped me pick up on playing techniques."

Jammer Profile: Bonjovi

Instrument played, number of years: guitar, 2 years

Jam participation: always

Jam notes: jam facilitator

AMMA *percentile rank: 36*

TMEHC *average score: 8*

SOR *score: 48*

OFI *score: 116 out of 128*

Notes re Q1: manipulates elements well in a wide variety of music styles

Notes re Q2: autotelic, flow is evident when playing

Other: returning to school after graduation to take more music classes

Bonjovi put it simply: "My knowledge of music expands the most from just jamming."

Interviews

The content of the above written statements is echoed in the verbal comments gathered during individual and group interviews.

Bonjovi told about how jamming helped him learn the importance of *form,* an element of music: "Oh yeah, it [jamming] has helped me out so much. I used to not even write whole songs, I used to write riffs, I had a ton of riffs, but they weren't songs, I had to

learn about *structure*."

Jammer Profile: Apro

Instrument played, number of years: trumpet, 5 years

Jam participation: always

Jam notes: usually plays and writes alone, jams with others if invited

AMMA *percentile rank: 62*

TMEHC *average score: 56*

SOR *score: 86*

OFI *score: 90 out of 128*

Notes re Q1: very knowledgeable in the use of music elements

Notes re Q2: autotelic, focused, concentration can be quite easily disrupted

Other: plays in a cadet band, plays a wide variety of notation-based repertoire

Apro explained how music ideas came to him during noon sessions, and how jamming with those ideas became a *written composition*: "I write or I practice [in the band room]. When I write I just noodle and then when I have what I like I get it on paper, that would be the last part."

Field Notes Regarding Observations/Participant Observer Sessions

In my jam session observations, I frequently saw evidence of, and made field notes regarding, jammers employing various elements of music in meaningful ways. Here, the melodic interval of an *octave* was used in several ways:

> Apro experimented with octaves on the piano. Bonjovi said that octaves were good for a disco groove and suggested they try octaves of F#, F#, A, E in a disco style.
>
> Bonjovi added wah-wah with his pedal.

In another session:

Brandon returned, discussed the use of octaves in the groove with Gus.

In the following exchange, these jammers had their own way of approaching the subject of *major versus minor chords*, and also showed a good grasp of the *chromatic scale.*

Jammer Profile: Simpson

Instrument played, number of years: vocals, 11 years

Jam participation: very often

Jam notes: writes own songs, records frequently, often works with others

AMMA *percentile rank: 47*

TMEHC *average score: test not taken*

SOR *score: test not taken*

OFI *score: n/a field notes used instead*

Notes re Q1: uses elements of music in her original songs

Notes re Q2: autotelic, confident in the use of her voice

Other: will be attending music college next year

Jammer Profile: Jordan

Instrument played, number of years: drums, 1 year

Jam participation: very often

Jam notes: jams off site frequently

AMMA *percentile rank: 20*

TMEHC *average score: test not taken*

SOR *score: test not taken*

OFI score: n/a field notes used instead

Notes re Q1: uses music element of rhythm with ease

Notes re Q2: autotelic

Other: chose to transfer to this school because of the music facilities.

Bonjovi, Simpson, and Jordan were jamming. “How do you play an F minor?” “Well,

it's like an E minor but with a bar." "Kind of like a power chord but you lose the 3rd."

In another example, these jammers have grasped the importance of *chord tones* in the development of a *bass line*; and jamming gives them experience in developing that line:

Apro plays a chord on the piano requested by Brandon, who develops a bass line.

Jammer Profile: Hatha
Instrument played, number of years: piano, 11 years
Jam participation: a little
Jam notes: always works alone at school, jams using sequencing software at home
AMMA *percentile rank: 93*
TMEHC *average score: 76*
SOR *score: 97*
OFI *score: n/a field notes used instead*
Notes re Q1: uses knowledge of music elements to figure out songs by ear easily
Notes re Q2: flow is very fragile and often disrupted
Other: scarcely participates in concert band, jazz band classes, appears indifferent

In a participant-observer session, Hatha had a strategy for determining the *tonality* of a song that she wanted to play:

Sitting at the piano, she poked around while the intro was playing, and came up with the key of C. She then found sol and la on the second try. She recognized and plays immediately the octaves in the melody, and the chromatic passages in the bass line.

In another participant-observer session, ear-to-hand ability was evident as these two jammers found the key, and from that, determined what *diatonic and non-diatonic notes* to use:

Snoop and Bonjovi used their knowledge of the *blues scale* to decipher the guitar riff, which contained the b3 and the b7, as well as doh and sol. Their hands seemed to find the likely notes without thought. "It goes to the *V* there" says Snoop .

In this session, I helped a bit with finding a note in the complex bass line of 'Chameleon'.

> Bonjovi sat down at the piano and tried to figure out the complicated bass line by ear. He found the starting note quickly and was equally quick to recognize a *chromatic* passage when he heard it. However, the interval of a *minor seventh* confused him. After he had tried several times, I showed him where it was. Once Bonjovi knew the interval, he correctly observed that the pattern was repeated higher on the scale. He then used this knowledge to *transpose* the pattern to figure out the second riff.

Jammer Profile: Captain
Instrument played, number of years: clarinet, 5 years
Jam participation: very often
Jam notes: places emphasis on getting the notes correct
AMMA *percentile rank: 84*
TMEHC *average score: 47*
SOR *score: 74*
OFI *score: n/a field notes used instead*
Notes re Q1: applies music knowledge capably
Notes re Q2: challenge/skills in balance, constantly seeking new challenges
Other: quite aggressive and competitive, both in music class and in the jam

Here, two jammers competed informally with each other to see who had the best ear and could play ear-to-hand most successfully. In a continuation of the above session:

> Captain was intrigued, picked up a bass and tried to copy what Bonjovi was doing on the piano. It came relatively easily to him. Bonjovi commented that the riff was a lot easier to play on guitar, implying that this is why it was also easy for Captain on bass.

Jammer Profile: Jim
Instrument played, number of years: drums, 4 years
Jam participation: half the time

Jam notes: plays along but will not draw attention to himself in any way
AMMA *percentile rank: 68*
TMEHC *average score: test not taken*
SOR *score: test not taken*
OFI *score: n/a field notes used instead*
Notes re Q1: possesses music knowledge but very tentative about using it
Notes re Q2: usually, self-consciousness impedes flow
Other: almost always works with others, seldom works alone

Bonjovi told me several times during my initial research that he did not have a good ear, but that he was working to improve. I observed near the end of my study that his skill at identifying chords by ear had become progressively more sophisticated, as the following field notes reveal:

> Jim entered the room and played a *dominant 7th chord* on the piano. He and Bonjovi discussed *chord structure*. Apro joined Jim at the piano and played a chord. Bonjovi correctly identified it by ear as being B minor 7. He was delighted that he was right.

Jammers also shared information regarding *technique* with other players:

> Bonjovi played *arpeggios* on guitar. This attracted the attention of C, who asked him for tips on how to do this better and faster. Bonjovi told him, with a touch of humor, that lots of practice, as well as using an effect on the guitar to cover mistakes, was helpful!

Although it did not occur often, occasionally I observed a jammer with considerable skill in translating what he was playing by ear into *music notation,* evidence of strength in manipulating the elements of music.

> When I entered the band room, Apro was alone at the piano, "writing a *melody* so I

can do something with it," he told me. Satisfied with what he had created, he then warmed up on the trumpet and sat down at a music stand. He neatly printed *key and time signatures* on a piece of manuscript paper, and found his starting note on the trumpet. He then wrote, *audiating* from memory, playing on the trumpet every few bars in order to check his work. Usually, he wrote an entire phrase before checking it out on the trumpet, and he was seldom wrong in what he had written.

Jammer Profile: Catt
Instrument played, number of years: clarinet, 5 years
Jam participation: a little
Jam notes: wants to participate but lacks confidence and skills
AMMA *percentile rank: 47*
TMEHC *average score: 19*
SOR *score: 48*
OFI *score: n/a, field notes used instead*
Notes re Q.1: far prefers reading notes to playing them by ear
Notes re Q2: self-conscious while playing, loses focus quickly
Other: removed from school for fighting before my research ended

To my surprise, terms learned in music composition class occasionally appeared in jammer vernacular, as happened here when two subjects decided to jam using a *modal scale*:

During the last week of my observations, he [Catt] barged into Studio A, borrowed guitar in hand and Apro in tow, to show me "this twisted Latin cheesy thing we were working on yesterday." He had learned to play an E minor chord on the guitar, and Apro was doing what he called "Phrygian mode stuff" over that chord on his trumpet. When they asked me how to make the chord "move up" on the guitar, I

showed Catt how to form a bar chord. Apro then pounded out the progression he wanted him to play on the piano, and Catt copied the tones and semitones on the guitar, listening rather than looking, and getting it correct on the first try.

Elements of music being manipulated here included *modes,* and *tones/semitones*, as well as *rhythm*; by combining these elements, Catt and Arpo created an original composition.

Despite Catt's limited skills on the guitar, he was able to help facilitate the songwriting efforts of a fellow jammer. It was also the first time I saw Catt experience flow.

Jammer Profile: Kenneth
Instrument played, number of years: bassoon, 4 years
Jam participation: half the time
Jam notes: often works alone, writes and records own songs
AMMA *percentile rank: 35*
TMEHC *average score: 12*
SOR *score: 59*
OFI *score: n/a field notes used instead*
Notes re Q1: uses elements of music in a very unusual way in his compositions
Notes re Q2: autotelic, time is transformed when he is playing
Other: special needs; possibly a form of autism

Jammer Profile: Gus
Instrument played, number of years: drums, 1 year
Jam participation: always
Jam notes: often a jam facilitator
AMMA *percentile rank: 86*
TMEHC *average score: test not taken*
SOR *score: test not taken*
OFI *score: n/a field notes used instead*

Notes re Q1: perceives and manipulates rhythms easily

Notes re Q2: challenge/skills balance, autotelic

Other: very adverse to testing, says he has ADD

In another example, a jammer, although unable to play the piano well enough to learn the song, did make a musical contribution:

> Kenneth came in, and started trying it [figuring out an unfamiliar song as part of a participant-observer session] on the piano. He [invented] an *ostinato* that was not in the song, but fit perfectly, to his delight. Gus was now helping out on the drums, and everyone finished the song in grand style.

In the following lengthy observation, jammers were perceiving and manipulating the elements of music in a meaningful way. As well, patterns of song transmission and informal leadership structures were evident.

> S[10], in an informal leadership role, played a chordal pattern on the guitar, establishing the *key*, the *harmonic structure,* and the *form:*
>
> vi, V, IV, IV (repeat 4x) as the *A section*
>
> ii, V, ii, V (repeat 2x) as the *B section*
>
> Brandon and Gus played the *groove* while S soloed, experimenting with an *ostinato* over the *changing chord pattern* being outlined by the bass.
>
> S started another chord pattern; this one was *modal* and contained *major 7ths*, giving the line a *feel* more like *jazz* than rock.
>
> S and Snoop [from different sides of the room] soloed to the chords at the same time.

[10] S was an exchange student from Switzerland. He was only in the band room once, and at the school for a short time. He is mentioned here because his contribution to the jam impacted the contribution of the others.

Brandon and Gus maintained the groove; *harmonic pattern* was audible from the *bass line*, so no chords were needed:

IM7, vi, IV (*phrase* was unusual in that it was 3 measures long, instead of 4)

This jam demonstrated the enhanced skill levels of these experienced musicians. They employed a number of elements of music in their jam: form, rhythm/groove, harmonic/chord structures, soloing based on understanding of scales, and melody on both guitar and bass; their jam was complex and they manipulated elements of music with ease. This jam reflected a sophistication born of many years of jamming.

In all examples given, jammers perceived and manipulated music elements in a way that held meaning for them. This was confirmed through corroboration between three different sources.

This final example illustrated both enhanced music skills as well as flow, as examined in the next section of this chapter. In the following observation, Snoop was so absorbed in creating his own song, using elements taken from popular repertoire, that he was oblivious to the exit of a fellow jammer:

> Snoop switched to a rock version of 'Hall of the Mountain King.' Catt got up and left. Snoop didn't even notice. He switched to 'Ocean Pearl,' then to *arpeggiated* chords, becoming very interested in a progression and building onto it by adding octaves above and 5ths below. He did not notice that the bell had gone.

5.4 Second Specific Research Question: Qualitative Interpretations

5.4.1 Observations of Flow Indicators

Data produced using my *OFI* coding form served to indicate the flow experience, helping to provide an affirmative answer to my second specific research question. As noted in Chapter 3, the observation form was in two parts: first, a semantic-differential seven-point scale, and second, an agree-disagree nine point scale. This form was used in the observation of seven jam session subjects; one subject was observed twice in different settings.

As also noted in Chapter 3, a numeric value was assigned to each point on the scale, with one being the lowest. A score for each part of the form plus a total for the whole form was generated. The maximum possible score for the semantic-differential part of the form was 56, while the maximum possible score for the agree-disagree part of the form was 72. The total score for the whole form was 128.

The indicators for each subject are summarized below; a numeric value for each part of the form was calculated, followed by a total for the form.

<u>Snoop</u>

very happy (7)	very involved (7)	very cheerful (7)	quite excited (6)
very focused (7)	very comfortable (7)	very engaged (7)	quite satisfied (6)

total score for this part: 54

music appeared to be appropriately challenging	(8)
student appeared to possess suitable skill levels	(9)
student lacked self-conscious behavior	(8)
student appeared to lose track of time	(9)

student appeared focused throughout the session (9)

student demeanor appeared confident (7)

student continued despite distractions (9)

gaze/countenance indicated flow (9)

total score for this part: 68

TOTAL SCORE FOR WHOLE FORM: 122

Apro

somewhat happy (5) very involved (7) somewhat cheerful (5) somewhat excited (5)

very focused (7) somewhat uncomfortable (3) quite engaged (6) somewhat dissatisfied (3)

total score for this part: 41

music appeared to be appropriately challenging (8)

student appeared to possess suitable skill levels (9)

student lacked self-conscious behavior (5)

student appeared to lose track of time (7)

student appeared focused throughout the session (6)

student demeanor appeared confident (6)

student continued despite distractions (6)

gaze/countenance indicated flow (2)

total score for this part: 49

TOTAL SCORE FOR WHOLE FORM: 90

Doris (solo session)

very happy (7)	very involved (7)	very cheerful (7)	somewhat excited (5)
quite focused (6)	quite comfortable (6)	quite engaged (6)	somewhat satisfied (5)

total score for this part: 49

music appeared to be appropriately challenging	(8)
student appeared to possess suitable skill levels	(9)
student lacked self-conscious behavior	(9)
student appeared to lose track of time	(8)
student appeared focused throughout the session	(9)
student demeanor appeared confident	(8)
student continued despite distractions	(8)
gaze/countenance indicated flow	(9)

total score for this part: 68

TOTAL SCORE FOR WHOLE FORM: 117

Bonjovi

quite happy (6)	very involved (7)	very cheerful (7)	quite excited (6)
very focused (7)	very comfortable (7)	very engaged (7)	quite satisfied (6)

total score for this part: 53

music appeared to be appropriately challenging	(8)
student appeared to possess suitable skill levels	(9)
student lacked self-conscious behavior	(9)
student appeared to lose track of time	(9)

student appeared focused throughout the session (9)

student demeanor appeared confident (9)

student continued despite distractions (9)

gaze/countenance indicated flow (7)

total score for this part: 63

TOTAL SCORE FOR WHOLE FORM: 116

Parker

somewhat sad (3) quite involved (6) somewhat cheerful (5) somewhat excited (5)

quite focused (6) somewhat uncomfortable (3) very engaged (7) somewhat satisfied (5)

total score for this part: 40

music appeared to be appropriately challenging (7)

student appeared to possess suitable skill levels (7)

student lacked self-conscious behavior (5)

student appeared to lose track of time (8)

student appeared focused throughout the session (9)

student demeanor appeared confident (4)

student continued despite distractions (9)

gaze/countenance indicated flow (5)

total score for this part: 54

TOTAL SCORE FOR WHOLE FORM: 94

Doris (group session)

very happy (7)	very involved (7)	very cheerful (7)	very excited (7)
very focused (7)	very comfortable (7)	very engaged (7)	very satisfied (7)

total score for this part: 56

music appeared to be appropriately challenging	(9)
student appeared to possess suitable skill levels	(9)
student lacked self-conscious behavior	(9)
student appeared to lose track of time	(8)
student appeared focused throughout the session	(9)
student demeanor appeared confident	(7)
student continued despite distractions	(9)
gaze/countenance indicated flow	(9)

total score for this part: 69

TOTAL SCORE FOR WHOLE FORM: 125

Corey

very happy (7)	very involved (7)	quite cheerful (6)	quite excited (6)
very focused (7)	very comfortable (7)	very engaged (7)	quite satisfied (6)

total score for this part: 53

music appeared to be appropriately challenging	(9)
student appeared to possess suitable skill levels	(9)
student lacked self-conscious behavior	(8)

student appeared to lose track of time (8)

student appeared focused throughout the session (9)

student demeanor appeared confident (9)

student continued despite distractions (9)

gaze/countenance indicated flow (9)

total score for this part: 70

TOTAL SCORE FOR WHOLE FORM: 123

Jaytee

somewhat happy (5) very involved (7) somewhat cheerful (5) somewhat excited (5)

quite focused (6) quite comfortable (6) very engaged (7) quite satisfied (6)

total score for this part: 54

music appeared to be appropriately challenging (9)

student appeared to possess suitable skill levels (9)

student lacked self-conscious behavior (7)

student appeared to lose track of time (9)

student appeared focused throughout the session (9)

student demeanor appeared confident (8)

student continued despite distractions (9)

gaze/countenance indicated flow (7)

total score for this part: 62

TOTAL SCORE FOR WHOLE FORM: 109

As the only quantitative measure used for the purpose of answering my second specific research question, I found the *OFI* form useful in several unexpected ways. First, it heightened my awareness of flow indicators, and as a result I was able to address more succinctly in my field notes to a greater extent. Second, the completed forms collectively provided an additional source of data that confirmed my other findings regarding certain individual subjects. Third, I was able to compare the flow experiences of subjects with different levels of skill, subjects with varying degrees of autotelicity, and subjects displaying few or many of the other characteristics of flow. Fourth, I was able to observe and code one subject twice, under two different sets of jamming circumstances, and note the way the context affected flow in the same individual.

