

Personal Statement

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Statement of Purpose

My primary objective as a teacher-researcher is to share my love of music and the study of this fascinating discipline with students, friends, and colleagues. I accomplish this goal by establishing an active, aggressive, and innovative research agenda, focusing energy on my own continual growth in the areas of teaching & learning and classroom management, and through service to the School of Music, the university, and the international community of researchers with which I am affiliated. It is also my intention to serve – through my actions, professional activities, and personal life – as a role model for my students ... as a devoted scholar, a probing researcher, a critical thinker, and a compassionate humanitarian.

In an effort to keep the present statement to a manageable length, I have divided this document into three sections: overview, research trajectory, and teaching innovations. The intent of this opening section is to provide a general overview of my professional activities. To learn more details about my specific research foci, simply turn to the “Research Trajectory” section. Likewise, specific teaching techniques that I have utilized in my music classrooms are provided in the section entitled “Teaching Innovations.”

Research

My continuing research agenda consists of a variety of investigations, merging my interests in music education, music cognition, and music technology. My earliest contributions to the field were investigations into the interaction between auditory and visual components in multimedia. Initially, my primary focus was on music in a cinematic context (e.g., the Film Music Paradigm Roger Kendall & I proposed in 1994). This fascination emerged in the mid-1980s from a small study carried out as part of my doctoral studies. In that investigation, in which I surveyed individuals immediately as they emerged from viewing a motion picture, the data collected revealed a curious phenomenon. When asked to identify whether a specific scene of the movie just seen was accompanied by music, individuals “remembered” music for climactic scenes, even when there was no music actually present. This surprising result motivated me to want to understand the relationship between sound and image, initiating a 15-year period of research investigating this topic. Over time, my series of research studies revealed that an equally affective impact can readily be discerned in both animation (Kim & Lipscomb, 2003; Lipscomb, 2005a) and video game contexts (Lipscomb & Zehnder, 2005; Zehnder, Igoe, & Lipscomb, 2003; Zehnder & Lipscomb, in press).

During my time at Northwestern University (2001-2006), my research activities included related studies, investigating such matters as accent structure alignment between the audio and visual components (Lipscomb, 2005a) and the effect of surround sound presentation upon movie viewing and music listening (Kerins & Lipscomb, 2003;

Lipscomb & Kerins, 2004). Concurrently, I study issues related to technology integration in the music classroom and, along with my colleagues, other aspects of the music learning experience (Fleming, Lipscomb, Nielsen, & Light, 2004b; Hickey & Lipscomb, in press; Hickey, Lipscomb, & Webster, 2004; Lipscomb, 2005b; Lipscomb, Hickey, Sebald, & Hodges, 2003). Detailed descriptions of the most significant of my ongoing research activities are provided in the “Research Trajectory” section of this document.

A significant amount of my research exemplifies a collaborative model, working both with colleagues from across the campus and at other institutions. This is a clear manifestation of both my academic training and past research experience. I earned my M.M. and Ph.D. in the field of “Systematic Musicology,” a pandisciplinary approach to the study of music. Within this discipline, advancement is made through a comprehensive study of music from multiple frames of reference, including theory, history, ethnomusicology, psychology, philosophy, psychoacoustics, neuroscience, artificial intelligence, the application of computer technologies, and other related fields.

Working with others who are trained in disciplines related to, yet distinct from, my own has proven to be a highly successful means of accomplishing interdisciplinary research projects and has resulted in a significant level of scholarly output. During the organization of the International Conference on Music Perception & Cognition (discussed more fully herein), I made a purposeful effort to stimulate new interdisciplinary connections and strengthen bridges already built across campus by sending official invitations to faculty members in each of the related Departments and Schools across campus (e.g., Psychology, Neuroscience, Audiology, Cognitive Science, Communication, Radio-Television-Film, and others) and to specific colleagues whom I considered most likely to benefit from attending the conference. Many individuals from these various departments attended the conference as my guests and have since communicated their appreciation as a result of the very positive experience they had.

In addition to my various research contributions, the breadth of my influence as a leader within and across these various fields is clearly evident in the national offices I currently hold within the Association for Technology in Music Instruction (currently serving my third two-year term as President), Technology Institute for Music Educators (member of the Advisory Board and Chair of the TI:ME Research Committee), the Music Educators National Conference (Chair-elect of the Perception & Cognition Special Interest Group), and the Society for Music Perception & Cognition (member of the Executive Board and Treasurer).

