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An on-line digital video library of piano teaching: A case study with five teachers

Julia Brook

**Thesis submitted to the Faculty of Graduate and Postdoctoral Studies in partial
fulfillment of the requirements for the M.A. degree in Music**

**Department of Music
Faculty of Arts
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Abstract

Professional development is an integral part of one's career, providing opportunities for growth, reflection, and improving practices. In the field of piano pedagogy, most teachers work independently, often providing instruction from their home, therefore finding appropriate professional development opportunities may be limited by proximity (both in terms of time and physical distance) as well as financial constraints. To meet this need, an on-line digital video library of piano teaching (DVL) was developed and a multiple-case-study methodology was employed to examine the experiences of five piano teachers as they interacted with this tool for four weeks. Findings from this study indicated that viewing the DVL was a beneficial professional development activity, which facilitated teacher learning that could be immediately carried over into their teaching situation resulting in increased student success.

Keywords: professional development, piano pedagogy, digital video library, asynchronous distance education

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Introduction

Unlike other fields where the nature of education is structured and systematic, teaching piano relies mainly on the intuition and experience of the piano educator. Furthermore, piano teaching is an unregulated field which means that there are no set criteria needed in order to call oneself a piano teacher. For example, “[i]f several busy, successful teachers in the same area were interviewed, it would certainly develop that all had vastly different backgrounds. One teacher may have been trained privately; another partly privately but including courses at a conservatory; another may have a diploma from a first rate music school plus advanced private study; and another may have earned a bachelor’s and a master’s degree in music” (Skaggs, 2004, p. 453). Therefore, it is reasonable to assume that if a piano teacher decides to engage in a training activity, this activity could serve as either a preservice educational activity or a professional development activity. In other words, in the field of piano pedagogy, teacher training programs can serve two different populations: individuals who are pursuing a piano teaching career as well as those wishing to enhance their present teaching skills. However, as active members of a private sector—an unregulated field where both the curriculum and setting are ultimately determined by the teacher—piano teachers largely oversee their own training, seeking appropriate professional development as they see fit. Consequently, certification in any method does not necessarily provide standardization for its members.

As exemplified by Skaggs (2004), many piano teachers’ primary education is based on their own experiences as a piano student. However, there are also other resources that can be used to assist with pedagogical development. For example, piano

teachers can rely on teaching materials from various organizations (ex. Music Teachers National Association, Canadian Federation of Music Teachers Associations, Suzuki Association of the Americas). In addition, several method and repertoire books often have teacher's handbooks which the teacher may use for professional development purposes (ex. Barden, Kowalchyk, and Lancaster; Bastien, Bastien, and Bastien, 1994; Clark, Goss, and Holland, 2000). Some well-known piano pedagogues have also published books related to the piano teaching profession (ex. Skaggs, 2004; Uszler, Stewart and McBride, 2000), and some universities and conservatories offer specific piano pedagogy courses, where various topics surrounding the teaching process are addressed (Skaggs, 2004).

Studies examining the effectiveness of teacher training materials have been scarce in the field of piano pedagogy. However, research within the field of education has advocated for studies that examine the effectiveness of professional development programs and its consequential impact for both teachers and students (ex. Guskey, 2000; Sparks and Hirsch, 2000). Furthermore, some have suggested that professional development may make a significant impact if it occurs in such a manner that facilitates immediate application to students (ex. Hodges, 1996; Donovan, Sousa and Walberg, 1987). Moreover, they have posited that technology could be an important resource to support the creation of professional development programs that allow for the immediate application into the teaching environment (ex. Ganser, 2000). Based on this premise further research is needed to explore these recommendations within the context of piano pedagogy.

Consequently, this study employs a multiple-case study methodology (Yin 2003) to examine the experiences of piano teachers as they engage in a professional development activity, namely, viewing a digital video library of piano teaching that was available via the Internet. The scope of this research encompasses the experiences of five piano teachers trained in the Suzuki method. Their respective Suzuki certification notwithstanding, each teacher brings to the present study a distinct professional development portfolio, arguably shaping his or her teaching practices. To bring out these variations, observation logs were used to capture the individual interactions with the professional development tool. Furthermore, questionnaires and participant logbooks were used to bring to light the personal experiences of the participants, and an evaluation framework presented by Guskey (2000) was used to examine the learning that resulted from this experience.