In retrospect, however, I found field notes, interviews, and journaling to be more informative than the *OFI* form overall.

5.4.2 Challenge-Skills Balance

My first ancillary question regarding flow asked:

What evidence was gathered that supported my contention that the challenge/skills balance aspect of flow theory could explain the continued participation of students in the jam session?

Evidence presented here was gathered from three different sources:directed journaling, interviews, and field notes. Subjects both demonstrated and articulated the importance of the challenge/skills balance in achieving flow. Jammers included here were profiled in the previous section, with the exception of Jaytee and Parker, whose profiles are included in the following text.

Directed Journaling

All subjects who completed a journal reported a balance of challenge and skills, in answer to my question: “Are you as good a musician as these people you jam with, or are they better or worse than you? Why do you think so?”

Doris expressed the view that the challenge/skills balance could shift, depending on jam session instrumentation: “It is tough to say because we don't play the same instrument. I was more experienced than than the people that I played with last semester, but Simpson, who sang in our band, was a stronger singer than I am.”

Here's how Simpson saw it: “Many people are much better at reading music and playing instruments than me, which I am totally OK with. I haven't been doing this whole music thing for a long time so I'm happy with how far I have come already. I must say, I may be a little more experienced in working with my voice than others...”

Snoop was more direct, and had an explanation for any deficit in skill that he may have occasionally felt. “I think I am as good as the people I jam with most of the time. Even if they are better, they have probably been practicing longer than me.”

Bonjovi's confidence in his skills was strongly stated: “I think I am a pretty good player, and I am about the same skill level as the people I jam with.”

Brandon had a well-thought-out answer to my question that contained several important points:

> Skill levels can be very different, but in a jam session everyone is kind of evened out.
>
> Skills and traits come out while jamming, like if someone is a good riff writer, then they'll start things off, then if someone is a good soloer then they'll pull off a face-

> melting solo. Often a bassist will do whatever they think will make it sound good without pulling attention off the rest of it. A good jam will be all musicians supporting each other and not trying to stick out or sound better than each other. Generally, most of the people I jam with are similarly skilled but our jams are all complementary so it wouldn't really matter. I've jammed with people better than me, but usually I just play in my comfort zone and they make it work.

To summarize, Brandon stressed that different jammers possess different areas of strength, and he noted the importance of group support if a jammer is to feel a balance of challenge and skills.

Furthermore, as Doris pointed out, although challenge levels were not uniformly optimum during each jam session; the overall balance was what was important. “Sometimes I like to play without having to concentrate too much, but sometimes I am ready for more of a challenge.”

Brandon provided the last word, showing his feeling of overall balance regarding challenge and skill: “It rarely feels negative during a jam, sometimes it might get a little boring, and occasionally if you know that you played bad you might feel a little down, but other than that it doesn't matter what you did because it's just a jam. Nobody cares if you mess up, and you're free to try new things because that's what they're for.”

Another group of jammers expressed their views regarding the challenge/skills balance verbally.

Interviews

During the interview process, I found that most jammers were quite aware of their

strengths, as well as adept at using those strengths on the skills side of the equation. Conversely, they were often aware of areas where they were not as strong, and were motivated to seek out additional challenges in those areas. Thus, they seldom reported either discouragement or boredom.

For example, Apro's strength, his technique, balanced out his reluctance to rely on his ear. He expressed it this way: “I usually need to know what key things are in. Some is successful, some not, different styles can be harder. But I think I am just as good.”

Jammer Profile: Jaytee
Instrument played, number of years: guitar, 1 year
Jam participation: half the time
Jam notes: generally works alone
AMMA *percentile rank: 65*
TMEHC *average score: 12*
SOR *score: 51*
OFI *score: 109 out of 128*
Notes re Q1: very knowledgeable regards chord structure, form
Notes re Q2: self-conscious at times when playing
Other: frequent absences from school

Jaytee, on the other hand, achieved a balance by relying on her ear: “Let's say I'm jamming with some friends and they are playing a song. I will look at their fingers a couple of times on the fret board and figure out where they are starting, and then I can just follow them by listening.”

Jammers often expressed their skill levels in terms of comparison with fellow jammers, indicating a general level of comfort with their ability but also an element of challenge that keeps them striving to improve.

Jordan, talking about the people he jams with, stated: “The bass player is excellent, the guitar player is really good too, but I would say we are all equal.”

Snoop, despite his lack of experience, was not daunted by playing with others more experienced: “I've only been playing for a year and a half, and I think I'm good for how long I've been doing it. If there's a really good guitar player that's been playing for 12 years I still don't feel bad.”

However, not every student interviewed expressed a feeling of challenge/skills balance in every jam session. Jaytee expressed her over-challenged experiences in this way: “On guitar, I am not very good, I'm not always good at playing with others. I feel good doing the rhythm part, but I find it really hard to play the lead parts.”

As I became familiar with the skill levels of the jam session subjects, I was able to more accurately observe additional incidences when challenge and skill appeared to be in balance, providing a third source of data that favored an affirmative answer to my ancillary question.

Field Notes Regarding Observations/Participant Observer Sessions

The following was an excerpt from my field notes regarding a noon-hour jam session. In a segment of the jam that lasted about three minutes, I observed the following activity:

S began “Under the Bridge” by the Red Hot Chili Peppers, on guitar

Brandon picked this up immediately and played confidently and instinctively on the bass. Gus kept steady time on the drums

Written during a brief period of reflection immediately following the jam, my notes indicated:

> Challenge and skill appeared to be in balance for all the players: the music was difficult enough that they had to work at it somewhat, but never was anyone overwhelmed by the challenge enough to quit playing. All appeared to enjoy the experience.

This was an exemplary jam from the point of view of challenge/skills balance; although one player was new to the group, they worked together in a way that appeared to produce a flow experience for each of them.

A subsequent jam, although it involved some of the same personnel, was not as successful at producing a balance of challenge and skill for all players. My notes read:

> Although Bonjovi had brought a CD of possible material, he was unable to get the group to focus on it. For the others, challenge exceeded skill, and they quickly became discouraged and quit trying. Bonjovi was clearly disappointed, and he referred to the jam as "pretty boring" at one point.

For Bonjovi, as jam session instigator, flow was impeded, not by his lack of skill, but by the inability or unwillingness of the others to musically engage with the material. He would probably have experienced more flow, and specifically a balance of challenge and skills, if he had jammed to the recording, alone.

Although most jammers I observed appeared to find involvement with other musicians conducive to flow, the following two players were most in flow when alone, composing or jamming along with a recording. It was in this situation that they appeared to be most in balance concerning challenge and skill. Observing Apro one lunch hour, as he composed an original song for trumpet, I noted the following:

> Flow was present when the room was quiet and he was alone; he was involved in the melody and challenge and skill were in balance as he audiated internally the music he wished to write.

Another session, in which I set a task for Hatha of figuring out a song while I observed as well as participated, resulted in the following demonstration of her skills perfectly balanced by the challenge of the task. My field notes read:

> Within a minute or so, she was totally involved in the song. She played along with great accuracy, head nodding. I was sure she had forgotten I was there. When we reached the end, I started the song again, and sat down to play the bass line while she played the melody. It was not an easy song, but her skills were up to this challenge.

For both Apro and Hatha, flow was apparent, but fragile. My notes indicated that, in both cases, the intrusion of another person entering the room was enough to completely disrupt flow for both these players.

This was not the situation with Snoop. On a number of occasions, I observed a flow state characterized by a concentration so deep that even loud noises and the disruption of the next class coming into the room could not disrupt him. Here, my field notes recorded a typical session, in which he started with a song or riff that he knew and could play without difficulty. As he required more challenge, the progression became more complex, requiring more skill.

> Snoop had a riff reminiscent of "Hotel California" worked out. He had a bass line and chords as well, in a pattern eight bars long. He played the chords, then the riff, then the bass line, one after another, over and over again. For each repetition, he added a

new idea.

For Snoop, improvisation provided a challenge that tested, but did not exceed, his level of skill. As his skill level increased, a greater degree of challenge was required for him to maintain flow. Improvising, alone in this case, provided this augmented challenge.

On one particular day, a very inexperienced player got a guitar and sat beside him, hoping to jam but not knowing where to start. Snoop, as usual, was in flow and oblivious:

> Catt appeared to be desperate to play along. He kept looking at [Snoop's] fingerboard; he [Catt] appeared to play almost exclusively by eye. He was most in flow when he stopped worrying about what Snoop was doing and instead concentrated on finding some whole notes that he could, with his limited skill level, play in order to add to the jam in a meaningful way. However, he was very easily frustrated: “I suck, I'm no good at this...”

Catt's skills were almost completely unequal to the challenge he had set himself. Moments of flow were fleeting, if evident at all. However, his skills improved enough over the time of my research that he could contribute to the composition process of a fellow jammer, and experience enjoyment and flow.

My three sources of data generally confirmed the presence of flow, as a result of a challenge/skills balance. Subjects appeared to seek out more challenging situations as their skill level increased, thus maintaining a flow state. Surprisingly, even in subjects with a very low level of skill, a flow experience appeared possible as long as the task was appropriate, and thus flow appeared to provide motivation for the subjects to continue to develop skills.

5.4.3 Other Flow Characteristics

In my next ancillary question, I asked:

What evidence was gathered that supported my contention that merging of action and awareness, clear goals, clear and unambiguous feedback, concentrations and focus, sense of control, loss of self-consciousness, and transformation of time (all aspects of flow theory) could explain the continued participation of students in the jam session?

Qualitative data obtained from directed journaling, interviews, and field notes provided affirmative evidence in support of this question. I observed and coded examples of flow, and, as well, noted the presence of these flow characteristics in interviews and journals. The motivational benefits provided by jamming as examined in the context of the above seven characteristics were evident.

Directed Journaling

Student journals revealed subjects' *clear goals* that extended beyond the short time period of the current jam session.

Here, Doris articulated the long-term goals that kept her jamming: “I always hope to have a passion for music. I hope I will always have the ability to write songs because it is very fulfilling. I play music on the worship team at my church and so I hope to continue doing that.”

Snoop's goals were different, but no less clear: “I have always dreamed of having a band and playing gigs, so of course I hope I am in a band. I also would like to become a recording engineer.”

Simpson also had clear long-term goals, with a specific visualization that helped

maintain her focus on music: “I hope I will be at that point [five years from now] playing in clubs, bars, on a cruise ship and stuff like that. I just want to perform wherever I can and try and record too. I just want to be on stage in the warm spotlight. . . ”

Brandon's goals were perhaps more realistic, but similar in several ways: “I don't think that I'm good enough of a musician to be professional, but in the next five years I know I'll still be playing the same instruments as now, maybe even more, and I might play at coffee shops, or maybe even with my own band.”

Jamming provided one means of pursuing the clear music goals articulated by these four subjects. As Doris wrote: “I think jamming, or playing music in general, gives me a sense of purpose, and other people's music inspires me to make my own.”

Flow appeared to be enhanced when subjects received information that suggested that they were making an important contribution to the jam. Such information could be in the form of *clear and unambiguous feedback*, a characteristic of flow. Often, this information was transmitted by fellow jammers.

Snoop wrote about feedback as part of a collaborative songwriting process: “We both write songs and show them to each other so we can add whatever our instrument has to offer.”

In Bonjovi's case, the teacher also provided helpful feedback: “He [Mr. P.J.] is so supportive, he will help jam by showing us ways to improve, and sometimes he joins the jam.”

Brandon's written statements addressed two other aspects, the individual feedback provided by listening to one's own performance, and the musical conversation that provided

feedback when jamming with a group: “Just something about musical fusion feels great especially when it sounds great. To me, jamming is exactly like chillin' with your friends, except instead of talking, you're using music to communicate with each other. . .”

Brandon went on to write about the *sense of control* that he experienced during a jam session, stating that “you can precipitate change [in the jam] depending on your actions.” Even if the jam session did not go as expected, Brandon's confidence as well as his desire for knowledge helped him maintain a sense of perspective and control: “Most musicians don't make you feel inferior, they'll help you out, plus those kind of sessions are a great place to pick up tips.”

Journal entries regarding another characteristic of flow, *loss of self-consciousness*, revealed that this state occurred frequently during jamming, but that it was a fragile state, depending on the demands of the situation and the particular composition of the group.

Apro considered himself to be successful at minimizing self-consciousness: “It is not a performance. I am not playing for anyone else but me. ” Bonjovi expressed the importance of keeping the jam session informal: “It is not a really big deal. It's a comfortable environment.”

Other respondents, when asked if they ever got nervous while jamming, usually replied in the negative but specified situations that could increase the possibility of self-consciousness. Doris revealed her discomfort regarding the use of her voice: “No, except when I am singing along. I am not that confident with my vocals yet.” Snoop and Brandon, both guitar players, stated that their perceived inexperience on the guitar occasionally jeopardizes flow: “Most of the time in the band room I am not nervous when I am jamming,

unless I have a difficult part to play or someone who is very good at playing is jamming with me, then I might be nervous" and "The only time I'm nervous in a jam is when all the other people have like five years more experience than me, but generally when that has happened, it is because you're not sure if you can keep up."

Interviews

During the interview process, a number of subjects indicated that they experienced a special mental state during the process of jamming. This state, a *merging of action and awareness,* was usually described by subjects using the vernacular *being in the zone*.

Bonjovi described this feeling as part of the creative process: "You get in the zone, especially when you write something new, you're like, you love it, you want to just play it for hours."

Doris told about a similar feeling she had when jamming with others, and later, alone: "Yes, when I got the notes right I felt in the zone. Also when I was playing piano randomly by myself." Doris also talked about the challenges of maintaining this feeling in the context of recording, of jamming electronically with herself: "It is difficult for me to get in the zone unless I am playing and singing at the same time. But the closest to in the zone I felt today was when I was doing the vocal track."

In a statement that touched on several of the characteristics of flow, Snoop said: "Yep, I have a lot of fun when I'm playing and when I get into that zone, and I'm kinda playing and I get carried away, and time flies."

Snoop also articulated *clear goals* that motivated him to jam: "I want to keep practicing like I do, learn some different instruments, maybe get a band together. . . "

Doris's more traditional goals kept her on track: " I want to go to university, be a music major," while Apro saw the possibility of jamming taking him in one of several directions: "I was thinking of joining the Canadian Armed Forces and being a military musician. Maybe post secondary ed, be a music teacher too."