Grants

I have expended significant effort seeking external funding for a variety of research projects. My own aggressive effort succeeded in establishing a partnership between Northwestern University’s School of Music and Carnegie Hall’s Education Department. Funded by a \$100,000 grant from Verizon, this partnership was conceived primarily by me and Rose Piccioni of Carnegie Hall. Maud Hickey, Peter Webster, and I developed a set of curricular materials (Hickey, Lipscomb, & Webster, 2004) that were used – and will be used in the future – by teachers in the Chicago Public School system to teach

fundamental musical concepts through a process of studying, listening to, and actively creating music. The year-long partnership culminated in a performance of Dvorak's "New World" symphony (the primary piece the children studied) in May 2004, performed for one group of children by the Northwestern University Symphony Orchestra in the Pick-Staiger concert hall and for a second group the following day – interest was too high to accommodate all students with a single performance – by the Midwest Young Artist Orchestra at the Ravinia Festival. Approximately 2,500 Chicago area school children – many of whom had rarely, if ever, experienced such an event – benefited directly from this program.

I experienced a second significantly successful period of grant writing as the Northwestern University School of Music prepared, under my leadership, to host the 8th International Conference on Music Perception & Cognition (ICMPC8). In the months preceding the conference, I approached several funding organizations about the possibility of providing financial support. As a result of this effort, we received nearly \$30,000 in funding to support the conference activities, substantially enhancing the experience for all attending delegates. Organizations who contributed – a subset of those to whom applications or letters of interest were sent – include the *International Foundation for Music Research* (IFMR), the *Society for Education, Music, & Psychology Research* (SEMPRe), and the Air Force Research Laboratory's *Human Effectiveness Directorate*.

In addition to the two successful funding situations described above, I continue to work with appropriate individuals to seek funding for several future projects. Specifically, I am working with staff programmers in the Office of Academic Technologies to develop an online research development system, which would allow users from all over the world to design experiments and collect empirical data via the Internet. This project would further establish my affiliate institution as a leader within the music research community, positively impacting other fields in the social sciences as well. This research tool has both very practical empirical and educational applications. As conceived, the system would facilitate data collection for experiments (empirical) and provide an online exploratory environment for learning how to design and carry out research studies (educational). Though I assumed a role of leadership in conceiving this project, I have now recruited interested faculty and graduate students from a number of institutions, including the University of California, Los Angeles; Cambridge University (UK); Ohio State University; the University of North Carolina-Greensboro; and Florida State University to participate.

As President of the Association for Technology in Music Instruction, I am also working on a plan to make musical performances of the Western art music tradition readily available to teachers for use in educational settings. Working with representatives from the College Music Society, we plan to submit a grant proposal to NEA or NEH that will provide funds to build a database of freely available performances of musical works composed prior to the period affording copyright protection. The recordings in this database would be taken from high-quality conservatory & university ensemble performances and made available free of charge via the internet for educational use.

Teaching

Since the beginning of my university teaching experience, well over a decade ago, I have continued to integrate innovative teaching techniques, group activities, and active learning into my courses. Students in my classes quickly come to realize that learning is not a “spectator sport,” as I intentionally create a collaborative learning environment. Though students are certainly evaluated based on content knowledge, I now reduce the weighting of Final Exams and test scores that focus on the ability to memorize “facts” – usually short-term – for regurgitation. Instead, the most significant percentage of my course grades is derived from Final Projects that require students to evaluate information sources, afford them opportunities to integrate subject matter learned during the quarter, and facilitate synthesizing this recently acquired knowledge into their current level of musical understanding. In my graduate courses, many of these projects have been of such high quality that they have served as the foundation for follow-up research projects, the results of which have been presented at national or international conferences and published in peer-reviewed, scholarly journals.

My most recent teaching assignments provide a unique opportunity for me to utilize many of the interdisciplinary skills I have developed over the course of my professional career. Within the Music Education program, I serve three primary roles. First, I am responsible for introducing our Music Ed graduate students to the research process and then, for those who are interested in continuing at a more advanced level, I teach a project-focused Quantitative Research class that has been very successful at producing the impressive final projects previously described. Second, I serve as a resource to inform students, both undergraduate and graduate, about the processes involved in music cognition and specifically its relevance to music learning and enjoyment of the musical experience. Finally, using my technology expertise, I teach students how to create interactive multimedia materials and, more important, to understand how these technologies can be most effectively integrated into the music classroom in pedagogically meaningful ways.

My music technology experience is primarily related to developing interactive multimedia for use in the classroom, investigating audience cognition of the multimedia experience, and creating well-designed, user-friendly web sites for the purpose of disseminating multimedia materials via the Internet. As a result, my Music Technology classes focus on pedagogically meaningful applications of technology, fundamental issues of design, intermediate-to-advanced web site creation & maintenance, and online dissemination of multimedia.

In my “Multimedia Cognition” course, for example, I introduce students from a wide variety of discipline areas to the body of research literature relevant to the perception & cognition of the multimedia experience. This research-based approach, beginning with theoretical writings and then supplemented by the results of empirical investigations to be used as a basis for critique and comparative analysis of the various theoretical models, proves extremely successful in providing students with the understanding they need to evaluate a variety of disparate approaches to the study of these modern artforms.