This study is divided into five chapters. Chapter one provides a review of literature, specifically exploring teacher training programs, the evaluation of professional development programs and the use of distance education to support professional development. The second chapter outlines the questions guiding this study and profiles a digital video library (DVL) that has been developed to support the professional development of piano teachers. The third chapter presents a multiple-case study methodology (Yin, 2003), which was employed for this study, as well as presents the professional development evaluation framework put forth by Guskey (2000). Data collection tools and data analysis techniques used for this study are also described. The fourth chapter provides the results and analysis of the study, where each participant's profile, use of the DVL and resultant professional development are presented. In addition,

a cross-case synthesis is conducted to bring forth similarities and differences in the findings. Finally, the fifth chapter contains a discussion of the findings and conclusions.

Chapter One

Review of Literature

This chapter provides the review of literature on professional development, teacher training programs and a description of the Suzuki method. Additionally, it explores literature related to the content and context of professional development, as well as research studies that examine distance education.

1.1 Professional Development

Professional development has been used to describe many aspects of teacher learning. For example, Hookey (2002) suggested that “professional development is the change in a teacher’s knowledge base and actions” (p. 888). She further noted that professional development can also include the process of professional growth, the set of activities used to promote this growth, a lifelong project, as well as a framework for professional change. The variable use of the term professional development is exemplified in the myriad of definitions used in the literature. For example, Guskey (2000) defined professional development as the processes and activities designed to enhance the professional skills, knowledge and attitudes of educators so that they might improve student learning. Additionally, Bridges (2001) noted that professional development is the term used to describe the continuing education of teachers, administrators and other members of a school staff. Richardson and Placier (in Wilcox and Uptis, 2002) refer to professional development as the implementation of something new and different as well as the act of self-study. Furthermore, Fullan (1991) suggested that professional development is “the sum total of formal and informal learning experiences throughout one’s career from preservice teacher education to retirement” (p.

326). It seems that by and large professional development refers to the process of teacher growth over the course of one's career, encompassing the activity and/or the consequential learning.

1.1.1 Teacher Training Programs

As indicated in the Introduction, piano teachers are often trained through an apprenticeship process, learning through their own experiences as a pianist. These pianistic skills often accumulate from the years of private instruction focusing on a specific instrument (Kennell, 1989). For example, in Canada many students study under a conservatory system that provides a graded curriculum for students to progress which culminates with an associate or licentiate diploma (Babin, 2005). From this performance experience, those who are interested could begin teaching piano, without necessarily taking a course or receiving instruction in piano teaching. For example, Lopinski (2005) described her first teaching experience:

My earliest experience with teaching was in direct response to my younger brother's loss of interest in piano lessons with his "real" teacher. As an inspired twelve-year old working on Grade Nine piano, I began to coach him in between lessons. Over time, these impromptu sessions developed into something resembling lessons, and eventually my parents suggested that we formalize the arrangement. And so my teaching career began!

Like many other beginning teachers, my approach was based on a healthy blend of enthusiasm, instinct, intuition, and of course imitation. My concept of teaching piano was closely modeled on the teaching style I

had observed and experienced in my own musical studies- an approach not without merit- but the element of “trial and error” was certainly a factor! As “word-of-mouth” spread through the neighborhood, my class began to grow and before long my parents’ living room was transformed into my first studio (p.1).

From this account it seems that many piano teachers may begin their teaching careers relying on their own performance experiences, and learning through trial and error. Although this is valuable, relying on one’s own experiences may not easily facilitate the development of strategies for a diversity of learners.

Some piano pedagogy courses are offered as part of a music degree. Throughout North America, many universities offer music programs where students can complete a degree in music that focuses on performance studies, general musicianship, general education and in some cases, pedagogy courses (Skaggs, 2004). Of the piano pedagogy courses that exist, content is often based on curriculum, learning strategies, and learning theories (Schon, 2005). Additionally, certain conservatory systems provide pedagogy courses as part of their program. For example, the Royal Conservatory of Music offers three pedagogy exams that one can study at their home. The examination surrounds the candidate’s knowledge of choosing repertoire, and communicating salient aspects of technique and expressive ideas. In addition, candidates are also expected to complete a performance co-requisite (Royal Conservatory of Music, 2005).