Jaytee had her long term goals in music very clearly delineated: " I am going to go to Selkirk College, and I am going to major in sound engineering."

Another characteristic of flow, *clear and unambiguous feedback*, involved awareness of and building upon one's own musical contributions, as well as receiving musical support and feedback from one's peers.

Jaytee talked about the freedom to create her own music she experienced in the jam session situation: "But whenever I jam with my friends, we get a jam going, we pass the mic around, everybody gets a turn doing vocals, everybody gets to play bass, and I'm always really comfortable there, it's such a spontaneous sort of thing. It's a real jam, that is, we are making up songs as we go along."

Brandon told about an experience during a recording session: "The beginning [of the session] was total trance playing."

A *sense of control* was also a characteristic of the flow state. The player might note that she was in control of her own playing, and also that she could take control of the jam if necessary, if, for instance that situation arose during improvisation. Snoop discussed how he used a visualization strategy to keep his sense of control: "Most of the time I just get into my own zone and just play it for myself. I just try to picture myself playing guitar alone, and then I don't have to worry about being nervous."

In a flow state, musicians may have experienced a *loss of self-consciousness.* This characteristic of flow was addressed frequently in my interviews with subjects, especially in the context of a jam or performance where there was an audience.

The pressure to play a solo delayed the loss of self-consciousness for Doris, but she found that she could overcome it: “Maybe when I have a solo I might be a little nervous. Most of the time, though, I'm not even aware of the audience.”

Apro gave a concrete example of how his self-consciousness vanished during a pressure situation: “You can't get around that, you're a little nervous, especially if you have a solo. A couple of times when I was playing the Last Post at the Remembrance Day ceremony I was not even aware of the audience.” Interestingly, both of these subjects mentioned the absence of audience-awareness as part of the flow state.

No interview topic elicited a more animated response from subjects than the one addressing the last characteristic of flow discussed here, *transformation of time.* Frequently, subjects laughed as they related stories associated with this aspect of flow.

Jammer pseudonym: Adam
Instrument played, number of years: bass, 3 years
Jam participation: very often
Jam notes: works as part of a duo to write, perform, and record
AMMA *percentile rank: 29*
TMEHC *average score: 19*
SOR *score: 79*
Notes re Q1: perceives and manipulates music elements with ease
Notes re Q2: autotelic, challenge balanced by skill, transformation of time
Other: self-taught, learns very quickly by ear

Adam, who had to take a bus between campuses at mid-day, said: “Last week I [was jamming] missed the bus [to the other campus]and I didn't even care if I had to walk!”

Jamming at lunch time was a frequent cause of subjects nearly being late for their next class, as conscientious Apro related: “Yeah, that happens every time! Sometimes I'm just noodling on my trumpet and like an hour has passed and I thought it was only 20 minutes!”

After the school day ended, the transformation of time was even more complete for Jordan: “Time just flies by when I'm playing. The other day, it was just me and my bass player, and four hours went by really quick,” a statement echoed by Bonjovi: “Time sure flies by when you jam.”

I observed many of the same characteristics, expressed above verbally or in written form, during my research in the school. These observations took the form of field notes; what I saw generally corroborated what my subjects had expressed.

Field Notes Regarding Observations/Participant Observer Sessions

My field notes revealed evidence of a number of flow indicators, with several characteristics of flow often mentioned in reference to one observation. For purposes of clarity, I have identified the main characteristic illustrated and examined them in the same order as followed above.

During the main study, an unplanned participant-observation opportunity presented itself; the result was a vivid demonstration of action and awareness merging:

> Snoop was sitting in the corner of the room at lunch time, playing his acoustic guitar alone, as he often does. I heard the familiar introductory notes to the first song I ever

learned on guitar myself, 'House of the Rising Sun' coming from Snoop's guitar. "Hey, I know that one!" I said, "Do you want to jam it?" Snoop nodded shyly, and I sat down at the piano. We started at the beginning. I knew the words to the six verses by heart, and so did he. He knew the introduction. I knew keyboard solo, on which he backed me up like a pro. As we built each verse in intensity, his head bent lower and lower over the fingerboard, and his toe tapping becomes whole-leg-tapping, then whole-body-tapping. I had the feeling that if the ceiling had fallen in, Snoop would not have noticed. In in his flow state, he had totally lost track of his surroundings. About ten seconds after we finished the last few notes of the ending, the spell was broken. Snoop looked up, his eyes shining. "That was just *exactly* like the recording!"

While Snoop experienced flow in the performance of standard repertoire, Corey, a guitar player from last year's grad class, demonstrated a second characteristic of flow in the recording of an original composition. I did not do a jammer profile on Corey; because he did not do any of the tests, and in fact, was not even a student at the school. However, according to Mr. PJ, he was one of the most productive of last year's jammers. Corey was mentioned here because his state of flow when he was recording was unmistakable. Here, Corey had set himself a *clear goal* of completing an album of his own songs, and as my notes indicated, he showed total involvement in the pursuit of that goal:

He was playing the screen with the recorded tracks on it like others might play a videogame, trimming the length of a track, fading another, bringing the drums up in the mix. Then he grabbed his guitar, tuned quickly, checked for the sound he wanted, and began to add guitar overdubs in several places in the song. He would back up the

> recorded material for four measures or so, set it to punch in at the spot he wanted, and let it run. He would then whirl around in his chair so that he was facing away from the screen, close his eyes, hunch over the guitar, rocking back and forth, and play as if in a trance. Then he would turn back, rewind, listen intently, and try it again.

As shown above, Corey's pursuit of his *clear goal* also illustrated another aspect of flow, *clear and unambiguous feedback,* as he listened to what he had played, decided if it was what he wanted, and played it again if it was not.

Later, Bonjovi, in a duo jam involving figuring out a riff by ear on an unfamiliar instrument, the piano, received feedback from a fellow jammer, who joined in and provided musical reinforcement for his ear-to-hand playing.

> [Bonjovi's] experience was heightened by feedback from Captain, who started working on the riff himself. It was my perception that Captain felt a strong sense of competition with other musicians, and the fact that he was interested enough to play along heightened the experience for Bonjovi as well as affirmed the accuracy of his own playing.

A number of times during my lunchtime observations, Mr. PJ, the band teacher, took part in the informal music sessions. Frequently, he would sit at the drumset and help keep the rhythm steady as others soloed, and students often requested his help in deciding on an appropriate drum part for an original composition.

Jammer Profile: Parker *Instrument played, number of years: vocals, 3 years* *Jam participation: a little*

Jam notes: lacks confidence in his abilities

AMMA *percentile rank: 18*

TMEHC *average score: test not taken*

SOR *score: test not taken*

OFI *score: 94 out of 128*

Notes re Q1: moderate success with the manipulation of music elements

Notes re Q2: flow is rarely achieved, often self-conscious

Other: responds well to positive feedback from others

As well, as a student-to-student example of clear and unambiguous feedback, my field notes indicated the importance of Bonjovi's feedback to Parker's flow experience:

> However, with repeated takes, [Parker] gained confidence. Bonjovi put out the iso-booth lights, turned on a black light instead, and kept the encouraging feedback coming. Hearing himself sounding good helped Parker, too. After 15 minutes, he was getting into it, taking chances with his improvisation, and coming up with a few interpretations that delighted them both. By the end of the session, he was swaying back and forth with his eyes closed, oblivious to other stimuli. Upon hearing the playback, he smiled: "Yeah, I like that, that's great!"

The clear feedback offered by Bonjovi helped Parker attain and maintain the flow experience.

My field notes contained a number of observations based on visible indicators of flow. I contended that an important aspect of flow, *concentration and focus*, manifested itself in a number of observable physical actions, which included the gaze, or 'thousand-yard stare', as well as a kinesthetic response, observed as toe tapping and head nodding.

Here, Snoop demonstrated his *concentration and focus* by ignoring distractions:

> He [Snoop] entered the room with an acoustic guitar. He stood on the other side of the room, facing away from the group, and soloed quietly to the chords. Several friends stood beside him, talking and laughing, but Snoop did not appear to hear them.

Snoop's concentration, indicative of his flow state, was also noted in another observation session:

> He [Snoop] became very interested in a progression that he was building. Apro started putting away chairs, walking right in front of him and making a lot of noise, but Snoop did not appear to notice. He remained involved even though Apro was now helpfully putting out stands for the next class. The stands made a loud and horrible off-key squeak as he adjusted them, but Snoop was still oblivious, staring at the fingerboard and playing with a steady rhythm. Apro literally rearranged the room around him, but still Snoop did not notice. Even when somebody got a note stuck on a keyboard in the MIDI lab, making a shrill high-pitched noise, he didn't seem to hear it, so involved was he in the new progression that was building from an existing song. The bell went. Someone wearing a Christmas tie that was playing a tinny version of 'Jingle Bells' walked right in front of Snoop, finally breaking his trance. With a small smile, Snoop got up and put his guitar away.

In another observation, Corey, the guitar player from last year's class demonstrated exemplary *concentration and focus*, as well as another aspect of flow, *loss of self-consciousness*:

> Corey was working on his own in Studio B control room, jamming to the bass, drums

and rhythm guitar tracks already laid down by others earlier in the week. He barely looked up when I came in, nodded briefly when I asked if I could watch, and got right back to work. He ignored me completely after that although he had no idea why I was there; no self-consciousness was evident.

The following two players were observed exhibiting the *sense of control* indicative of a flow state. Although she was having considerable difficulties in recording, Doris demonstrated a confidence that helped her stay in control, and in flow, during a recording session.

Throughout the session she appeared a bit frustrated but still confident. Having to do several takes to get it [playing with the click track] right did not bother her; in fact, with every take she swayed her whole body to the music even more.

In a live session, S, following a solo, took control of the ending of the song.

S cued the ending by nodding his head to indicate the tempo of the last few chords. The others followed him without difficulty.

Doris demonstrated *loss of self-consciousness* as she worked in the recording studio:

Even though a number of people were witnessing her performance from the control room, she did not appear in the least self-conscious. As she exited the room at the end of the session, her eyes were shining with excitement. “What a great school, we can just come here and jam like this.”

Corey provided an example of the flow characteristic *transformation of time:*

Several times people came in while this [recording] was going on, and they were all ignored. When the student who had the room signed out for the following hour

appeared asking how much longer Corey was going to be, the look on Corey's face was one of complete surprise that the time was up so soon.

As well, during a lunch-hour jam, I observed a lack of recognition on the part of some subjects that the time available, a little more than half an hour, was up:

> The bell went to end the lunch period. Apro got up to leave immediately. Gus, Brandon, and S appeared not to have heard it. Mr. PJ [the teacher] told them to wrap it up. Brandon put away the amps and S put away his guitar, but Gus continued to drum for several moments longer. Snoop, still at the other end of the room, finally put away his acoustic guitar as the room was filling with people getting ready for the next class. When questioned, participants at this jam were surprised that the time had gone so quickly.

Finally, field notes of this participant-observer session, which involved two members of a former band, illustrated multiple indicators of flow.

> Csikszentmihalyi's definition of autotelic as self-goal was a powerful description of the behavior these two displayed. They were hard at work on an album, and since they had no drummer, they had decided that it would be an acoustic album instead. They were carrying on with their goal, despite setbacks. Flow was evident: toe tapping, swaying back and forth on the chair, complete involvement in the task, giving each other feedback constantly, absence of self-consciousness, and loss of track of time: “Crap! Was that the bell? [Adam looked at time display on cell phone, jumped to his feet] I've missed my bus to Jackson [the other campus where he took math and English]!”

5.4.4 Autotelicity

My last ancillary question asked:

What evidence was gathered that supported my contention that an aspect of flow theory, the autotelic personality (self-developed goals, and participating in an activity for its own sake) could explain the continued participation of students in the jam session?

Qualitative data were gathered from the same three activities in order to address the flow characteristic of autotelicity.

Directed Journaling

One of the questions I asked subjects to answer in their journaling was: "Did you practice an instrument at home this week? If so, why did you do that?" I reasoned that jammer subjects who were setting self-developed music goals might reflect this in their instrument practice habits:

Doris responded:

> I play my piano at home whenever I have time. I do it to relax, to unwind, and just because I enjoy it. I wrote a song this week which is always a musical booster for me. I'm always trying to write my own songs, and sometimes they come together nicely without too much effort like this one did.

Snoop wrote:

> I did practice an instrument at home this week. I practiced on my guitar and a little on my bass. I practice at least once a week, but most of the time I practice every day, sometimes a few times a day. In fact, I don't think I have let a week go by without practicing since I started playing. The reason I practice is to stay sharp and play as

accurately as I can. If I didn't practice I would lose what I have gained by practicing. Home is where I practice the most.

Brandon noted that practice could serve purposes other than the improvement of technique:

> I generally leave my classical guitar at school all week so if I've had a rough day at school I'll just crank up the gain on my electric guitar and thrash out some metal riffs. Helps me blogg out some steam.

Bonjovi admitted, however, that other aspects of school life can interfere: “Yes, a little, not as much right now because of grad. I practice because I like to improve myself, and because it is enjoyable.”

Another question I posed for subjects to respond to in their journals was: “If a class in the school was canceled for the day, how would you spend that time?”

Bonjovi was definite in his response: “I would spend it practicing in the band room. If one of my classes was canceled then I'd grab my guitar and go sit in the hall, or outside and play a bit, work on some songs.”

However, Doris was a bit more tentative in her response: “It is possible that I would venture over to the music room, especially if there wasn't a class in session. If I did make it to the music room I might work on a song that I have in progress. ”

Snoop wrote: “If a class was canceled for a day I would most likely go to the band room to get my guitar so I could play, then I would look for people I know. If the band room wasn't in use, I would stay in the band room to be free from distractions or find someone to jam with or play me a song. Most of the time would be dedicated to music.”

However, Simpson's frank reply differed from the others. She wrote: “I would hit the gym for the rest of the day, actually. . . “

The word autotelic, in addition to its literal meaning of self-goal, also implied that the activity was enjoyable and was being engaged in for its own sake. Doris's journaling supports this meaning:

> Yes, jamming is almost always a good experience for me, whether I am in a group or alone. Some of my favorite times have been spent jamming. I don't think I have ever felt bad after jamming unless I felt bad to begin with. In other words, jamming does not put me in a bad mood. Even if I don't accomplish anything (like writing a song) I still feel productive because I am doing something I love.

Interviews

As part of the interview process, I spoke to Mr. PJ, the band teacher at the Sullivan Campus. When I asked him: “Do you know the term autotelic? It means self-goal. Could you give me a top 10 of autotelic students?” he immediately “Sure: Apro, Gus, Bonjovi, Corey, Maynard, Azalea, Simpson, Doris, Lucas, and A__.”

The fact that he could list these students as spontaneously as he did indicated to me that music students who were self-goal oriented and participating in music activities because they enjoy them were both readily identifiable and exceptional, even in an exemplary program like this one.

Snoop's verbal response to why he liked to jam echoed the autotelic theme: “I am usually happiest when I am jamming, and it is almost my favorite activity. Most of the time I jam in my free time, which is very relaxed and generally the most fun.”

I found, during the interview process, two common threads that also indicated the autotelic nature of many jammers.

The first common thread was that autotelic music students often practiced at their own volition, without requiring incentives or threats to do so. Jaytee stated it in this way: " I find that music inspires me. I want to play it every waking moment. I don't think it is possible to practice more!"

In a humorous statement, Apro responded in this way to my question asking if he would practice more if he were paid to do it: "Yeah, a little incentive is always good, but I practice a lot anyway!"

The second common thread was that autotelic music students took responsibility for their own learning. As well as making the most of opportunities that were offered to them, nearly every subject I observed appeared to be adept at creating further opportunities for themselves in order to advance their musicianship. For example, Jaytee told me how she learned to play the guitar: "I'm pretty much self taught. I downloaded tabs from the computer, I got the idea from that. I found them pretty easy to read, actually. It is like a diagram of the neck. I also took lessons for a month, just to find out things like how to do a hammer-on or a pull-off."

Field Notes Regarding Observations/Participant Observer Sessions

Early in my research, while administering the *TMEHC*, I observed frustration on the part of many subjects; however, the autotelic nature of some subjects was evident in their desire to improve. I noted that many subjects were eager to try again in June, stating that they knew they could do much better at it if they thought about and practiced intervals more in the

meantime.