Research as an Integral Component of Teaching

As a faculty member at a highly respected “Research I” institution, I consider the research process central not only to my professional development and advancement, but also to the teaching context. As a result of the research-related courses I teach, it is often difficult – and highly superficial – to separate teaching accomplishments and issues from those that might fall more typically under the “research” category. For instance, one of my peak accomplishments since 2001 has been successfully getting students from various programs, both within and external to the School of Music (e.g., Music Education, Music Technology, Radio/TV/Film, Musicology, Communication, etc.), actively involved in the research process as a means of answering questions related to their chosen field(s) of expertise. The project-based perspective that I incorporate as a primary means of assessing student performance frequently serves as the foundation for follow-up collaborative research projects. Evidence confirms that this pedagogical approach proves quite successful at extending the learning process beyond the time frame assigned for any given course.

Less than two years after my arrival at NU, under my mentorship, five Northwestern University graduate students presented results of their research at the national conference of the Society for Music Perception & Cognition (SMPC) in Las Vegas (Kerins & Lipscomb, 2003; Kim & Lipscomb, 2003; Wolek, Lipscomb, & Kendall, 2003; Zehnder, Igoe, & Lipscomb). One year later, four of my students presented their work at the International Conference on Music Perception & Cognition, hosted by Northwestern’s School of Music (Cadiz & Lipscomb, 2004; Lipscomb & Kim, 2004; Lipscomb & Kerins, 2004; Schutz & Lipscomb, 2004). It was extremely impressive to witness Northwestern University dominating the SMPC conference program in 2003 and following that appearance with such a strong presence at ICMPC.¹ Melding the teaching, learning, and research processes is a crucial connection to make for students and it is one of the things I feel I have put into practice most successfully.

Professional Development

Since the very beginning of my teaching career, I have been actively involved in faculty development opportunities. Rather than serving as remedial training, these experiences introduce me to innovative teaching techniques and, through their integration, I have been able to enhance the student learning that occurs in my classrooms. Specific examples of some of these innovations are found in the “Teaching Innovations” section of this document.

¹ Additional studies that exemplify the mentor-student arrangement described can be found in my curriculum vitae, represented in various stages of completion: published (Dorfman & Lipscomb, 2005a; Lipscomb & Zehnder, 2005), in press (Sindberg & Lipscomb, in press; Zehnder & Lipscomb, in press), and in preparation (Cadiz & Lipscomb; Lipscomb & Kerins; Lipscomb & Kim; Schutz & Lipscomb). In addition to these papers that are currently published or “in the pipeline,” this collaborative process has resulted in numerous conference presentations that can be found in published proceedings (Cadiz & Lipscomb, 2004; Lipscomb & Kerins, 2004; Lipscomb & Kim, 2004; Schutz & Lipscomb, 2004) and other presentations for which no proceedings document was published (Guthmann & Lipscomb, 2004; Kerins & Lipscomb, 2003; Kim & Lipscomb, 2003; Lipscomb & Jacoby, 2004; Wolek, Lipscomb, & Kendall, 2003; Zehnder, Igoe, & Lipscomb, 2003).

In addition to attending such development opportunities as a participant, I have led – both at NU and at UTSA – numerous workshops on the topic of “technology integration.” At NU, in collaboration with the Searle Center for Teaching Excellence and the Office of Academic Technologies, I played a primary role in the conception and design of a week-long workshop series entitled “Teaching, Learning, & Technology,” a series that was offered for a fourth time during September 2005. Based on the success of this program and the positive feedback received from past participants, planning has already begun for a series in the Fall of 2006. Every year, the evaluative comments of each attendee are carefully assessed and their responses documented in a manner that allows the use of these data to improve the program for future participants and, more generally, to determine the efficacy of such training and technology integration in the university classroom. To make these results available to a wider audience, I collaborated with members of the Searle Center staff and Academic Technologies staff to create a written research study based on these data.²

As always, teaching remains one of my primary areas of emphasis as I work continually to improve my pedagogical skills. As part of this ongoing effort, I will continue to attend faculty development workshops, to integrate technology and improve its use in my own classroom for the enhancement of student learning, and to create interactive, web-based materials that students can access anytime and anywhere.

Service

I believe that making contributions to the School of Music, to Northwestern University, and to the national & international communities are inherent aspects of my position as a faculty member. On campus, I serve and have served on a significant number of committees within the School of Music and at the university level, as represented in my curriculum vitae. Each quarter, within the School of Music, I am also responsible for advising an entire class of undergraduate Music Education majors.