Materials recommended for these exams are existing materials by well-known pedagogues and performers. While these resources are incorporated in this exam system, it is important to note that they are widely available to all. Specifically, this literature

explores elements of performing and/or teaching of the piano. Such topics include examining various physical gestures of playing (ex. Bernstein, 1991; Fink, 1992; Leimer and Giesecking, 1972; Whiteside, 1961), pedaling (ex. Schnabel, 1954), and interpretation (ex. Taylor, 1981). In addition, several books address the performance of specific repertoire (ex. Bach, 1753/1949; Ferguson, 1975; Rosenblum, 1978). Furthermore, several noted piano pedagogues have published literature related to the teaching of the piano (ex. Bastien and Nagode, 1988; Bigler and Lloyd-Watts, 1998; Powell, 1988; Skaggs, 2004; Uszler, Stewart and McBride, 2000). Many piano method books provide a series of repertoire for students which are intended to introduce various playing techniques and notation associated with piano playing. These method books often contain information and explanations for teachers, and in some cases, teacher handbooks are also available to provide added pedagogical support (ex. Barden, Kowalchyk, and Lancaster, 1999; Bastien, Bastien, and Bastien, 1994; Clark, Goss, and Holland, 2000).

In both Canada and the United States of America, organizations have been established to support the professionalism of music teachers. For example, the Music Teachers National Association (MTNA) is an American-based group whose mission is to “advance the value of music study and music making to society and to support the professionalism of music teachers” (Music Teachers National Association, 2007). This organization has a system of accreditation that teachers can choose to partake. In addition, this organization publishes a magazine (*American Music Teacher*), and hosts an annual conference. Its website also contains information to support music teachers, and it organizes competitions for its members’ students. Similarly, the Canadian Federation of Music Teachers Associations (CFMTA) supports the professional development of music

teachers by organizing an annual national convention and many high quality workshops, and publishing a comprehensive journal which is circulated three times a year. In addition, CFMTA also organizes competitions for its members' students (Canadian Federation of Music Teachers Associations, 2007). Both the MTNA and CFMTA offer membership; however, access to some of its resources (ex. journals, attending workshops) does not require membership.

The aforementioned organizations provide support for teachers, however, they do not advocate for the use of a specific methodology. Some music organizations do present professional growth opportunities within a specific methodology. One such organization is the Suzuki Association of the Americas (SAA), which offers professional growth opportunities for teachers who are interested in supporting the "spread of Dr. Suzuki's Talent Education" (Suzuki Association of the Americas, 2007). The Suzuki Association requires that educators interested in teaching this method receive training (Suzuki Association of the Americas, 2007). Each repertoire book has a corresponding teacher training course; which can occur in short-term, long-term courses or through individual instruction. These teacher training programs consist of performing repertoire within the specific volume, discussion of various pedagogical aspects, and observation of lessons and/or master classes (Powell, 2004). Participation in such a course requires a performance audition and membership with the Suzuki Association (Suzuki Association of the Americas, 2007). As a member of the Suzuki Association of the Americas, one receives a subscription to their journal, *The American Suzuki Journal*, which features articles related to teaching the Suzuki method. In addition, the Suzuki Association of

America hosts an annual conference which members may attend (Suzuki Association of the Americas, 2007).

In summary, several resources are available to support piano teachers. Although, for some, their initial pedagogical education stems from their own experiences as pianists and piano students; several other opportunities are available to enhance this training, such as university courses, and literature related to the piano playing and teaching.

Additionally, some organizations offer programs that support teacher training by providing resources that teachers may study in their home, as well as by facilitating various short-term courses. It should also be noted that incidental or informal professional development activities may also arise, such as having conversations with colleagues, or observing colleagues, or continuing with one's own development as a pianist. Despite the breadth of resources, very little investigation has surrounded the training of piano teachers, either examining the contents of the program or the context in which the training takes place (ex. at home or at a conference). In other words, few research studies have examined whether the ideas presented are effective or pertinent to the teachers or how the setting of the training program facilitates teacher learning. However, some research within the broader context of education and music education has examined teacher training programs within these confines, and these studies will be explored in the subsequent section.