My field notes contained a number of references to the autotelic nature of subjects that I observed. The first observation, which included other observations of flow as well, was of Corey:

> Corey's actions were autotelic; he was doing this [recording] for its own sake. He was completely absorbed in what he was doing, oblivious to any interruption. He got clear feedback by listening with a critical ear to what he had just played. The music was challenging enough that he needed more than one take to play it to his satisfaction, but he has the skills needed [to get the take he wants eventually]; challenge and skills were in balance.

Snoop also demonstrated autotelicity. My field notes indicated that:

> Snoop appeared to be in flow throughout, playing for the sake of playing.

In the chapter that follows I discuss further my findings and observations.

6 DISCUSSION

In the discussion that follows, I look first at the juxtaposition of quantitative and qualitative results regarding my first specific research question. Next, I discuss the implications of qualitative data collected with regard to my second research question. Following that, I look at and discuss additional themes and findings that were revealed as part of my case study observations. Then, I look at suggestions for practice and opportunities for further research. My final section is a coda that reflects on the changing nature of the music extracurriculum.

6.1 First Specific Research Question: Discussion

When I proposed this study, I wanted to know if students who informally jammed on various forms of music were enhancing their music skills in perception and meaningful manipulation of elements. An interesting juxtaposition of results was produced by my quantitative and qualitative data, particularly in regard to my first two ancillary questions.

How do the AMMA *scores of the jammers in my sample compare to the* AMMA *scores of the non-jammers in my sample?*

I asked this question because of my desire to know if subjects who gravitated to jamming were more likely to do so because they possessed high levels of music aptitude, that is, were high audiators. Based on my sample, *AMMA* scores revealed no significant differences between jammers and non-jammers, making it possible for me to conclude that subjects who gravitated towards jamming did not possess higher levels of music aptitude than non- jammers, and that they therefore were not higher audiators than non-jammers, as measured by the *AMMA*.

However, for several reasons, I consider this result inconclusive. To begin with, the results were based on a very small sample. When I prepared my research plan, I was aware that a case study involving a single school would likely not produce subjects in sufficient numbers to answer this question definitively. Because the focus of my study was to produce a snapshot of jamming with a variety of qualitative and quantitative data, the decision to proceed as I did was made knowing that definitively answering this question would likely require further study involving a far larger number of subjects.

As also noted in Chapter 4, I had a second purpose in obtaining *AMMA* scores for my subjects. I wanted to be able to examine *AMMA* scores on an individual basis, and interpret other data collected using both quantitative and qualitative methods with regard to *AMMA* scores. Some might argue that this was a questionable use of these scores; I personally had reservations about interpreting them in this way. Still, as I found from reading the guidelines that accompanied the test, examining scores individually, with the goal of creating an aptitude profile, is exactly how *AMMA* results have been used by most music educators who have employed them. Indeed, Gordon (1989), in his discussion of the use of test results, listed seven purposes to which the test could be put; all seven of these purposes involved examining *AMMA* scores on an individual basis.

One of these purposes was: "To establish objective and realistic expectations for the music achievement of college and university music and non-music majors" (Gordon, 1989, p. 34). Given that six out of seven of Gordon's test purposes were framed in terms of college/university subjects (although he did provide norms for high school subjects), I still thought it was appropriate to consider this question: "Would knowing *AMMA* scores of

subjects in advance have resulted in realistic expectations for the music achievement of these high school jammers?"

Also, Gordon appeared to suggest that the more audiationally-capable students might tend to gravitate to additional music opportunities when he stated: "A self selecting process is operating. It is natural for some students with high levels of music aptitude to follow music both educationally and vocationally, whereas students with low levels of music aptitude tend less to do so" (Gordon, 1989, p. 49). I felt it was appropriate to consider this question as well: "Did my results show subjects with high levels of music aptitude to be more likely to pursue music educationally (including jamming) and vocationally?"

Keeping these two questions in mind, I examined the profiles of five jammers. I selected these five on the basis that they are, as I noted in Chapter 2, unusual, interesting, and atypical.

Jammer pseudonym and subject number: Pfin #9
Instrument played, number of years: clarinet, 5 years
Jam notes: works with others, jams off site frequently
AMMA *percentile rank: 91*
TMEHC *average score: 48*
SOR *score: 92*
Notes re Q1: perceives and manipulates music elements easily
Notes re Q2: challenge/skills balanced
Other: confident and cheerful player, often appears to be in flow.

Pfin fulfilled expectations one might have held for a student scoring in the 91st percentile in the *AMMA*: successful on measures of ear-to-hand coordination, flow was enhanced by her balance between challenge and skill, and she jammed both inside and

outside of school with obvious enjoyment.

Jammer pseudonym and subject number: Brandon #27
Instrument played, number of years: guitar, 4 years
Jam participation: always
Jam notes: facilitator and capable leader of the jam
AMMA *percentile rank: 89*
TMEHC *average score: 14*
SOR *score: 65*
Notes re Q1: very skilled at manipulating the elements of music
Notes re Q2: autotelic, flow very evident when playing
Other: quit school part way through my research

Based on *AMMA* scores, Brandon also qualified as a high audiator. His lack of success on the *TMEHC* could easily be attributed to the fact that he was a guitar player, whose repertoire choices did not provide him with familiarity with the Bb concert scale. His skill levels, consistent with what one would expect of a musically capable and motivated student, were balanced by the challenges he set for himself in the jam session. Yet, his autotelic nature, not to mention both his high aptitude and high achievement, were not enough to keep him at school until the end of the year, even though he stated that jamming was the best part of his life.

Jammer pseudonym and subject number: Hatha #20
Instrument played, number of years: piano, 11 years
Jam participation: a little
Jam notes: always works alone at school, jams using sequencing software at home
AMMA *percentile rank: 93*
TMEHC *average score: 76*
SOR *score: 97*
Notes re Q1: uses knowledge of music elements to figure out songs by ear with great ease

Notes re Q2: flow is disrupted extremely easily
Other: scarcely participates in concert band and jazz band classes; appears indifferent

Hatha produced the highest overall test scores of any subject I studied; she also scored the highest on the *AMMA* of any subject. My participant-observer sessions with her confirmed her high scores, both audiational and ear-to-hand. She did not jam often with others, but given a definition of jamming expanded by virtual jamming and sequencing software, I felt that she could be considered a jammer. Yet, she was utterly detached and indifferent in all her music classes, and rarely if ever experienced flow in music situations that involved playing with others. She did not appear drawn to music either educationally or vocationally.

Jammer pseudonym and subject number: Snoop #26
Instrument played, number of years: guitar, 1 year
Jam participation: always
Jam notes: seldom joins a group, usually jams to the song from the other side of the room
AMMA *percentile rank: 18*
TMEHC *average score: n/a*
SOR *score: n/a*
Notes re Q1: large repertoire from which he extrapolates music elements
Notes re Q2: autotelic, embodies flow whenever he plays
Other: does not often choose to play in close proximity to others

Snoop was in the band room jamming or playing more often than any other subject in my case study. He was the embodiment of flow: totally involved, challenge/skill balanced, autotelic, and completely oblivious to his surroundings. Both my frequent observation of him and my participant-observer sessions with him confirmed my initial impression of a dedicated and skilled player, one determined to pursue music both educationally and

vocationally. However, given his *AMMA* score, I would certainly not have anticipated this.

Jammer pseudonym and subject number: Doris #36
Instrument played, number of years: guitar, 1 year
Jam participation: half the time
Jam notes: records frequently with others
AMMA *percentile rank: 12*
TMEHC *average score: 28*
SOR *score: 67*
Notes re Q1:very adept at using the elements of music to compose
Notes re Q2: flow is evident when she plays
Other: confident and bubbly, jams off site as part of a church youth group

Doris composed constantly, and was in the process of recording a whole album. She was much in demand as a jam partner or a session player during recording. Yet, her *AMMA* scores were so low that I might have expected her to have had little to no interest or achievement in music.

When I proposed this case study research, I expected that there would be many aspects of the jam session that would not be fully explored by my research questions, and also that there would unpredicted outcomes. During my research, I made a conscious decision to delay any examination or interpretation of *AMMA* scores until my research was concluded, lest expectations on my part might contaminate my observations. When, at the conclusion of my study, I examined the scores on an individual basis, I was surprised; in many instances *AMMA* scores were almost completely disconnected from what I had observed.

I asked myself this: If I had been a classroom teacher in this school, and had known the *AMMA* scores of this group in advance, what value would have be served by this

knowledge in the planning of a program to meet the needs of these subjects? Would this information have helped me to fulfill the last of Gordon's seven purposes: “To efficiently and diagnostically adapt music teaching within a classroom and ensemble and in private instruction to the individual musical differences found among high school students” (Gordon, 1989, p. 35)?

In some instances, with Hatha, for example, I might have looked at her high score, concluded that boredom might be a factor in classroom instruction, and attempted to improve my instruction with regard to this student. However, might I also have looked at the scores of Doris and Snoop and concluded that they were not likely to accomplish much? To have even been subconsciously influenced in this way would have been a great disservice to these students. Perhaps it is for this reason that Gordon stated: “It is recommended that all information available about a student, both subjective and objective, be used in conjunction with the results on the *Advanced Measures of Music Audiation* in making educational decisions” (Gordon, 1989, p. 33). In short, my first ancillary question provided few answers and raised many more questions.

In my second ancillary research question, I asked:

How did the TMEHC scores of the jammers in my sample compare to the TMEHC scores of the non-jammers in my sample?

Although both sets of scores were low compared to the scores of the first-year college music majors it was designed for, jammers did score higher than non-jammers on the *TMEHC*. However, several aspects of this result invited further consideration.

First, as noted with regard to the previous question, the sample size was very small.

As previously noted, had I been seeking an exhaustive examination of this particular test, a case study would not have been the vehicle for doing so.

I made the decision to use the *TMEHC* because it was the only already-developed test available for examining a factor I thought would be important to the understanding of jamming, ear-to-hand coordination. As also noted earlier, my experiences with the *TMEHC* resulted in an opportunity for me to develop my own test, one more suitable to the instrumentation and experience of my subjects.

I had hoped to administer the *TMEHC* twice with an interval of at least six months in between, in order to examine the possible effect of jamming as a form of self-administered treatment. Due to factors beyond my control, I was unable to begin my study until well into the second semester, and thus, the interval between pre and post was reduced to ten weeks, with two of those weeks being when school was not in session.

As disappointing as this was, it led me to an interesting result. Both the jamming and non-jamming groups improved their scores over this period, indicating that jamming as a treatment over this period of time had little effect. However, the improvement of scores in both groups was large enough to suggest test effect. While this test effect was certainly an undesirable factor in my quantitative research, it indicated to me a possible overall benefit of ear-to-hand testing in general. If subjects generally improved their scores the second time they took the test, might this point to a way to improve ear-to-hand achievement? In fact, Froseth did develop and use at the University of Michigan, a program for the improvement of aural skills based on the format of the *TMEHC*. Indeed, during my ear-to-hand testing, I had a number of subjects suggest that they could do much better the second time, once they had

thought about, and perhaps practiced, intervals in this way.

Interestingly, administering the *TMEHC* also provided me with insights into my second research question regarding flow. When there was a balance of challenge and skillon the test (this occurred very rarely) subjects exhibited observable physical indications of flow, including a distant gaze/eyes closed, moving of extremities in time to the music, and swaying back and forth. The metronomic and relentless pace of this test appeared to contribute to flow in these individuals. Conversely, when there was not a balance of challenge and skill, the pressure to perform "in time" seemed to inhibit flow even more.

In my third ancillary question, I asked:

How did the SOR scores of the jammers in my sample compare to the SOR scores of the non-jammers in my sample?

Based on my quantitative data, the *SOR* showed a very clear difference in scores between jamming and non-jamming subjects. Again, my research here was based on a small sample, but this result did point to the strengths of the *SOR* as a tool for examining ear-to-hand coordination in subjects of this instrumentation and experience.

Based on the qualitative data that I also gathered, the *SOR* was also much more likely than either of the other two tests to result in a flow experience for subjects. Flow appeared to be enhanced by the "no-pressure" administration of the *SOR*; I observed a loss of self-consciousness in a number of subjects. Also, subjects taking the *SOR* often indicated that they were experiencing a balance between challenge and skill. Interestingly, I found that the *SOR* produced an apparent challenge/skills balance in subjects with a wide variety of skill levels. Perhaps this was due to the built-in provisions, through the use of optional tasks, for

additional challenges when required. Perhaps also the short time period that subjects were required to concentrate and the more personal manner of administration were factors as well. Whatever the reason, many subjects expressed their enjoyment of the process, an unusual event in a testing situation.

In my fourth ancillary question, I asked:

What evidence was gathered that supported my contention that jammers were perceiving and manipulating music elements in a meaningful way?

In journaling, in interviews, and in observations, an affirmative answer to this question was very well supported. In many cases it was difficult to draw a line between elements acquired in the jam and elements acquired during curricular music classes. These distinctions became even more blurred as subjects constructed knowledge originating from a number of sources. This knowledge appeared particularly meaningful to subjects composing new songs using elements of music acquired in these multiple ways.

6.2 Second Specific Research Question: Discussion

Based on the results of my research, I concluded that Csikszentmihalyi's flow theory explained the continued participation of students in the the jam session in a number of ways. As noted in Chapter 4, I created ancillary questions based on my specific research questions in order to report my findings. Below, I use these same questions in order to facilitate my discussion. First, I asked:

What evidence was gathered that supported my contention that the challenge/skills balance aspect of flow theory could explain the continued participation of students in the jam session?

I found it interesting to note that subjects who possess a wide spectrum of skill levels generally reported an overall feeling of balance during the challenges of a jam. This was surprising, given that the reported number of years on the jam session instrument varied from several months to more than ten years. In my observations, students appeared to take responsibility for their own challenges, applying one of several strategies in order to facilitate a flow experience for themselves and others.

One strategy involved the *mentoring* or *scaffolding* of a less skilled player, enabling him to be involved on some level, while adding to the instrumentation of the jam. In this example, Arpo, who was in the band room every day, appeared to want to be involved, but did not play a jam instrument. I observed the efforts of the others to mentor him and draw him in for their mutual benefit:

> Apro sat with the group but did not play. [Several minutes later] Apro held the bass while Brandon left the room briefly to solve an equipment problem; Gus showed Apro how to play an octave on the bass. [Still later Apro went to the piano and played a chord requested by Brandon, who used the notes of the chord to develop a bass line. [Towards the end of the jam] Apro, who had wandered off, returned. Several moments were spent organizing Apro to play the woodblocks attached to the timbales.

Apro, a good musician but one without bass or percussion skills, was able to contribute to the jam within his skill level, supported by the others. I observed that flow was experienced by all those involved in the jam.

Another strategy was that of *averaging out,* in that participants adjusted their

expectations for the jam to embrace a broader spectrum of balance between challenge and skill. For example, Brandon was accepting of brief moments of boredom, and was equally accepting of his performance when he did not play as well as he had hoped. By broadening his perception of what might constitute a satisfactory jam experience, Brandon had increased the likelihood that flow would occur.

As well, I observed players increasing their level of challenge by *improvisation*, by creating more challenging melodies or rhythms that both complemented and built upon the existing chord structure of the jam. Snoop often did this; not wanting to be intrusive or take over leadership of a jam that might be too easy for him, he still found a level of challenge to match his skill by inventing a countermelody, an ostinato, or by soloing over the chords that others provided. Based on the flow indicators I observed, he experienced flow during such jams.

The final strategy that I observed could be called a *maybe-next-time* outlook. Bonjovi's experience in the unsuccessful jam described in my results certainly diminished his feelings of flow, and he was clearly disappointed at the reluctance shown by others to engage with material he personally found challenging. However, he continued his participation in a jam the next day; after this jam, involving other players, he reported feelings of flow.

As a general observation, I was often surprised by the responsibility that jammers took in facilitating not only the possibility of their own flow experiences, but also in creating a sense of community that included concern for the flow experiences of fellow jammers.

Next, I asked:

What evidence was gathered that supported my contention that merging of action and

awareness, clear goals, clear and unambiguous feedback, concentrations and focus, sense of control, loss of self-consciousness, and transformation of time (all aspects of flow theory) could explain the continued participation of students in the jam session?

In my results, I reported incidents of flow that pertained to all seven of the characteristics addressed in my question. However, I discovered that there were degrees of subject engagement when various characteristics of flow were discussed as part of the interview process. I found that two of the characteristics of flow produced the strongest reaction in subjects when discussed in journals or during an interview situation.