For the past three years, in collaboration with colleagues from other Schools and Departments across NU, I have been actively involved in the creation of an “Animate Arts” program. Given the charge by the Dean of the School of Communications, we established this new program and created a curriculum that enables Northwestern to be one of the first universities to offer a degree program that purposefully creates a synthesis of the arts and computer science with the goal of creating artist-technologists who are well-grounded in both the humanities and computer science. I also served on doctoral exam and dissertation committees for the Department of Radio, Television, & Film (RTVF) and recently completed service as a member of a faculty search to fill a tenure-track Assistant Professor position in Media Production in RTVF. As a faculty member affiliated with the Sound Design certificate program, I also periodically review student applications. Due to the interdisciplinary aspect of my fields of expertise, I frequently provide guest lectures for courses within the School of Music as well as those in other

² An initial report of this study was presented at the conference of the American Educational Research Association (Fleming, Lipscomb, Light, & Nielsen, 2004a) and the final version of the paper was published shortly thereafter in both English and Spanish in *Estudios sobre Educación* (Studies on Education; Fleming, Lipscomb, Light, & Nielsen, 2004b).

Departments. One of my favorite service-related activities at NU results from my appointment by the Provost, since 2002, as a Faculty Fellow for the Wayne V. & Elizabeth R. Jones Fine Arts Residential College. I enjoy interacting regularly with students in these less formal contexts outside of the classroom. On numerous occasions, I have presented “fireside chats” to members of the various residence colleges and student organizations at Northwestern, including Jones, Slivka, and Phi Mu Alpha music fraternity.

In addition to the local service activities mentioned in the preceding paragraphs and my role in presenting faculty development workshops, I was elected to and currently hold the national offices mentioned previously. I also serve as an associate editor for the journal *Film Music* and as a frequent peer reviewer for this same journal, *Music Perception*, *Media Psychology*, and *Computer Music Journal*. I have also had the opportunity to serve as external reviewer for numerous tenure reviews for candidates from universities around the United States and to serve as an external consultant in the consideration of international grant applications.

Final Thoughts

Since beginning my career as a faculty member over a decade ago, as evident from my curriculum vitae and the “Research Trajectory” section of this document, I have been actively engaged in research projects investigating the fields of Music Education, Music Cognition, and Music Technology. I continue to enjoy the pedagogical processes involved in music instruction at all levels within the university community. Never content to rest on my laurels, however, I also continue to integrate new and innovative teaching techniques into my own classrooms, in an effort to improve student learning, by attending faculty development seminars and workshops. My ongoing service to the School of Music, the university, and the broader community of scholars is proceeding apace.

In conclusion, I would like to express the high level of contentment I derive from being a faculty member at a renowned institution of higher learning. The genuine sense of excitement associated with innovative research projects, the opportunity to interact with highly motivated and intelligent students, and working with colleagues for the betterment of our campus environment. These aspects of my professional activities provide me with a great sense of satisfaction. There is no doubt in my mind that I have selected the ideal career path to meet my own needs and to effectively serve those with whom I come into contact. I look forward with great anticipation to the coming decades, during which I will continue my established trajectory in the pursuit of excellence.

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Research Trajectory

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The purpose of the present section is to clearly explicate the trajectory of my research activities in the fields of Music Education and Music Technology, both significantly informed and enhanced by my expertise in the field of Music Cognition. There is ample opportunity for cross-fertilization between these two disciplines, since I use technology as a means of accomplishing educational and pedagogical objectives and I use my understanding of learning theory and developmental processes as an integral component of design, when creating interactive multimedia.

Music Education Research – Integrating technology into the music classroom

As a Music Education researcher, I investigate music learning in general, as well as the manner in which technology – effectively applied – has the potential to facilitate the process of knowledge acquisition. During the early to mid-1990s, I made numerous conference presentations related to the effect of multimedia on learning and the manner in which technology was being utilized to facilitate research. Building upon these ideas, several colleagues and I utilized a team-based approach to producing two CD-ROM companions for a music psychology textbook, an approach we then documented for use by others.

In the late 1990s, I began exploring the creation of interactive listening guides for use in the music classroom. My initial investigations were comparative evaluations of the various commercial products available at that time (e.g., *Clip Creator* and *CD TimeSketch*). Using these tools, I created a series of interactive listening guides for use in my non-major music appreciation classes. This led to a number of research papers considering the efficacy of such multimedia examples in the classroom. Due to issues related to copyright infringement, it was not appropriate to place such materials directly on the Internet. Instead, I began experimenting with course management software, such as *WebCT* and *Blackboard*. Becoming an acknowledged leader in the integration of such technologies into the university classroom, I have led faculty workshops instructing my colleagues in the use of these courseware systems. In recent years, I have paused to reflect on the degree to which technology integration is making a difference, specifically within the context of our music classrooms (Lipscomb, 2005b).

My Music Education-related research began in earnest with a study during the late 1990s that investigated the ability of fifth graders to identify the tonic pitch after listening to 20- to 30-second popular music excerpts. Several colleagues and I wanted to know whether student participation in music composition activities would have a measurable positive impact upon this ability (Hodges & Lipscomb, 2001; Lipscomb & Hodges, 2002). Initiating the *Creative Music Project (CMP)*, we designed an eight-week series of music composition lessons for fifth-grade students. The lesson plans included instruction in music fundamentals and compositional techniques, as well as the use of computer

sequencing software and a MIDI keyboard. In a later study, Maud Hickey and I used Alan Lomax' "cantometric" approach, an analytical technique developed in the field of ethnomusicology for the purpose of comparing musics from around the world, to evaluate the compositions created by these same fifth graders in an effort to determine each student's level of creativity (Hickey & Lipscomb, in press; Lipscomb, Hickey, Sebald, & Hodges, 2003).