1.2 Research into the Content and Context of Professional Development

Professional development is a key factor in improving teachers' knowledge and skills. It allows teachers the opportunity to be exposed to various ideas and concepts related to the teaching and learning process. Without it, many teachers may naturally

gravitate to the familiar methods they remember from their own years as students (Sparks and Hirsch, 2000). Sparks and Hirsch (2000) provided a critical analysis of the professional development situation for teachers in American public school. They acknowledged the importance of professional development for teachers to promote increased content knowledge, and expand instructional skills that will assist them in teaching many diverse learners. They also emphasized the importance of professional development in the learning process, as students with better teachers learn more. However, they felt that many school systems provide insufficient professional development resources, and that many professional development programs were inadequate. Consequently, Sparks and Hirsch (2000) asserted that the most effective way of improving the achievement of students is to improve the quality of teaching.

When examining the content of professional development, viewing various teaching situations has often been employed with positive results. For example, Birman, Desimone, Porter, and Garet (2000) conducted a national study in the United States and found that teachers whose professional development included active learning (ex. observing teaching, teaching, planning, etc.) led to increased knowledge and skill as well as changed classroom practice. Similarly, Schon (2005) examined the perceptions of piano teachers about their university teacher training experiences and determined that respondents listed observing teaching along with practice teaching as their most valuable educational activities.

While the observation of other teachers often occurs in a face-to-face situation, video and multimedia footage of teaching situations have been increasingly used to serve as a professional development activity (Wilcox and Upitis, 2002). Tomlinson (1999)

suggested that viewing footage of expert teachers can help preservice teachers reflect in many ways. For example, it allows one to view the master teacher's thinking or examine the educational background of the featured students. As well, the footage presents opportunities for the viewer to study the solutions presented for comparison to their own teaching situation. It therefore seems that the observation of other teachers is an enjoyable and valuable experience for teachers. Providing them with the opportunity to engage in active learning can facilitate the transmission of teaching skills.

Another important idea the literature promotes is the facilitation of a direct link between learning and applying new skills. Ganser (2000) asserted that the context (ex. organization, system, and culture) of professional development activity could be paramount in determining its success. He also advocated that professional development should be accessible to all educational stakeholders, and that it should be experiential in nature, which may include activities such as teaching, assessment, observation and/or reflection. Similarly, Hodges (1996) noted that teachers may not readily translate research into practice unless they immediately apply what they have learned in the professional development session. Donovan, Sousa and Walberg (1987) determined that two elements of good professional development implementation programs included having teachers observe modeling of demonstrations of effective practice followed by allowing them opportunities to practice what they have seen in their observation and Ganser (2000) noted that "at its best professional development is integrated into the fabric of school" (p.8). It seems that effective professional development needs to contain several features; however, most notably it needs to be pertinent to the instructors' teaching situation, and allow them to readily apply new concepts.

Killion (2000) suggested that technology may revolutionize the way that teachers earn recertification or relicensure credits, obtain advance degrees or keep abreast of new developments in teaching and content areas as well as network with their peers. Given this new potential, Killion (2000) expanded on the benefits and drawback of this medium, with the benefits including flexibility, increased access for teachers, and decreased cost for participants. She also noted that drawbacks included the cost to develop such programs, the need for participants to have appropriate computer skills, and other potential hidden costs for both the learners and the producers. It seems that it is important for teachers to be able to apply new knowledge soon after its ascertainment. One way to facilitate this is to ascertain the resources available through distance education. Given the fact that many piano teachers work independently, distance education technology can facilitate the dissemination of professional development ideas to educators in their homes. Consequently, the following section will explore the field of distance education and how it has supported teacher education and, specifically, music education.

1.3 Distance Education

The following section explores the field of distance education through the presentation of salient definitions, programs, and tools that are used in this area.

1.3.1 Definitions of Distance Education

Over the past two decades, many different definitions of distance education have been proposed by researchers in this particular field. Perraton (1988) suggested that distance education is “an educational process in which a significant proportion of the teaching is conducted by someone removed in space and/or time from the learner” (p. 34) and more recently, Ruippo (2003) defined distance education as planned learning that

normally occurs in a different place from teaching and as a result requires specialized course design, instructional techniques, methods of communications (ex. electronic), as well as specialized organizational and administrative arrangements. Similarly, Keegan (1983) provided an in-depth definition, identifying six components:

(1) the separation of teacher and learner which distinguishes it from face-to-face lecturing; (2) the influence of an educational organization which distinguishes it from private study; (3) the use of technical media, usually print, to unite teacher and learner and carry the education content; (4) the provision of two-way communication so that the students may benefit from or even initiate dialogue; (5) the possibility of occasional meetings for both didactic and socialization purposes; (6) the participation in an industrialized form of education which, if accepted, contains the genus of radical separation of distance education from other forms. (p. 30)

This definition defines distance education in terms of the proximity between the teacher and student(s), and emphasizes the role of technology in facilitating communication and knowledge transmission.