As reported, nearly all subjects responded with enthusiasm and often with a great degree of detail, to the flow characteristic *transformation of time*. They talked and wrote about the shortness of the lunch period, whether they were jamming in a group, recording alone or with others, composing, or just practicing. They talked about how time flew by after school, too, whether they were playing a concert, recording, or jamming informally. This certainly confirmed the flow experience in all subjects with regard to this characteristic.

Was this transformation of time entirely a reflection of the activity, music-making, or could other factors have been involved as well? Certainly, subjects became very involved in the music they were jamming, and it is not surprising, considering their level of engagement, that they lost track of time. However, I wondered at the time if this experience might have been heightened as a result of contrast with the regular school day. As I addressed briefly in my literature review, flow in the school context (most often examined through the use of pagers) was generally reported as low. Perhaps the contrast between jamming and looking at the clock during a regular class and wishing the class would end sooner amplified the

subjects' perception that time was passing very quickly during a jam. Although there was a clock clearly visible in the band room, it was my observation that jammers seldom glanced at it, and that if they did, the glance was often followed by an expression of dismay. The lunch time jam was usually ended by a bell, often unheard or ignored, followed by the teacher telling jammers to wrap it up, or by members of the next class nudging the jammers aside as they set up for the next class.

While *loss of self-consciousness* was a condition of flow very often mentioned by subjects, their reporting of this experience produced, at times, conflicting results. While all jammers agreed that they experienced a loss of self-consciousness at some point while jamming, nearly all subjects also reported incidents of what they usually referred to as nervousness. Subjects were generally well aware of what contributed to this nervousness, and they usually mentioned one of four factors: First, if challenge exceeded skill, that is, if they were jamming with someone they thought was considerably more experienced or more skilled, they were more likely to be nervous. Second, the repertoire was a factor; playing one's own music tended to mitigate nervousness, while playing unfamiliar music tended to increase it. Third, most jammers reported that repeated exposure to playing/performance experiences lessened the feeling of nervousness. Fourth, it was noted by several subjects that soloing added additional pressures and often resulted in nervousness. Interestingly, several subjects mentioned lack of awareness of the audience as an indication of flow.

In my third ancillary question, I asked:

What evidence was gathered that supports my contention that an aspect of flow theory, the autotelic personality (self-developed goals and participating in an activity for its

own sake) could explain the continued participation of students in the jam session?

Evidence gathered during jam session observation indicated that jammers were pursuing self-developed goals, as one would expect in an activity performed at the students' own volition. Because my observations did not extend to other contexts inside and outside the school, I could not say for certain that these subjects were naturally or habitually oriented toward setting and pursuing self developed goals in other aspects of their lives.

All jammers interviewed or asked to journal indicated that they practiced their instruments regularly. When I asked them why, they usually said that they did so because they had set finite musical goals for themselves that they hoped practicing would help them to achieve. Many subjects also reported that they practiced because they enjoyed it.

Perhaps this autotelicity was particularly observable in jammers due to the contrast it provided with the external motivators often associated with other aspects of school. Marks were not being given for jamming, parents and teachers were not pressuring students to jam, and, apart from the occasional battle-of-the-bands, there was little hope of reward in terms of money or fame, yet these subjects continued their participation in the jam session. Upon examining my qualitative data, I concluded that flow theory, and particularly the autotelicity characteristic of flow theory, was important in explaining this continued participation.

As well, when observing the jamming that took place in the recording studio, I was impressed by the way that available technology had enhanced the options available for autotelic jammers. I saw students initially jamming on a song, using what they had jammed to compose a song, getting others to play parts on their song (or even playing all the parts of the song themselves) and then recording the product. Subjects whose self-goal was to record

an album of original music were now able to do so using the technology available at this school.

Finally, I observed that jammers both articulated and displayed the autotelic trait of participating in an activity for its own sake, for the enjoyment alone. Although a number of subjects expressed hope of finding a vocation in music, all seemed to agree that whatever life after school entailed, music would definitely be a part of it.

As noted earlier in this chapter I was aware, during the development of my research plan, that my specific research questions, while important, would address only certain aspects of what I anticipated I would observe. I was also aware that other, unanticipated perspectives regarding the jamming phenomenon might arise. Because no specific research questions addressed these additional themes and perspectives, my findings in this regard were not discussed in Chapter 5. However, because I feel that these additional themes and perspectives are an important part of my case study research, I will discuss them here.

6.3 Additional Themes and Related Perspectives: Discussion

6.3.1 Constructing Knowledge

During my case study, I repeatedly observed that knowledge constructed during music classes or private lessons was being used to inform the jam session, and conversely, that knowledge constructed during the jam session was informing participation in curricular music classes. My field notes regarding one of my participant-observer sessions reflected the use of knowledge constructed as part of other music experiences; references to these are italicized below. References to construction of knowledge were added, also in italics:

Snoop, Bonjovi, Jim, and Captain were gathered to figure out my 'mystery song,' the

theme from “King of the Hill.” I played the song for the first time. Bonjovi and Snoop immediately begin plunking around trying to find the *key.* [*Tonality is a concept that was introduced and reinforced in both band and choir classes*.] They had a good sense of when *doh* appeared in the *bass line*, and quite quickly decided upon the the *tonic note*, and thus, the key. Snoop and Bonjovi used their knowledge of the blues scale [acquired, in Bonjovi's case, in jazz band, and in Snoop's case, in informal lessons] to decipher the guitar riff, which contained the *b3* and the *b7*, as well as doh and *sol.* Their hands seemed to find the likely notes without thought. [*This was an example of ear-to-hand playing*.] “It goes to the *V chord* there” says Snoop. [*Tonic, subdominant, and dominant chords were discussed in music composition class.*]

Now that Snoop and Bonjovi had the riff, they were not sure where to put it. They correctly decided to put it in the *intro* and the *first four bars* of the first *verse*. They were confused for a moment at bar five, then Snoop discovered that it was just *transposed* up a *P4th*, or one string higher on the guitar, for measures five to eight of the verse, then back to the original riff for the rest. [*Transposition and form were both introduced in music composition.*] When the second verse came around, they put the riff in the proper place without difficulty. “This is a *bridge*” said Bonjovi, but neither he nor Snoop could catch the shift to the relative minor before it was gone; it was a short bridge, and only played once. [*The concept of a bridge was probably first introduced in music composition class, and it was reinforced by the music they listened to outside of school.*] Snoop and Bonjovi were now focused on the extro. “It's

the *V,* then the *I,*" they decided between them. "There's like a lead part in there somewhere too!" When I played the song the second time, they played along quite capably. "Here comes that bridge again!" Snoop tried some bass notes, getting all but one of them. Using a combination of single note riff, chords, and bass notes between them, Bonjovi and Snoop got most of the verse, chorus, and bridge. By this point, Captain was singing along with most of the words. [*Perhaps his experiences in musical theater taught him to anticipate a rhyming scheme, which he then used to facilitate memorization.*] This time Jim picked up the *2 feel* that was used in the bridge, then went back to the the *basic rock beat* for the rest of the song. [*Mr. PJ had spent some time teaching Jim different rhythmic patterns on the drums.*] This time Bonjovi got the lead line: "Hey, I figured it out!"

This was a unique school, atypical both in the degree to which jamming was facilitated and in the way that playing by ear was promoted in band classes through use of scales and modes, improvisation, and figuring out familiar melodies.

Also, as I noted in Chapter 1, the Sullivan Campus of SAHS was also atypical in that it offered that three blocks of the course Music Composition and Technology 11/12; in fact, it was one of the few schools in the province that offered the course at all. In this course, I observed students participating in ear-training and sight singing, inventing melodies, hooks, and riffs based on scales; and learning about chords, form, notation, and recording techniques.

Knowledge constructed during jamming was also frequently used in curricular music classes, perhaps to a lesser degree in band and jazz band, but definitely to a greater degree in

Music Composition and Technology. In fact, I estimated that over half of the student compositions submitted for credit in this class originated, and were often developed and even recorded, during a jam.

In the participant-observer session I examined above, jammers themselves were exhibiting aural skills in the context of copying an unfamiliar song. Interestingly, I played little part in the organization of the session or the makeup of the group; I merely put on the song and suggested that perhaps the jammers in the room could figure it out while I observed.

6.3.2 Jamming: Evolving and Complex

Early on in my research, it became apparent to me that the jam session at this school, rather than being a static, definable phenomenon, was a continuously evolving one; field notes written at that time expressed my concern and confusion.

> *My study thus far has reflected constant change. The group of jammers identified in September, when I finished the proposal, had changed somewhat by November, when I submitted my ethics review, and changed again by February, when I finally received permission to conduct my study. During the pilot study, the teacher looked up in astonishment as two jammers never seen jamming together created music before our eyes. In the main study, the band I identified in October as a sub-group for study was in the process of deterioration, while one promising subject identified by the teacher as always jamming at the beginning of the year scarcely picked up an instrument the entire time I was there. Conversely, a number of students who were not jammers in December became interested, and, after the second semester began,*

started developing skills. A few students who had formerly played every day started to use the time to eat their lunch and socialize instead. Students who had already graduated suddenly appeared in April, and jammed during every available moment at the invitation of the teacher and fellow students. Jam sessions moved from the school to someone's garage, and then back to the school again for recording purposes.

Although my discomfort thus expressed was relatively short-lived, I became and remained aware of the interactive nature of not only the cognitive and motivational factors identified in my specific research questions, but a number of social and organizational factors as well. Three of these organizational factors are addressed below.

First, the participant-observer session I described in the previous section was almost completely self organized. Like most jam sessions I observed, participants 'showed up' and self-organized into a configuration suitable to the task at hand. At times, this meant that multi-instrumentalists played an instrument other than their preferred one. As well, various strategies for sharing power and transmitting knowledge were used, depending upon the demands of the task. In other observations, I saw groups of musicians link together in pursuit of a musical project or goal, capitalizing on each other's various strengths in order to meet the goal, and then re-forming or reorganizing in the pursuit of a subsequent goal.

Second, I observed jammers forming short term relationships, usually bands, trios, or duos. These groups worked together as long as group-held goals were being addressed, then re-formed in other combinations when this dynamic no longer existed. I observed a number of such short-term relationships during the four-month period of my study.

Third, as the following vignette illustrates, disequilibrium in school participation as well as in jam session participation was characteristic of some participants.

> *My recently-adopted theme of constant change hit me in the face most unexpectedly a few days later. Brandon, the guitar player with the great ear, the facilitator, is always able to get a jam going. Brandon, who writes long and lyrical answers to all my journal questions, Brandon, the grade 12 student so mature that his presence is more like having another adult in the room, quit school. Actually, he is asked to leave, having burned his bridges everywhere except for the band room. I don't believe it; I am convinced there is some mistake. He is much more philosophical about the whole thing than I am. "Yeah, I got some issues," he states, and we have to leave it at that. Here is a student who tests out in the top three on the AMMA, could actually do the TMEHC, embodies every characteristic of flow, and he has quit, four weeks from graduation. I would not have predicted this, based on the quantitative and qualitative data I have collected. Multiple and complex factors are at work in every relationship that a human being has with his/her environment, and we as teachers, and especially as researchers, often have no idea of the power or the nature of these other factors.*

However, as my research progressed, I began to view the constant change that characterized the jamming at my case study site not as detrimental to my study, but instead as a positive force in the direction of a viable and vigorous jamming culture.

6.3.3 The Role of the Teacher

As my study progressed, I became more aware of the role of the teacher in creating the unique environment I was observing. Facilitating the jam session, or at least providing a supervised space where it could occur, added additional time demands to the already-full day put in by the band teachers I observed. I interviewed the band teachers at both my pilot and main sites in order to explore their reasons for allowing jamming, in order to determine the positive and negative impact of jamming on them personally.

Both teachers stressed the importance of the facility being used to the maximum. Mr. J, the band teacher at the school I used for my pilot study, stated: "I think it is important to do it, I want the room to be used, I want students to feel welcome here," while Mr. PJ, the band teacher at the school I used for my main study, added, "I like to look around this room, all this professional equipment, all set up, in good working order, and being used."

Also, both teachers were well aware of the importance of the social impact of providing students with a place to pursue their interests informally, a place to meet friends and hang out, a place where students felt both stimulated and safe. Yet, there was a downside to allowing students access to the band room at all times. Both teachers told me that they had experienced problems in the past with students who did not respect the privilege. Mr. J explained the nature of the problem and his solution:

> Yes, there has been abuse of the equipment in the past, misuse of the amps and the drum set especially. Sometimes garbage left lying around too. Usually it was unscreened guests, not music kids. If it gets too bad, I lock the door for a while, they lose the privilege.

Mr. PJ experienced this as well:

> The way I do it is that I want it for music students. Others are welcome once they are vetted. I had a kid once who basically obliterated everything, just cleared the room whenever he started drumming, and that we can't have. It's no good having people hitting the drums really hard and being obnoxious.

There were differences between the two teachers regarding levels of supervision. Mr. J, in his last year of teaching after 27 years at this school, usually went to the staff room during lunch:

> I don't tend to stay in here, but I try to stay aware. I keep in touch with the noon supervisors. . . if they eat their lunch in here they have to pick up their own garbage. It should be music students only. I screen it, don't want to collect the undesirables in here. I always lock my office door, too.

Mr. PJ, at about the midpoint his career, spent almost all his lunch hours in the band room. He explained why:

> A big part of it is that I really like hanging out here! (laughs) It's part of being a musician. I believe in it, so I gotta be here. This is an integral part of the program. The casual informal stuff is where so much learning takes place, and where relationships happen, too. . . besides, it's a lot more fun than the staff room!

Then, reflecting the sense of humor that was characteristic of his teaching style, he added: "Then too, I think I'm like an AD kid, with a need for lots of rapid-fire stimulus!" However, realizing that burnout was a very real possibility in his job, he noted that he usually spent his preparation period elsewhere in the school.

There were other hardships apparent in facilitating the jam session. The constant high levels of sound, as well as the irritation of the same mistakes being made and the same songs being played year after year, was something that both teachers realized took its toll. Also, administration and fellow staff members were not always understanding or supportive. Mr. J noted: “Well, it can be hard on the ears (laughs), but it is fun to teach a few kids this way once in a while, too, [but] in a school there are always a few control-freaks who object.” Mr. PJ offered some specifics as to the negative aspects of the jam session from his point of view: 'Chopsticks' and 'Heart & Soul' and 'Smoke on the Water' [three very common riffs] a million times (laughs), and sometimes the noise just gets to me, and I need a break!”

My research indicated that Mr. PJ's support of jamming did not go unnoticed by the students. In both interview and journaling, students gave him his due with regard to creating a positive jam session atmosphere. When asked if they received musical support from anyone in the school, these two jammers did not hesitate:

Adam and Bonjovi (at exactly the same time): “PJ!!”

Bonjovi: “He's awesome.”

Adam: “He's like the best music teacher ever. He knows so much, but without the pretentiousness that lots of teachers get; he's so down-to-earth.”

Bonjovi: “He's so easy to understand, and what he has set up for us here. . . ”

Adam: “Amazing! Unreal!”

Brandon concurred, and noted the effect that he felt this support had on student achievement: “PJ is totally supportive of jams, he lets us stay after school, and come in at lunch, or before school. He lets us use his equipment as long as we take care of it. I think

that's why there are so many good musicians in our school."

Doris echoed this view regarding the support she and her fellow musicians receive, and, as well, addresses the social aspect that is examined below: "PJ is the best. He treats everyone's musical talent equally. He always leaves the band room open and rarely has a problem with anyone/anything. He still controls his room though and creates an inviting atmosphere that pulls all kinds of people in. PJ is highly respected around the school, so the band room is a cool place to be."

6.3.4 School Music Subculture

The band teachers in both my pilot study and my main study had much to say regarding the importance of the music subculture, particularly as it related to the students who spent their free time jamming in the band room. Mr. J stated:

> [I see] a lot of friendships. Sometimes they are carrying on a tradition from their old schools. Most important, it is social: they get peer approval, its a safe place for them. Helps them build self-esteem, fills a need for expression.

Mr. PJ added:

> This [jamming] is an integral part of the program. The casual informal stuff is where so much learning takes place, and where relationships happen, too. It creates a sense of community in the music room, it's a circle you can join. Watching them help each other, nobody is the boss, they collaborate – it's natural learning, not forced. It's a place to belong, positive and non-judgmental. They can find what they are good at. They can watch until they feel ready, then participate. . .
>
> Information gathered during student interviews and recorded in the form of student

journals supported the band teachers' observations and indicated the presence of a jam culture, a specific form of music subculture. As noted in Chapter 2, Morrison (2001) suggested themes by which a school music subculture could be identified.