Following the CMP experience, I became interested in the creation of curricular materials with the potential to facilitate music learning. A separate program, *LinkUp!*, was designed to benefit elementary school children in the Chicago Public Schools. I actively pursued the creation of a partnership between the School of Music's Music Education program and Carnegie Hall's Education department, earmarking a portion of a grant from Verizon to fulfill this purpose. Two Music Education colleagues and I collaboratively created curricular materials – in which creative compositional activities constituted an integral part – as a means of enhancing music learning in third- to fifth-grade music classrooms (Hickey, Lipscomb, & Webster, 2004). Over 2,500 local elementary school students participated in this highly successful program. More information about this project can be found in the "Grants" subsection of the "Overview" section of the present document.

In the area of Music Education, I have also experienced substantial success involving graduate students in the research publication process. Two such studies have recently been published in peer reviewed journals (Dorfman & Lipscomb, 2005; Sindberg & Lipscomb, in press), while two others were presented at national conferences (Guthmann & Lipscomb, 2003; Lipscomb & Jacoby, 2004). Another collaborative study is currently in preparation (Striff & Lipscomb, in preparation).

In addition to this mentor-student research approach, I have also been proactive in my efforts to make research findings and technology integration accessible to K-12 teachers who often have never had the opportunity to study research design and statistics or been able to take advantage of the opportunity to review the many different types of software potentially available for use in the classroom. In my role as Chair of the Research Committee for the *Technology Institute for Music Educators* (TI:ME), I have authored "Research Corner" articles for the *TI:ME Newsletters*. In these columns, I communicate the basic research question(s) and the manner in which researcher(s) designed a specific published study to determine an answer. I then explain the results in accessible terms, focusing specifically on the ways in which this information can be seen to suggest practical application within the music classroom. In addition, as Research Committee Chair, I have supervised the data entry process associated with the creation of a fully searchable Music Technology Research database, containing information about nearly 300 music technology research studies, including full citation information and a summary of the findings. This database is currently available to all TI:ME members on the association's web site.

In another study that merges the fields of Music Education and Music Technology, I am currently collaborating with music teachers at the local high school on a series of

experiments designed to test the efficacy of specific technologies in the music learning process. To facilitate this data collection process, I successfully applied for a grant for just over \$2,200 from the Residential College Fellow Research Assistant Program to pay for a student assistant for this study. In this investigation, my collaborators and I plan to utilize *BubbleMachine*, the interactive multimedia software described in the “Music Technology Research” section below, to teach the concept of musical form and elements of music composition to students at the high school levels. Along with data collected during a series of faculty development workshops and an exhaustive critical review of related literature, the long-term goal of this research is to author an academic monograph, addressing the efficacy of technology use in the music classroom, both K-12 and higher education. Based primarily on empirical studies, the purpose of this monograph will be to provide an assessment of the efficacy of current uses of technology and, based on these findings, to recommend “best practices” for technology integration that enhance student learning and facilitate the interactive, integrative educational process.

Music Technology Research – The multimedia experience & software development

My professional output related to Music Technology falls into two categories: published papers and the creation of interactive multimedia for use in the music classroom. For the past 15 years, my primary area of research related to the field of Music Technology has involved investigating the role of music within the multimedia context, focusing primarily on motion pictures and animation. In the late 1980s, as I completed the coursework for my doctorate, I became fascinated by the impact music seemed to exert on the audio-visual experience. My initial investigations dealt specifically with motion pictures, but in recent years my research has shown that similar impact occurs when observing the impact of music accompanying animation, video games, and other forms of multimedia. Over the first five year period, my research addressed issues related to audience awareness of music and the interaction of audio and visual components in the multimedia context. In 1994, I formulated a model (Lipscomb & Kendall, 1994) proposing the existence of two implicit processes: 1) a stylistic judgment of congruence between the audio and visual components and 2) the alignment of salient moments in the visual scene with important musical events. Every empirical investigation into film music up to that time had dealt with the former aspect. Focusing on a previously unexplored aspect of this model, I spent the following five years investigating the alignment of accent structures between the two perceptual modalities, using single object animations, more complex multiple object animations, and actual excerpts from feature films.

As a result of my research interest in audio-visual phenomena, I also investigated empirically the role of music in video games (Lipscomb & Zehnder, 2005; Zehnder & Lipscomb, in press) and the issue of sound presentation mode (2-channel stereo vs. 5.1 channel surround sound), both in cinematic and music listening contexts (Kerins & Lipscomb, 2003; Lipscomb, Kendall, Moorefield, & Tolchinsky, 2003; Lipscomb & Kerins, 2004; Lipscomb & Kerins, in preparation). This initial research revealed two new areas of investigation in which little empirical research has been completed. As a result, a series of follow-up studies have already been designed and are currently being carried out. During the past two years, I have collaborated with a colleague in the Radio,

Television, & Film department. Reflecting upon the current assumptions maintained by researchers in the field, we have suggested a need to expand the definition of what constitutes “music” within the multimedia context (Lipscomb & Tolchinsky, 2005). In addition to the presentations already made and papers published, we are currently completing two related research studies.

As an inherent part of such investigations, I continue to address issues related to music psychology and cognition. One of my earliest publications was a chapter entitled “Cognitive organization of musical sound.” This contribution was one of two chapters I contributed to the second edition of the *Handbook of Music Psychology* (Lipscomb & Hodges, 1996; Lipscomb, 1996). The primary audience for this text is music educators, both undergraduate & graduate students and practicing teachers. As a result of my approach to the field espoused therein, I was recently identified by Thomas Goolsby (2002) as one of eight featured “20th century researchers in music education.” The very impressive list of other researchers upon whom Goolsby focuses in this chapter includes Carl Seashore, James Mursell, Edwin Gordon, John Sloboda, Mary Louise Serafine, Diana Deutsch, and Jay Dowling, providing a sense of how integral the field of Music Cognition has become to Music Education. This area of research forms an undeniable foundation for musical understanding and the developmental processes involved in music learning. Also in relation to the *Handbook of Music Psychology*, I was an integral part of a three-member team that produced two CD-ROM “companions” to the text, containing interactive multimedia materials and audio-visual demonstrations to supplement many of the complex concepts introduced.

My fascination with cognitive aspects of the multimedia experience is contagious. It is with great pleasure that I have watched many students, under my guidance and supervision, select related topics to establish their own areas of research within this domain. Some of the most interesting of these studies address the following topics: audio-visual congruence (Lipscomb & Kim, 2004), the role of music in video games (Lipscomb & Zehnder (2005; Zehnder & Lipscomb, in press), the perception of timbres created using granular synthesis techniques (Wolek, Lipscomb, & Kendall, 2003), the impact of surround sound presentation (Lipscomb & Kerins, 2004), visual influence on the auditory perception of marimba performance (Schutz & Lipscomb, 2004), and perceptual mapping of timbre perception (Cadiz & Lipscomb, 2004).

In addition to the research outlined above, I concurrently produced theoretical treatises concerning the software creation process and developed my own novel software, demonstrations and interactive multimedia, selected examples of which can be found in the Electronic Dossier. During the late 1990s, I addressed issues contrasting the “programming” and “scripting” approaches to multimedia authoring, as well as the timely issue of cross-platform compatibility. During the transition to the new millennium, I began to explore Macromedia’s *Director* and *Flash* as two alternate approaches to developing music-centric interactive materials for use both in the classroom and beyond the structured educational environment. In 2004, I created an interactive multimedia interface (*BubbleMachine*) to facilitate the creation of “bubble graphs” that provide a visual analog for the formal organization of a musical composition and, once created,

afford the user point-and-click navigation to specific locations within the piece (Lipscomb & Jacoby, 2004). Currently, with the assistance of Jonathan Smith (Office of Academic Technologies), I am stretching the capabilities of Flash by utilizing advanced object-oriented programming techniques within the ActionScript 2.0 environment. Development is currently underway to update *BubbleMachine*, significantly enhancing the already intuitive, user-friendly interface and allowing easy creation of navigable listening guides for music educators at all levels. Using Flash, I also developed numerous templates that allow teachers to create interactive listening guides for compositions that fit into any of the following musical forms: sonata form, 12-bar blues, AABA, and the I-vi-IV-V progression. All of these tools and templates are currently available for free download from my web site for faculty members and music teachers around the globe.

In addition to creating these user-friendly tools for music teachers, I invest a great deal of energy into demonstrating how interactive technologies (e.g., the Internet, Dreamweaver, Director, and Flash) can be used to enhance the learning experience. I provide many demonstrations of how I use these technologies within my own classroom to university faculty (Lipscomb, 2005a; Lipscomb, 2005b). In addition, I lead workshops to teach students (current & future teachers) and colleagues how to create interactive multimedia for their own classes and how to use them most effectively. As a result of the national reputation I have earned, I was recently invited to serve as primary author for a chapter entitled "Multimedia authoring" in the *Technology guide for music educators* (Lipscomb & Walls, 2006). This chapter describes the various types of multimedia software, focusing on two or three products within each category. Included in each section is a list of practical applications for the reviewed software within the music classroom.