One of Morrison's themes was *identity*. When I asked Doris if people in the school thought of her as musician, she answered: "Yes, and I think of myself as a musician too." Jaytee found that a school music identity could have its negative aspects: "People in band, they can get labeled a band geek, like why aren't you out there playing sports or something?" However, she adds: "I really like it [being thought of as a musician], it's a very defining thing in my life, and it's nice to be recognized as a musician." Adam and Bonjovi identified themselves as musicians with their former band that had played a gig earlier in the year: "We have tons of support here in the school." Arpo, on the other hand, didn't think his identity as a musician was recognized in the school: "Most people don't think of me outside the music room. Being a musician matters to me, though."

Another of Morrison's themes was *transmission*. I found that, among jammers, knowledge was transmitted in ways quite different from those used in most curricular music classes. My field notes here recorded the introduction of a new member into a jamming group; while Morrison might have viewed this as an apprenticeship situation, my observations showed that, providing his skills were equal to the task, a newcomer was as likely as any other jammer to adopt a temporary leadership role:

> The group was joined by S on guitar. S was an exchange student, and new to the jamming community. Brandon, in an informal facilitator role, got S an amp from the theater and set it up. S played casual chords to warm up. Several moments later, S, in

an informal leadership role, played a chord pattern on the guitar, establishing the key, the harmonic structure, and the form. Brandon and Gus played the groove while S soloed, experimenting with an ostinato pattern over the changing chord pattern being outlined by the bass. Later, S played a riff on the guitar, which Brandon copied by ear on bass. Gus kept time with brushes.

Relatedly, Mr. PJ expressed his views regarding the transmission of knowledge in a jam session situation:

> Musically, there is so much informal learning, and they don't even realize it. Like the elements of music: form, harmony, technique, melody, rhythm. It's peer to peer, not master teacher stuff. You have to build on that if you are going to form a band. Each person has to know their part, even when you are learning cover tunes. Actually, someone does have to take charge on each element, otherwise you just go round and round in circles.

In a different aspect of knowledge transmission, that of collaborative composition, Adam and Bonjovi, who have written songs together all year, discussed during an interview how they shared ideas and built upon them:

> Adam: “Like, a lot of times he [Bonjovi] will have the basic idea for a song, and I'll just kind of build off that and add my own ideas.”
>
> Bonjovi: “Like he [Adam] will tweak it a bit and it will start sounding quite a bit better.”
>
> Adam: “Bonjovi always comes up with the basic idea for the song, chord changes and stuff, then I add my own ideas.”

The conversation between Bonjovi and Adam also illustrated another of Morrison's themes, the *social dimension,* in which, as members of a group, goals were shared and the members interacted extensively. They talked about the demise of their band, and their subsequent re-emergence as a songwriting duo:

> Bonjovi: "It all fell apart right after our first show, which was too bad because we had really good reviews, people really liked the show."
>
> Adam: "We were together about two months, and then after that we just stopped, cause we couldn't practice, so we just started doing some acoustic stuff together instead."
>
> Bonjovi: "We play together on odd days, we jam together a few times a month 'cause we are so busy."
>
> Adam: "We started working together during Music Comp, writing stuff together, and that eventually led to our band. We want to do some coffee shop gigs (laughs) but they keep closing, so there goes that tour idea!"
>
> Bonjovi: "I like working with Adam better than any other people."
>
> Adam: "It just works."
>
> Bonjovi: "We're both different, but we both have the same expectations."

Morrison's final theme, the *diaspora,* was especially meaningful to my examination of the jam session music subculture. I was surprised to find the sense of community so among jammers so strong that a number of them reappeared in the band room after graduation. Sometimes, as was the situation with Bonjovi, jammers stated their intention to come back to school after grade twelve to take more music courses and keep jamming. Other

times, as was the situation with Corey, jammers returned in order to use the recording facilities and equipment, usually with the goal of completing an album. I asked Mr. PJ if he encouraged this:

> Former students are welcome as long as they respect the equipment; I charge them one mic cord a year, you know how often those things break or disappear! (laughs) I love having grads in here because usually these are my high-end people from last year, and they have such attention to detail. They are such good role models for my current classes, audio-wise and otherwise.

It is possible that this partial diaspora may help to perpetuate the jam session subculture.

Findings related to both the additional themes and the specific research questions identified above have implications for the school music curriculum.

6.4 Suggestions For Practice

6.4.1 Suggestions For Practice: Ear-to-Hand Playing

> *My subjects came from several different feeder schools. When administering the SOR, I could usually tell when I had a former student of Mr. J's sitting in front of me, for when I started to explain that I wanted her to play back a melody she had probably heard somewhere, the response was often "Oh, Mr. J used to have us do this kind of stuff in class!"*

Mr. J, a professional musician as well as a band teacher in my pilot school, stated that he believed strongly in teaching ear training. His method for promoting the skill of playing by ear involved spending five minutes per band class having the students figure out a

familiar song ear-to-hand. As I observed during my pilot study, this could be a somewhat chaotic activity, with all the students at once trying to be the first to get it and show the rest of the class, after which they all played it together, phrase by phrase.

It was my informal observation that certain students achieved a success during this ear-playing activity that well exceeded their successes in reading music. Of course, many students were very good at both reading music and playing by ear, but for some, this ear-to-hand task was an area of strength and thus appeared to provide a much-desired balance of challenge and skill, at least for that five minutes. I also observed that some of these same familiar songs were played later at lunch time by some of these students as part of a little jam.

Teachers of all subjects know that students learn differently, and that a variety of teaching methods, including visual and aural, written and spoken, should be a part of every lesson. As music teachers we are aware of this as well, but we still tend to focus almost exclusively on repertoire-based eye playing. Mr. J puts it bluntly "Most band classes are recipe-reading, really."

Based on what I have learned during this case study research, I have two recommendations for improving the ear-to-hand skills of student musicians. First, I would suggest that five minutes of every band class be devoted to playing familiar melodies by ear. Second, I would recommend that opportunities to refine these melodies, explore other melodies, and create new melodies and arrangements based on familiar melodies, be provided to students by making available an area in which students can jam outside of class time. This opportunity could be open to band students as well as other interested individuals,

as long as they respect the privilege, and it could include instruments not part of the standard band instrumentation. Possibly, a “showcase” featuring students playing music learned while jamming could be part of an occasional band class.

6.4.2 Suggestions For Practice: Flow Theory

When I began my main study, I expected that I would be observing instances of flow displayed by my subjects. I had not given much thought to whether I would be observing instances of flow displayed by the teacher. Despite having looked at Bakker's (2003) study on the crossover of flow between teacher and students, I had not considered the possibility that flow as experienced by the teacher could be contagious to the students, my subjects.

Mr. PJ is a professional drummer as well as a band teacher. He possesses strong music skills as well as extraordinary interpersonal skills. He also appears to be in flow throughout most of the school day. To watch him teach is to see a person immersed completely in a role, in the way that an experienced actor might be. In addition to modeling for students a complete lack of self-consciousness, a personal balance of challenge and skill, and the autotelic personality, he has an uncanny ability to transform time for himself and his students, both during and outside of class. Based on flow indicators observed in both teacher and students, I believe that there is, on a number of occasions, a transmission of flow between Mr. PJ and his students. The following vignette illustrates one of those occasions.

> *Today, a large number of students have gathered informally with the purpose of becoming more familiar with the music from West Side Story, next year's musical theater production and the subject of next week's auditions. Some of them cluster around the piano while one student with rudimentary piano skills tries to find the*

melody by ear and another student attempts the complex rhythms on the drum kit. Mr. PJ teacher enters the room, sits at the piano at the immediate invitation of those gathered there, and plays the tonic chord with a great flourish. "Everybody try the 'Jets' song," he calls, "Guys and girls, it doesn't matter." With much laughter and mock posturing, everyone does. "Now, everybody try the 'Pretty' song! Come on, guys too!" Though several males look aghast at the idea, they are soon swept away by the fun of the situation. Flow is evident as they lose self-consciousness, give each other feedback in mock roles, and move freely to the music. "Such a pretty dress, such a pretty face, such a pretty smile, such a pretty meeeee!" they all sing, and in the 2, 3, 1 between the end of the that phrase and the pickup of the chorus, Mr PJ, with comic timing, calls out "How do you feel?" "I feel pretty, oh so pretty. . . " they all sing out in reply, completely oblivious to the presence of a few on-lookers in the room.

In a reflection following this observation, I wrote:

> About half of these students are from the grade nine/ten campus; this room and many of their fellow students are unfamiliar to them. It would be ordinarily be very difficult to get students of this age to contribute in an uninhibited manner in such a situation. Flow carries them along: they lose their shyness, the feel their skills are equal to the challenge, and they want to be part of this for its own sake. They lose track of time. The teacher is in flow, and his flow is contagious.

I observed that Mr. PJ is a confident teacher, willing to risk looking undignified if it might help him get the students involved. In the above observation, he was modeling flow

for his students; in particular, he displayed loss of self consciousness. From this observation comes an implication for practice. Although it is likely that most teachers are not in flow as often as Mr PJ is, I suggest that most experience some such moments. As a suggestion for practice, I would urge teachers to have the courage to model the flow they are experiencing during those moments.

6.4.3 Suggestions For Practice: the Social Dimension

The importance of friendships within the music community, as a part of the music subculture, cannot be overstated. In my research, subjects emphasized repeatedly the friendships they developed by jamming, and the importance of these friendships to the development of a peer group.

Brandon stated it most emphatically: “Like, everyone I jam with are my everyday friends; I've met some of my best friends from jamming. For me, jam sessions are a great way to meet new musicians, a lot of people will just jam without knowing each other first, and get to know each other through jams.”

Shelby alluded to a two-tier structure: “A few of them are my really good friends, most of the time we hang out and just have a good time. If some of us don't hang out, it's understood that we're all still good acquaintances. We learn a lot from one another.”

Not every jammer is this social, as Snoop's comments showed: “I usually don't play with other people but when I do it is with good friends.”

Doris talked about the band room as a comfortable place: “It's less crowded here than in the halls, in the band room. My friends are here. We eat lunch, play the piano and other instruments.”

With regard to the comforts offered by the music subculture that meets in the band room, Mr. PJ told me on several occasions that he saw the band room as a safe place for students to be, "a place to belong, positive and non-judgmental." My observations confirmed this; one student with special needs spent much of his time there outside of class, practicing, writing music, and on more than one occasion, becoming part of the jam. However, as much as the band room was as safe a place as it could be, there were times when even that was not enough.

> *Catt, the subject most difficult subject I worked with was suspended from school today. Catt, who wanted nothing to do with my "tests and stuff" then triumphantly brought his consent form one day, desperate to be part of my research. Catt, who tested at the 47th percentile in the AMMA, left the room in huff after the TMEHC, and told me repeatedly how much he sucked at playing by ear. Catt, who turned from a non-jammer to a jammer overnight, badgering other players to show him what they were doing and let him be part of it. Now he is gone for good. Apparently, he reacted so physically and violently to a perceived disrespect from a fellow student that the other student was sent for medical treatment. Mr. PJ hoped that the band room would be a safe place for Catt; sadly, he could not spend the entire school day there.*

6.4.4 Suggestion For Practice: Inclusion

> *During my second year of teaching, the principal met me at the door one morning with a familiar message:"I've suspended three more of those jammers of yours.'*

I have always promoted jamming in my own programs because I felt strongly that the music program at a school should offer something for every student who shows interest. For

many students, concert band, choir, jazz band, and orchestra adequately fill that need. However, for the marginalized and disenfranchised student, the choices are fewer. Most districts provide an instrument to a student in the case of genuine financial hardship: such instruments are not usually in a condition that would make anyone eager to play, especially when surrounded in class by shiny new horns. As well, given the chaotic nature of some students' homes, home practice is out of the question, and often the student gets further and further behind until he quits. Furthermore, trouble reading print materials and trouble reading music seem, for whatever reason, to go hand in hand: few of these students are eager for one more failure to add to their already long list of failures.

It is in the case of students like this that jamming really shines. With a few garage sale guitars and some occasional help in learning a new chord, some of these students can experience success. For this reason alone, jamming in schools is worthwhile. At the very least, a few moments of the school day, for a few of the neediest students, may be a positive experience.

Even for students who are experiencing success in regular band classes, some needs may not always be met. Coan (2002), a proponent of critical theory in music education, addresses this issue, and asks a relevant question:

> If decreasing student numbers and interest do exist and are continuing to develop in music programs, they prompt questions for the critical theorist. There is an advocacy movement for music education, but has it been effective? Is music education, in fact, less valued in our culture that it has been? What do these trends mean when music stores in the region where I teach (St. Louis metropolitan area) have waiting lists of

> students wanting to study guitar and drums? Why do I have on average 10 to 20 non-music majors coming to me every fall semester to enroll in our music fundamentals course because they want to learn to read music? Perhaps these people are looking for a certain kind of music education that they did not receive in elementary and high school, an education that fits their personal goals for a fulfilling life that includes music as an important part. *Is "music for every student" a motto that we live up to?* (Coan, 2002, p. 95 italics mine)

I am not sure that we do. Although I would suggest that school music programs vary in the degree to which they successfully address the personal musical goals of students, I am in general agreement with Coan that decreasing enrollment and apparently declining student interest are matters for concern. I too have observed, along with Coan and Campbell (1995), the rejection of traditional band instrument instruction in favor of personal exploration on common jam session instruments such as guitar and drums. Through jamming, students are expanding their knowledge base, driven by their own interest. Through the provision of a jam-friendly environment, we can provide this opportunity for all students, not just the ones who can afford to buy equipment, take lessons, and find suitable space to pursue a music education that addresses their personal goals.

Nearly a century ago, Dewey emphasized the legitimacy of true interest in the learning process thus: "Interest is normal and reliance upon it educationally legitimate in the degree to which the activity in question involves growth or development" (Dewey, 1933, p.41). He further suggested that learning occurs best in an atmosphere of both seriousness and playfulness, an idea later embraced by Csikszentmihalyi and others as part of flow

theory. As I have shown in my research, jamming provides an additional educationally legitimate opportunity for student interest-based musical development and musical growth.

6.4.5 Suggestions For Practice: Bottom-up Implementation

My case study school is atypical in many respects, not the least of which is the physical plant and equipment for facilitating the jam session. The number of rooms separate from the main band room, and in particular the recording facilities, are most unusual. As Mr. PJ related, however, the facilities and the equipment that I saw during my research emerged and evolved over a number of years, and they continue to evolve based on student needs.

> When this school was designed and built [1997] it was conceived as a music room, not a band room. I wanted other rooms as well as the main one. I know it is smaller than the typical band room, but it offers different areas [MIDI labs and classrooms] for people to work in. In 2000, the recording studio idea was born when a parent offered to help. We started with Studio A [two rooms at the back of the main room] and then when the television production class was no longer offered, we moved into that space and it became Studio B. That was great because it was built properly for sound. Over the years we have had so many fundraisers, the Big Band Dance, and Career Prep money has helped too, and we've been able to add new stuff every year. We use Cubase Score and Cubase SL, and some day I hope to have Nuendo [a professional program for sound recording and editing] too.

I have included Mr. PJ's chronicle of jam-friendly growth here because it illustrates a form of bottom-up and emergent program growth, with all stakeholders, students, teachers, parents, and administrators, involved. The creation of an environment that encourages

jamming need not supplant existing band programs; instead, as I have shown, they can coexist and enrich one another in a number of cognitive, motivational, and social ways.

6.5 Opportunities for Further Research

My case study provides a number of possibilities for further research on the high school jam session. A case study of the jammers in additional schools would be a logical next step, and would provide an opportunity for assessment of my conclusions based on my qualitative data.

As well, a different research design, one that emphasizes certain aspects of my quantitative research, could provide additional insights into the ways jammers perceive and manipulate the elements of music.

In particular, a study involving a larger number of subjects could provide more conclusive data regarding the audiational abilities of jammers as compared to non-jammers. The *AMMA* could be used for this purpose. Alternately, the *MAP* could be used to provide data that address each aspect of audiation more specifically. This, however, would require a larger investment of subject and researcher time.