Other Research Areas

In addition to my primary areas of research (Music Education, Music Cognition, and Music Technology), there is another area in which I am a nationally-recognized scholar. I came to this discipline first as a performer. My own personal experience listening to music during my early years and earning a B.M. in Jazz Performance laid the groundwork for a fascination with popular music, including many of its more complex subgenres. Performing with rock bands throughout the U.S. and Canada during the period between the early 1980s and early 1990s, I settled in Los Angeles to pursue a professional performance career. Though that profession did not pan out as I hoped at the time, my love for music and my passion for coming to fully understand this highly revered cultural artifact led me to UCLA, where I continued my own learning experience. In addition to my research into multimedia and music learning, I also maintain a line of scholarship related to the study of popular music, as evident from the recent completion of the 5th edition of *Rock and roll: Its history and stylistic development* (Stuessy & Lipscomb, 2006). This text is currently one of the best-selling textbooks used to teach popular music courses at the college level and is the third edition of the text with which I have been involved.

Because of my long history with popular music and my scholarly approach to its study, I was recently invited to assist Roger Kamien in revising the three chapters covering Jazz,

Musical Theater & Film Music, and Rock for his monumental music appreciation text (Kamien, 2005). Due to the success of this initial collaboration, I accepted a second invitation and recently completed the revision of these same sections for the ninth edition of the unabridged Kamien text.

Toward the Future

As I look five to ten years into the future, I see many additional accomplishments ahead. In the field of Music Education, the next two years will be a period of significant data collection and analysis, as I go into local music classrooms to test the efficacy of technologies I have developed for the purpose of actively engaging students in the music learning process. This series of investigations will serve as the basis – along with the results of my own previous research and that found in the literature – for a scholarly monograph assessing the present level of success with technology integration in the music classroom. The primary objective of this work will be to determine to what extent, if any, the presence of technology has enhanced the music learning experience for our students. Within the disciplines of Music Education, Music Cognition, Music Technology, and the blended combination of these fields, where most of my research falls, I will continue to inspire students in their efforts to learn through research and to encourage them to carry out their own investigations, put the results into written form, and submit the completed projects for presentation at national and international conferences and/or publication in scholarly journals.

In relation to my Music Technology research, the coming year will provide an opportunity to bring closure to my decade of research investigating audio-visual accent structure alignment and to publish the results of my more recent surround sound experiments. In addition, I will continue to further develop and clarify my proposed redefinition of what constitutes “music” within the multimedia context and to apply this theory to the analytical process when considering motion pictures, animations, gallery installations, and other instances of multimedia.

Finally, I will continue my efforts to procure funding for some of the larger projects with which I am currently involved. My past efforts have proven successful in gaining such funding and, given the large community of music researchers and teachers who stand to benefit from the envisioned projects, I am confident that this task too will be accomplished. Two of the primary potential candidates for such funding are the online experiment development system and the creation of a library of freely available recordings, both mentioned in the “Grants” section of the present document. I look forward with great anticipation to the future, continuing my aggressive research agenda and bringing significant visibility to my affiliate institution.

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Teaching Innovations

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As a teacher, I model for my students on a daily basis “best practices” in pedagogy. In a continuing effort to enhance my own teaching ability and facilitate student learning, I have consistently integrated new and innovative teaching techniques derived from the related research literature and acquired directly by attending a variety of workshops and training sessions. During my tenure at UTSA, I had the opportunity to serve in an administrative capacity as Interim Director of the Teaching & Learning Center, the office on campus responsible for organizing faculty development opportunities. As a result of these experiences and my level of technology expertise, I have been asked to present numerous faculty development workshops on topics ranging from collaborative learning to the use of weblogs (“blogs”) to achieve desired learning outcomes to technology integration.

Group Learning & Active Learning

Like many, I began my teaching career by emulating my own past instructors ... primarily, in lecture format. Though lecture remains the most common form of information transfer in college classrooms, this information transfer process does not ensure active participation, interpretation, and/or application of knowledge obtained by students. As a result of numerous workshops attended, I have integrated active learning and collaborative learning (i.e., group work) into my classes. This has resulted in a paradigm shift on my part ... from the professor as the resident expert who *imparts* knowledge to the fertile minds of students toward the concept of one who assists students in the process of *collaborative discovery*. As a clear indicator of this intent, I include the following quote from Plutarch (Greek biographer and essayist, c. 46-120) in the header for every page of the syllabus for each of my classes: “The mind is a fire to be kindled, not a vessel to be filled.”

In this revised role, I consider my primary function to be one of providing students with in-class activities that require them to apply relevant knowledge gained outside of class (from assigned reading material and/or other sources and information discovered through their own individual effort) to novel contexts. When clarification is needed, they enter into discussion with other members of their assigned group and/or the professor. In this way, I believe that I have been able to successfully communicate the relevance of the course objectives and learning outcomes of my classes to life outside of the classroom ... accomplishing goals well beyond those immediate concerns often expressed by students: “How can I make an ‘A’ in this class?” “Will this be on the test?” etc.