As well, an opportunity exists for further standardization of the *SOR*. It would be possible, given available technology, to produce the melody to be replicated by the subject in electronic form, in a number of different keys, ensuring continuity in what each student heard.

Finally, the *SOR* could be used as a pre and post test to obtain data on the possible treatment effect of jamming. Challenges would include the very real possibility of test effect, the challenge of identifying jammers versus non-jammers, lessening the interference caused

to test results by jamming outside a school situation, and ensuring that a sufficient period of time was allowed for the self-administered treatment.

It is my hope that this case study provides a starting point for more research into the phenomenon of jamming.

6.6 Coda

In my literature review, I suggested that jamming could be considered part of the extracurriculum of the school. Upon completing my research, I still believe that to be an appropriate designation. However, in the case of the Sullivan campus of SAHS, it would appear that jamming is, or at least is becoming, more than that. The lines between extracurricular and curricular began to blur for me, as I observed students jamming in order to compose or record assignments for their music composition and technology class, jamming on songs for next year's musical theater class, or practicing solos for concert or jazz band class. The near-constant presence of the teacher added to my feeling that jamming was at least approaching pseudo-curricular status.

It will be interesting to see what the next few years bring in terms of the curricular status of jamming at this particular school, and others as well. As the music curriculum continues to evolve, will jamming be part of what lies beyond band?

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APPENDICES

Appendix A Additional Jammer Profiles

Jammer pseudonym and subject number: Simpson #1

Instrument played, number of years: vocals, 11 years

Jam participation: very often

Jam notes: writes own songs, records frequently, often works with others

AMMA *percentile rank: 47*

TMEHC *average score: n/a*

SOR *score: n/a*

Notes re Q1: uses elements of music in her original songs, but lacks instrumental skills

Notes re Q2: autotelic, confident in the use of her voice

Other: will be attending music college next year

Jammer pseudonym and subject number: Kenneth #2

Instrument played, number of years: bassoon, 4 years

Jam participation: half the time

Jam notes: often works alone, writes and records own songs

AMMA *percentile rank: 35*

TMEHC *average score: 12*

SOR *score: 59*

Notes re Q1: uses elements of music in a very unusual way in his compositions

Notes re Q2: autotelic, time is transformed when he is playing

Other: special needs; possibly a form of autism

Jammer pseudonym and subject number: Jaytee #3

Instrument played, number of years: guitar, 1 year

Jam participation: half the time

Jam notes: generally works alone

AMMA *percentile rank: 65*

TMEHC *average score: 12*

SOR *score: 51*

Notes re Q1: very knowledgeable regards chord structure, form

Notes re Q2: self-conscious at times when playing

Other: frequent absences from school

Jammer pseudonym and subject number: Adam #4

Instrument played, number of years: bass, 3 years

Jam participation: very often

Jam notes: works as part of a duo to write, perform, and record

AMMA *percentile rank: 29*

TMEHC *average score: 19*

SOR *score: 79*

Notes re Q1: perceives and manipulates music elements with ease

Notes re Q2: autotelic, challenge balanced by skill, transformation of time, unselfconscious

Other: self-taught, learns very quickly by ear

Jammer pseudonym and subject number: Bartho #5

Instrument played, number of years: piano, 11 years

Jam participation: half the time

Jam notes: frequently works with others recording or performing

AMMA *percentile rank: 82*

TMEHC *average score: 31*

SOR *score: 79*

Notes re Q1: perceives and manipulates music elements easily

Notes re Q2: autotelic, challenge/skills balanced

Other: frequency of jamming increased throughout my research

Jammer pseudonym and subject number: Pfin #9

Instrument played, number of years: clarinet, 5 years

Jam notes: works with others, jams off site frequently

AMMA *percentile rank: 91*

TMEHC *average score: 48*

SOR *score: 92*

Notes re Q1: perceives and manipulates music elements easily

Notes re Q2: challenge/skills balanced

Other: confident and cheerful player

Jammer pseudonym and subject number: Apro #11

Instrument played, number of years: trumpet, 5 years

Jam participation: always

Jam notes: usually plays and writes alone, jams with others if invited

AMMA *percentile rank: 62*

TMEHC *average score: 56*

SOR *score: 86*

Notes re Q1: very knowledgeable in the use of music elements

Notes re Q2: autotelic, focused, concentration can be quite easily disrupted

Other: plays in cadet band and works on a wide variety of repertoire

Jammer pseudonym and subject number: Jordan #13

Instrument played, number of years: drums, 1 year

Jam participation: very often

Jam notes: jams off site frequently

AMMA *percentile rank: 20*

TMEHC *average score: n/a*

SOR *score: n/a*

Notes re Q1: uses music element of rhythm with ease

Notes re Q2: autotelic

Other: chose to transfer to this school because of the music facilities

Jammer pseudonym and subject number: Bond #15

Instrument played, number of years: bass, 3 years

Jam participation: half the time

Jam notes: writes with others

AMMA *percentile rank: 54*

TMEHC *average score: 47*

SOR *score: 89*

Notes re Q1: manipulates music elements well

Notes re Q2: challenge/skills balance

Other: quiet, confident participant

Jammer pseudonym and subject number: Catt #16

Instrument played, number of years: clarinet, 5 years

Jam participation: a little

Jam notes: wants to participate but lacks confidence and skills

AMMA *percentile rank: 47*

TMEHC *average score: 19*

SOR *score: 48*

Notes re Q1: far prefers to read notes than play them by ear

Notes re Q2: self-conscious while playing, easily loses focus

Other: removed from school for fighting before my research ended

Jammer pseudonym and subject number: Gus #17

Instrument played, number of years: drums 1 year

Jam participation: always

Jam notes: often a jam facilitator

AMMA *percentile rank: 86*

TMEHC *average score: n/a*

SOR *score: n/a*

Notes re Q1: perceives and manipulates rhythms easily

Notes re Q2: challenge/skills balance, autotelic

Other: very adverse to testing, says he has ADD

Jammer pseudonym and subject number: Hatha #20

Instrument played, number of years: piano, 11 years

Jam participation: a little

Jam notes: always works alone at school, jams using sequencing software at home

AMMA *percentile rank: 93*

TMEHC *average score: 76*

SOR *score: 97*

Notes re Q1: uses knowledge of music elements to figure out songs by ear with great ease

Notes re Q2: flow is disrupted extremely easily

Other: scarcely participates in concert band and jazz band classes; appear indifferent

Jammer pseudonym and subject number: Alexa #21

Instrument played, number of years: guitar, 5 years

Jam participation: half the time

Jam notes: is sometimes impatient with others who help her record her songs

AMMA *percentile rank: 23*

TMEHC *average score: 10*

SOR *score: 81*

Notes re Q1: uses music elements very capably in both performance and composition

Notes re Q2: autotelic, flow is evident when she is playing

Other: has her own band and performs frequently

Jammer pseudonym and subject number: Bonjovi #22

Instrument played, number of years: guitar, 2 years

Jam participation: always

Jam notes: jam facilitator

AMMA *percentile rank: 36*

TMEHC *average score: 8*

SOR *score: 48*

Notes re Q1: manipulates elements well in a wide variety of music styles

Notes re Q2: autotelic, flow is evident when playing Other: returning to school after graduation to take more music classes

Jammer pseudonym and subject number: Azalea #23

Instrument played, number of years: piano, 13 years

Jam participation: half the time

Jam notes: frequently records her own songs and plays for the recordings of others

AMMA *percentile rank: 58*

TMEHC *average score: 58*

SOR *score: 95*

Notes re Q1: very knowledgeable in use of music elements

Notes re Q2: autotelic, flow is evident when playing, challenge/skills balance

Other: has written and recorded an original album

Jammer pseudonym and subject number: Snoop #26

Instrument played, number of years: drums, 4 years

Jam participation: always

Jam notes: seldom joins a group, usually jams to the song from the other side of the room

AMMA *percentile rank: 18*

TMEHC *average score: n/a*

SOR *score: n/a*

Notes re Q1: large repertoire from which he extrapolates music elements

Notes re Q2: autotelic, embodies flow whenever he plays

Other: does not often choose to play in close proximity to others

Jammer pseudonym and subject number: Brandon #27

Instrument played, number of years: drums, 4 years

Jam participation: always

Jam notes: facilitator and capable leader of the jam

AMMA *percentile rank: 89*

TMEHC *average score: 14*

SOR *score: 65*

Notes re Q1: very skilled at manipulating the elements of music

Notes re Q2: autotelic, flow very evident when playing

Other: quit school part way through my research

Jammer pseudonym and subject number: Jim #31

Instrument played, number of years: drums, 4 years

Jam participation: half the time

Jam notes: plays along but will not draw attention to himself in any way

AMMA *percentile rank: 68*

TMEHC *average score: n/a*

SOR *score: n/a*

Notes re Q1: possesses music knowledge but very tentative about using what he knows

Notes re Q2: usually, self-consciousness impedes flow

Other: almost always works with others, seldom works alone

Jammer pseudonym and subject number: Captain #32

Instrument played, number of years: clarinet, 5 years

Jam participation: very often

Jam notes: places emphasis on getting the notes correct

AMMA *percentile rank: 84*

TMEHC *average score: 47*

SOR *score: 74*

Notes re Q1: applies music knowledge capably

Notes re Q2: challenge/skills in balance, constantly seeking new challenges

Other: quite aggressive and competitive, both in music class and in the jam

Jammer pseudonym and subject number: Parker #33

Instrument played, number of years: vocals, 3 years

Jam participation: a little

Jam notes: lacks confidence in his abilities

AMMA *percentile rank: 18*

TMEHC *average score: n/a*

SOR *score: n/a*

Notes re Q1: moderate success with the manipulation of music elements

Notes re Q2: flow is rarely achieved, often self-conscious

Other: responds well to positive feedback from others

Jammer pseudonym and subject number: Doris #36

Instrument played, number of years: guitar, 1 year

Jam participation: half the time

Jam notes: records frequently with others

AMMA *percentile rank: 12*

TMEHC *average score: 28*

SOR *score: 67*

Notes re Q1:very adept at using the elements of music to compose

Notes re Q2: flow is evident when she plays

Other: confident and bubbly, jams off site as part of a church youth group

Appendix B Letters of Information and Consent

UNIVERSITY OF BRITISH COLUMBIA
Department of CurriculumStudies
Faculty of Education
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: xxx-xxx-xxxx

Doug Pearson, Superintendent of Schools
North Okanagan-Shuswap School District #83
Box 129, Salmon Arm, B.C. V1E 4N2
Dear Mr. Pearson:

My name is Joan Southworth and I am a PhD student in the Department of Curriculum Studies, in the Faculty of Education at the University of British Columbia. I am currently on leave from the School District #83 in order to pursue case study research in music education. **I am conducting research on the high school jam session, an improvised, student directed music session, in order to examine possible musical and motivational benefits of this activity.** This dissertation project is being supervised by Dr. Scott Goble, an Assistant Professor in the Department of Curriculum Studies at UBC. The study will be conducted with approval of the UBC Behavioural Research Ethics Board; permission from this board is currently being requested.

I am seeking your written approval (and that of the School Board if so required) in order to conduct research at the Sullivan Campus of Salmon Arm Secondary. With your approval, research will begin in mid-January (with the pilot study, conducted at the Jackson Campus of Salmon Arm Secondary) and continue with the main study during the second semester, February until mid-June. My research subjects will be students who are in the band room during unstructured times of the day (noon and before and after school), participating in musical activities of their own volition.

The aim of this research is to examine student participation in the jam session from several perspectives; to deepen understanding of why students participate, how they participate, and what they may be learning musically through participation. Knowing more about the jam session, which occurs frequently and spontaneously in many band rooms as part of the informal music curriculum, has important implications for the formal music curriculum of the school.

As you are aware, I am a band teacher with over twenty years of experience in your district. I have also taught a secondary music pedagogy course at UBC. I have a longstanding working relationship with the other band teachers in the district, including Salmon Arm Secondary band teachers Brian Pratt-Johnson and Jim Johnston, whose cooperation is essential to this research.

More detailed information regarding this research is attached, including a short

statement regarding the rationale for, and educational importance of, this study. As well, I include a letter of information for the principal,staff, parents and students of the Sullivan Campus of Salmon Arm Secondary, a letter of student assent and parent/guardian consent, and detailed information regarding research instruments and methods to be employed in the study.

Case study methodology will be used for this study, with students identified in the dissertation document by first name only, or by a pseudonym upon request. If you have any questions regarding my research, please feel free to contact me at xxxxxxxxxxxxxxxxxxx

Thank you for your support of my research,
Joan Southworth

version January 19, 2007

THE UNIVERSITY OF BRITISH COLUMBIA
Department of CurriculumStudies
Faculty of Education
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: xxx xxx xxxx

Letter of Information

My name is Joan Southworth and I am a PhD student in the Department of Curriculum Studies, in the Faculty of Education at the University of British Columbia. As part of my dissertation, I am conducting research on the high school jam session, an improvised, student directed music session, in order to examine possible musical and motivational benefits of this activity. In many band rooms, students can be found during unstructured times of the day, voluntarily and spontaneously playing music, an activity sometimes known as a jam session.

The aim of this research is to examine student participation in the jam session from three perspectives; to deepen understanding of why students participate, how they participate, and what they may be learning musically through participation.

If you are a student who plays an instrument or sings in the band room in the company of other musicians, outside of class time, I invite you to be part of this study. The commitment of time on your part will be minimal. I will be observing, and occasionally recording or videotaping, the music produced in the band room at lunch hour several days a week during the second semester. In addition, I will administer to both jam session participants as well as some students in the regular music program, two short tests of fifteen minutes each that are designed to explore your ability to recall melodies and rhythms and play by ear. I am also looking for a group of students who have formed a band and would be willing to participate in interviews and journaling regarding this music activity.

Please note that your participation in all parts of this study is voluntary, and that you can discontinue your participation at any time. The results of the two short tests will be revealed only to you (upon request), and will not be identified with your name in any document. Students who consent to be interviewed will be identified only by a pseudonym of their choice. Participants will be given the opportunity to see the study when it is completed if they so wish.

Students jam in the band room on a regular basis, yet very little is known about why and how they do so. By being part of this study, you will be making a contribution to understanding and knowledge about the high school jam session. As a band teacher and a musician, I appreciate your participation in finding out more about jamming at school.

If you have any questions regarding this study and your possible participation in it, please contact me at xxxxxxxxxxxxxxx.

Joan Southworth

Version January 19, 2007

THE UNIVERSITY OF BRITISH COLUMBIA
Department of Curriculum Studies
Faculty of Education
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Letter of Student Assent and Parent/Guardian Consent

This research is being conducted by Joan Southworth, a third year PhD student at the University of British Columbia. The principal investigator supervising this thesis work is Dr. Scott Goble, an Assistant Professor in the Department of Curriculum Studies at UBC. This research examines the high school jam session from both musical and motivational perspectives.

Timelines

This research will take place from mid-January to mid-June, a duration of five months. During this time, Joan Southworth, the graduate student conducting this research, will be observing music activities in the band room (sometimes called a jam session) two or three times a week during unstructured times of day (noon and after school). Occasionally, the researcher will make audio or video recordings of this music activity.

Research Tasks

As a student involved in music activities, you may be asked to complete two short tests (approximately 15 minutes each) designed to measure your ability to recall melodies and play melodies by ear. These test results will be identified only by a code number which will be given to you. Your score will be given only to you, the student, upon request, and will not affect your music grades in any way. Your name will not appear in any document.

If you are chosen to be part of a smaller study (consisting of three to five students who have formed a band that practices at the school) you will also be asked to participate in several interviews and keep a short directed journal. Interview transcriptions or journal entries appearing in the thesis itself will be identified only by a pseudonym which you/your child will choose. No identifying data except for pseudonym will appear in any document.

Privacy of Information

Information gathered will be kept in a locked filing cabinet or password protected computer file. Please note that participation by you/your child is voluntary, and can be discontinued by you/your child at any time. Non-participation will not affect your musical activities in any way.

If you have any questions about this project now or during the course of your

involvement, please feel free to contact Joan Southworth at xxxxxxx. You may also contact the principal investigator Dr. Scott Goble at scott.goble@ubc.ca. If you have any questions about how you have been treated as a research subject, you may contact the Director of Research Services at the University of British Columbia at 604-822-8598.

Consent

If you, as a student, are willing to participate in this research project, please indicate your assent by signing in the space below. If you, as a parent/guardian are willing to allow your son/daughter to participate in this research project, please indicate your consent by signing in the space below. Thank you.

I, _____(print student name)consent to participate in the study *Beyond the Boundaries of Band, Three Perspectives on the High School Jam Session*. I have received a copy of this letter.

_____ _____

Signature Date

I, _____(print name of parent/guardian) give my consent/do not give my consent (cross out non-applicable phrase) to allow my child to to participate in the study *Beyond the Boundaries of Band, Three Perspectives on the High School Jam Session.* I have received a copy of this letter.

_____ _____

Signature Date

version date Jan. 19, 2006

Appendix C Letters/Certificates of Approval

North Okanagan - Shuswap School District #83

P.O. Box 129 - 220 Shuswap St. N.E. - Salmon Arm, B.C. V1 E 4N2 -

January 9, 2007

Ms. Joan Southworth
Department of Curriculum Studies Faculty
2125 Main Mall
Vancouver, BC V6T lZ4

Dear Joan :

I am approving your request to conduct research as outlined in your proposal. Approval is conditional to meeting the parameters and requirements of your UBC Ethics Committee (copy to be submitted) and adhering to the Protection of Privacy Act that governs the use of personal information for students and staff of School District #83 North Okanagan-Shuswap.

I wish you the best of luck in your research and the completion of your UBC Doctoral program. Upon completion of your research, I would appreciate receiving a copy of the results which could be shared with district staff and Trustees.

Yours truly,

Doug Pearson,
Superintendent of Schools
DP/

The University of *British Columbia*
Office of *Research Services*
Behavioural Research Ethics Board
Suite 102, 6190 Agronomy Road, Vancouver, B.C. V6T 1Z3
lof2

CERTIFICATE OF APPROVAL - MINIMAL RISK

PRINCIPAL INVESTIGATOR:	INSTITUTION / DEPARTMENT:	UBC BREB NUMBER:
James Scott Goble	U BC/Education/Curriculum Studies	H06-03642

INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT:

Institution	Site
UBC	Point Grey Site

Other locations where the research will be conducted:

Salmon Arm Secondary School Salmon Arm, B. C.

CO-INVESTIGA TOR(S):

Joan Southworth
Anthony Clarke
James Scott Goble
William F Pinar
Peter Gouzouasis

SPONSORING AGENCIES:

N/A

PROJECT TITLE:

Beyond the Boundaries of Band: Three Perspectives on the High School Jam Session.

CERTIFICATE EXPIRY DATE: February 5, 2008

DOCUMENTS INCLUDED IN THIS APPROVAL:	DATE APPROVED: February 5, 2007	
Document Name	Version	Date
Protocol:		
9.1 protocol	N/A	November 13, 2006
Consent Forms:		
Consent Form	Version January 19,2007	January 19, 2007
Questionnaire Questionnaire Cover Letter Tests:		

9.6 Interview script, informal tasks, directed journalling	Nov. 13, 2006	November 13, 2006
Letter of Initial Contact:		
Letter of Information	January 19,2007	January 19, 2007
Letter of Initial Contact	January 19,2007	January 19, 2007

Other Documents:

Letter of Approval, School District 83 January 9, 2007

The application for ethical review and the document(s) listed above have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects. Approval is issued on behalf of the Behavioural Research Ethics Board and signed electronically by one of the following:

Dr. Peter Suedfeld, Chair;; Dr. Jim Rupert, Associate Chair Dr. Arminee Kazanjian, Associate Chair; Dr. M. Judith Lynam, Associate Chair

Appendix D Research Timelines

Dates of School Observations/Data Gathering

Feb. 5	Jackson Campus: explanation, letter of consent distributed
Feb. 6	Sullivan Campus: explanation, letters of consent distributed
Feb. 7	Jackson/Sullivan: reminder re letters of consent
Feb. 8	Jackson/Sullivan: reminder re letters of consent
Feb. 9	Jackson: interviews
Feb 12	Jackson: *AMMA* to pilot
Feb. 13	Jackson: *TMEHC* to pilot
Feb. 14	Jackson: interviews, *TMEHC*, *SOR* to pilot
	Sullivan: picked up letters of consent
Feb. 19	Jackson: noon hour observations, interview band teacher
	Sullivan: *AMMA*
Feb. 22	Sullivan: began *TMEHC*
Feb. 23	Sullivan: continued *TMEHC*, obtained student data
Mar. 6	(all activities at Sullivan campus from this point onward)
	TMEHC, noon observations
Mar. 7	*TMEHC*, noon observations
Mar. 8	*TMEHC*, noon observations
Mar. 9	*TMEHC*, noon observations
Apr. 2	distributed journals, interviews
Apr. 3	observations
Apr. 4	observations
Apr. 19	interviews, observations
Apr. 23	observations
Apr. 24	observations
Apr. 25	observations
Apr. 26	observations
Apr. 30	observations
May 1	*SOR*, observations
May 2	*SOR*, picture taking of site

May 14	*SOR*, observations
May 15	*SOR*, observations
May 16	*SOR*, observations
May 17	post-*TMEHC*
May 23	post-*TMEHC*
May 24	post-*TMEHC*
May 29	observed and videoed a songwriting duo jamming
June 1	interviewed band teacher, first participant-observer task
June 13	flow questionnaires
June 14	flow questionnaires
June 15	flow observations
June 18	group interview, second participant-observer task
June 19	gathering of artifacts, collection of journals, last day of classes
June 20	further interviews with band teacher, data verification

Appendix E Jammer Questionnaire/ Designation

Instruments played and where ***number of years played*** ***lessons outside of school***

1.

2

3.

(Please use back of the page if you need more space)

Please circle the phrase or word that best describes your participation:

Do you do vocals? never /a little /sometimes /often /always

Can you operate the recording equipment? no /a little /some /fairly well /very competently

Do you write your own songs? never /occasionally /sometimes /often /all the time

Are you in the school music rooms outside of class time, that is, before and after school, at noon and during spare blocks? never / a little/ half the time/ very often /always

If you do go to the band room outside of class time, could you tell me your usual reasons for doing so? (ie. to practice, to write songs, to record, to jam with others, to eat lunch, to be with friends, etc)

Do you play in a group or with friends outside of the school? If so, could you tell me who and where? (ie. church group, a band in a basement/garage, a group session at a music store, a cafe gig, etc)

Do you play by ear? never / a little / sometimes / often/ all the time

If you do play by ear, could you tell me the circumstances? (ie. figure out songs that my friends are playing, figure out original songs, learn songs from my mp3 player, etc)

How good do you think you are at playing by ear? poor/ fair/ good/ very good /excellent

Appendix F: Subject Information

Roster of Subjects, Main Study: Number, Demographics, and Pseudonym

Subject #	*Subject name: (deleted as per school district request)*	*Gender*	*Grade*	*Age @ Sept.06*	*aver. letter grade*	*pseudonym*
#1		Female	12	17	B+	Simpson
#2		Male	11	17	C	Kenneth
#3		Female	11	17	B	Jaytee
#4		Male	11	16	B	Adam
#5		Female	12	17	C+	Bartho
#6		Male	11	17	A	Deebee
#7		Female	11	16	C+	Cathy
#8		Male	12	17	B-	Sven
#9		Female	11	16	A	Pfin
#10		Male	12	17	B-	Rudabeg
#11		Male	11	16	A	Apro
#12		Female	11	16	A	Kendra
#13		Male	11	16	B	Jordan
#14		Female	12	17	B+	Jinx
#15		Male	11	16	B	Bond
#16		Male	11	16	C	Catt
#17		Male	12	17	B-	Gus
#18		Female	11	16	A	Beth
#19		Male	11	17	C+	Tosh
#20		Female	12	17	B-	Hatha
#21		Female	12	17	B	Alexa
#22		Male	12	17	C	Bonjovi
#23		Female	12	17	B+	Azalea
#24		Male	12	17	A	Maynard
#25		Female	12	17	B	Froggy
#26		Male	12	18	C	Snoop

#27		Male	12	18	C-	Brandon
#28		Male	11	16	A	Ghandi
#29		Female	12	18	C+	Veronica
#30		Female	11	16	B	Midgito
#31		Male	11	16	C	Jim
#32		Male	11	16	C	Captain
#33		Male	12	17	B-	Parker
#34		Male	12	17	B	Toller
#35		Female	12	17	B+	Maryann
#36		Female	12	18	A	Doris
#37		Male	12	17	B-	Freagan
#38		Male	12	18	C-	Dwnsyde
#39.		Male	12	17	C+	Ali
#40		Male	12	17	B	Jay
#41		Male	12	17	C	Ron
#42		Male	Grad	18	Grad	Corey
#43		Male	12	17	C	Nik
#44		Male	12	17	B-	Lucas

Roster of Subjects, Pilot Study: Number, Demographics, and Pseudonym

Subject number	*Subject name: (deleted as per school district request)*	*Gender*	*Grade*	*Age*	*pseudonym*
#45		Male	10	15	Virgil
#46		Female	10	15	Alexandra
#47		Male	10	15	Dante
#48		Female	10	15	Rose
#49		Female	10	16	Bertha
#50		Female	10	16	Peanut

Jammer Designation Criteria

Subject #	*Jam frequency: self-reported*	*Jam frequency: my observations*	*Studio log: # of bookings**	*Jams outside of school? where?*
#3	very often	half the time	7	home/ friends
#23	half the time	half the time	5	no
#20	a little	a little	n/a	no
#9	a little	a little	n/a	home/ friends
#15	half the time	half the time	1	no
#36	a little	half the time	6	church/ group
#4	a little	half the time	n/a	home/ friends
#21	very often	half the time	7	country band
#22	always	always	10	garage band
#28	a little	a little	6	church/ group
#32	very often	very often	n/a	community band
#11	always	always	n/a	cadets
#5	half the time	half the time	5	church/ group
#27	very often	very often	4	no

* Music Composition students use the log book to sign out the two recording studios, for the purposes of playing, jamming, and recording. Concert Band, Jazz Band Choir and Orchestra students, who do not ordinarily do this, are shown here as n/a.

The following subjects also met the above criteria used to identify jammers. However, these subjects were not included in the matched pairs used to compare test scores of jammers and non-jammers due to an inability to play a Bb Concert scale on a melody instrument; they were not pre-and-post-tested on *TMEHC*. However, these subjects were observed, with some of these subjects given informal tasks to perform, asked to journal, and interviewed. The following table illustrates the criteria used to identify them as jammers.

Subject #	*Jam frequency: self-reported*	*Jam frequency: my observations*	*Studio log: # of bookings*	*Jams outside of school? Where?*
#1	very often	very often	6	no
#13	very often	very often	0	garage band
#17	very often	always	0	basement band
#26	very often	always	0	home/ friends
#31	very often	very often	0	no

Comparison of Demographics by Matched Pairs: Jammer/Non Jammer

Jammer subject #*	*Jammer grade/ age @ Sept. 1 2006*	*ammer gender*	*Jammer average letter grade*	*Non-jammer* subject #*	*Non-jammer grade/ age @ Sept. 1 2006*	*Non-jammer gender*	*Nonjammer average letter grade*
#3	Gr. 11/ 17	Female	B-	#7	Gr. 11/16	Female	C+
#23	Gr.12/17	Female	B+	#25	Gr. 12/17	Female	B
#20	Gr. 12/17	Female	B	#18	Gr. 11/16	Female	A
#9	Gr. 11/16	Female	B	#12	Gr. 11/16	Female	A
#15	Gr. 11/16	Male	B	#8	Gr. 12/17	Male	B+
#36	Gr.12/18	Female	A	#14	Gr. 12/17	Female	B+
#4	Gr.11/16	Male	C+	#16	Gr. 11/16	Male	C
#21	Gr. 12/17	Female	B	#35	Gr. 12/17	Female	B+
#22	Gr. 12/17	Male	C	#34	Gr. 12/17	Male	B
#28	Gr. 11/16	Male	A	#6	Gr. 11/17	Male	A
#32	Gr. 11/16	Male	C	#2	Gr. 11/16	Male	C
#11	Gr. 11/16	Male	A	#24	Gr. 12/17	Male	A
#5	Gr. 12/17	Female	C+	#29	Gr. 12/18	Female	C+

Two additional subjects met the criteria used to determine jammer/non jammer status but were not included in the matched pairs due to missing *TMEHC* scores. They were:
Jammer #27, Gr. 12, 18, Male, C-, withdrew from school before *TMEHC* posttest
Non-jammer #30, Gr. 11, 16, Female, B, left room before *TMEHC* posttest was completed

Subjects by Main Instrument

Number of Subjects	*Instrument*	*Subjects*
8	Guitar	#3, #17, #21, #22, #26, #27, #28, #42
6	Clarinet	#6, #7, #9, #16, #24, #32
5	Piano	#5, #20, #23, #36, #38
4	Drums	#13, #19, #31, #38
4	Flute	#12, #14, #29, #35
4	Rapper/ No Instrument	#39, #40, #43, #44
3	Bass	#4, #10, #41
2	Sax	#15, #25

2	Trumpet	#11, #18
2	Trombone/ Baritone	#8, #34
1	Bassoon	#2
1	Violin	#30

Subjects by Gender

Male	28
Female	16

Comparative Test Scores (*TMEHC/AMMA/SOR*) and Relevant Factors

Subject # Jammer/ Non	*TMEHC pre/ post test*	*AMMA tone/ rhythm/ total raw scores/ percentile rank*	*SOR*	*Relevant factors?*
#20/J	75/ 77	33/35/69/93	97	-11 years piano lessons -learns songs from mp3 player by ear -reports using ear skills to memorize songs
#27/J	14/*	32/33/65/89	65	-multi-instrumentalist: guitar, bass, drums -uses ear skills to write songs
#30/N	66/ 59**	30/32/63/86	92	-grade 10 Royal Conservatory violin -grade 8 Royal Conservatory piano
#23J	56/ 59	26/27/53/58	95	-13 years piano lessons -10 years vocal lessons
#11J	47/ 65	26/28/54/62	86	-uses ear skills to write music -observed playing every available moment
#9J	41/ 55	33/34/67/91	92	-9 years piano -jams outside of school as well -uses ear skills to play songs from memory
#28J	43/50	22/29/51/50		-plays in a church group and with friends -plays by ear tunes that are in his head
#15J	43/ 49	25/27/52/52	89	-plays the bagpipes as well as guitar and sax -says songs “just happen” in his head
#32J	38/ 55	31/31/62/84	74	-in musical theater -displays accurate sense of pitch while singing

#12N	30/ 51	29/31/60/80	79	-12 years piano lessons -uses “Perfection ear-training CD”
#18N	31/ 37	22/30/52/54	59	-8 years Royal Conservatory piano -jams with friends outside school -plays in a church group
#5J	28/ 34	30/31/61/82	79	-11 years piano lessons -plays in a church group twice a week
#25N	16/ 38	25/29/54/62	68	-in jazz band, loves to play jazz
#36J	20/ 35	13/18/31/4	67	-12 years piano lessons -plays in a church worship group
#24N	18/35	26/27/53/58	57	-6 years lessons on jazz guitar -plays in a jazz combo
#4J	15/ 23	23/21/44/29	79	-multi-instrumentalist: bass, guitar, piano -learns songs on mp3 player by ear
#29N	16/ 13	19/24/43/26	35	-plays violin in string orchestra
#34N	13/25	21/26/47/38	48	-considers himself a fair ear-player
#6N	10/ 25	29/29/58/74	38	-considers himself a very poor ear-player
#8N	15/ 16	25/33/58/74	23	-considers himself a poor ear-player
#35N	14/ 8	18/21/39/16	19	-considers herself a poor ear-player
#3J	9/ 15	24/31/55/65	51	-6 years piano lessons -jams with friends outside of school -writes songs by ear
#2N	9/ 14	20/26/46/35	59	-plays the bassoon and digeridoo -writes own songs
#7N	10/ 9	26/33/59/77	37	-considers herself a fair ear-player
#21J	8/ 12	12/23/35/8	81	-considers herself a very good ear player -figures out songs by ear on guitar
#14N	7/ 12	24/30/54/52	28	-considers herself a poor ear-player
#22J	6/ 10	27/20/47/38	48	-plays in a band -likes to figure out parts of songs on guitar
#16N	5/ 7	24/25/50/51	34	-wants to jam but finds it very difficult

* withdrew from school before *TMEHC* post-test; not used in matched-pair comparison
**left the room before post-test *TMEHC* complete; not used in matched-pair comparison