Readiness Assessment Tests (RATs)

In recent years, I have begun testing students on reading material *prior to* my coverage and/or clarification of these topics in class. This goal is effectively accomplished using a 3-step procedure:

1. individual test: each student takes the exam individually
2. group test: once all individuals have completed the exam, the *same* exam is retaken collectively by students in their assigned groups, allowing students to learn from one another; this step has two primary advantages
 - a. information not retained by one student is often recalled by another member of the group
 - i. topics not yet understood upon completion of the group test provide a focus for directed in-class activities
 - b. this collaborative process places students in a situation where they are required to discuss course content – using an appropriate (and often newly-acquired) musical vocabulary – with other members of their group, preparing them for the full class discussion that will eventually follow
3. appeals process: student groups are given a chance to submit a written appeal, if they can support the response given on their exam, though it does not match the response conceived as “correct” by the instructor
 - a. appeals must carefully document the reason the answer was selected, including reference to the reading material or other materials found as part of the students’ own individual research
 - b. there are times when I intentionally include a question to which the answer is not simply “black & white,” for the purpose of stimulating such debate and discussion

Because students are tested on this material prior to my in-class elaboration, the scores on the individual RATs are frequently lower than the grades many students are used to making. As a result, though the scores on these tests *do* count in the calculation of the final course grade, the total percentage accounted for by the individual RAT is relatively low. However, students learn quickly that scores on the group RATs are always significantly higher than the individual RAT scores ... an important life lesson within a world in which collaborative projects often constitute a significant portion of one’s professional responsibilities and the ability to work effectively with others is often a much sought after qualification.

Classroom Assessment Techniques (CATs)

During my early years as a faculty member, I lectured students and assessed their level of knowledge solely on the basis of a midterm and final exam. It is perhaps too obvious to state that by the time of the midterm—and certainly by the time of the final exam—it is too late to discover that students in the classroom may not have been absorbing the important information that the instructor believes to have been clearly and concisely presented since the beginning of the course. To better assess knowledge acquisition in my classes, I have begun using a series of methods that are often referred to under the rubric “Classroom Assessment Techniques” (CATs). I have discovered that the information provided by such formative evaluation is well worth the class time that must be devoted.

I have used several types of CATs in my class ... two favorites are listed below with a brief description:

- the “one-minute paper”—reserve a couple of minutes at the end of each class period to ask students to write down the one or two most important topics covered that day and a brief explanation—in their own words—of the concept(s)
- “clear & muddy”—at the end of class, take a couple of minutes and ask each student to write down the one course-related concept that is especially clear after the day’s activities and the one course-related concept that remains most unclear
 - I have combined this into a group activity at times by allowing five-minutes at the end of class, so that each individual can share their clear & muddy items with their group, discuss these items (some of which will be clarified on the spot by other group members), and come up with one “clear” and one “muddy” item for the group which I then collect as the students leave class
 - this allows me to assess very quickly—even in a large class—what concepts are getting across to students and which require further elaboration

Technology is Ubiquitous and a Required Component in Every Course I Teach

For the past five to six years, a laptop computer has become a ubiquitous fixture in my music classrooms. So fervent is my belief in the power of technology (used appropriately) and so high is the probability that students will be faced with technology challenges in their future career (whatever it may be) that I have integrated a *required* technology component into every one of my courses. As the instructor, I frequently use technology in my presentations and for demonstrating advanced concepts for my students. Students are also required to use technology, as can be seen from the selected examples below.

Selected examples of technology I use daily in my classroom:

- a laptop computer connected to data projector & sound system
- an *iPod* attached to my computer, allowing nearly instantaneous access to any of approximately 10,000 musical examples
- Internet access brings the world into our classroom; though I often have my demos & other examples stored on my computer hard drive, having access to the World Wide Web is at times extremely helpful
- streaming media – a significant number of supplemental materials (audio, animations, etc.) is available online for courses like my Rock History class, allowing students with appropriate password clearance to access these materials 24 hours a day, seven days a week

Students are required to:

- utilize the *Blackboard* course management system for communication purposes, acquisition of course-related documents, submitting assignments, and accessing other materials via the Internet
- all final group presentations require an electronic presentation component (*PowerPoint*, *Keynote*, or another presentation software format)
- many capabilities of *Blackboard* are used to extend the environment for learning well beyond the classroom

- *Discussion Board* – used for virtual, asynchronous discussions on a variety of assigned topics and to afford free exchange of ideas between students
- electronic submission of assignments
 - all students are aware that they can view the work submitted by other students and that their own work is similarly accessible to other students; interestingly, this submission procedure has resulted in a significant improvement in the quality of work submitted, since students realize that their peers – not just the professor – will be able to read what they have written

Discovering ways in which the learning environment can be made more engaging and affording students the opportunity to play an active role in the discovery of new knowledge remains one of my central pedagogical foci. Integrating technology in ways that facilitate or enhance this process is one of the ways in which I continue to explore the various bridges between Music Education, Music Cognition, and Music Technology.