Similarly, Muirhead (2005) suggested that distance education exhibited five characteristics:

(1) it requires the development and distribution of educational materials to structure learning activities to assist learners to acquire new knowledge; (2) it takes place where students and instructors do not share physical space; (3) interaction is not contiguous; (4) it takes place without the instructor being physically present; (5) it involves an institutional structure and specialized knowledge. (p. 244)

This definition also highlights the use of technology in supporting learning when the teacher and student are physically separated. However, given the fact that in most face-to-face instruction there is often a separation between learner and teacher, as the learner often engages in activities outside of classes, therefore, many aspects of traditional face-to-face instruction could be considered to have components of distance education. To this end, Moore (1993) defined distance education in terms of its psychological distance rather than its physical distance using the term Transactional Distance Education to describe a distance of understanding and perceptions that may lead to a communication gap or psychological distance between participants in the teaching-learning situation. He suggested that distance could be measured in terms of dialogue, course structure and learner autonomy, despite the physical proximity between teacher and learner, and that communication tools could help alleviate Transactional distance.

A synthesis of these definitions seems to suggest that most salient features of distance education include: (1) the separation of teacher and learner in space and/or time and (2) the use of some type of technology to assist in communication and/or transmission of materials. Therefore, for the purposes of this thesis, distance education will be defined as learning opportunities that occur when there is a distance between teacher and learner in time and/or space and where technology is incorporated.

1.3.2 Types of Distance Education

With the growth and variety of delivery, distinction between paradigms of distance education are made based on the type of separation between teacher and learner as well as the method in which materials are transmitted. Consequently, distance

education is often divided into three areas: synchronous, asynchronous, and blended learning. Synchronous distance education occurs when the teacher and learner are interacting in real time, which can include videoconferencing and teleconferencing, as well as webcasts or interactive television (ICTV). Asynchronous distance education refers to instruction in which the instructor and learner are not interacting in real time. In asynchronous distance education, instruction is delivered via on-line and/or multimedia tools that may include recordings of instruction, reading messages posted through the internet (ex. e-mail, message boards), multimedia tutorial, or through printed materials. Blended learning situations are created through the use of both synchronous and asynchronous materials or through the combination of face-to-face instruction with distance education resources. For example, instruction can take place through videoconferencing, and could also have a message board where students are required to read the messages posted by other students, as well as reading printed journal articles. Similarly, instruction could also occur in a face-to-face situation, where the use of message boards or on-line tools is also part of the course materials. In a survey of American and Canadian university professors, many stated that they relied on resources including: on-line course-specific learning objects, on-line group work and discussion, as well as database journals (McGraw-Hill Ryerson Limited, 2003). It seems that some of the tools incorporated into distance education are pertinent to learning in all situations to facilitate communication and/or knowledge transmission.

1.3.3 Tools Used in Distance Education

The autonomous aspect of distance learning can be its greatest asset as well as one of its greatest weaknesses (ex. sense of isolation, lack of sense of belonging).

Consequently, many programs have made great strides taking advantage of various technological tools (ex. e-mail, message boards, NetMeeting) to facilitate communication among students to develop the opportunity for students to build friendships and a sense of community. Several studies have documented the use of these tools for communication (ex. Schlagel, Trathen and Blanton, 1996; Adams and Freeman, 2000) and have concluded that they can effectively help to create strong ties between participants in an attempt to establish an appropriate learning environment. Additionally, Donner and Ruippo (nd) described collaboration software, such as Microsoft NetMeeting (NM), that has been incorporated into music videoconferencing to allow for a chat feature which they find beneficial for trouble shooting and comments during lessons. The software also had a whiteboard feature which allows for the distribution of notation, diagrams and text content. Donner and Ruippo also acknowledged the use of MIDI files in music videoconferencing as well as phones, e-mail, music and sound examples on CD-R which are delivered via the Internet prior to the course. In a different study, Nykänen and Alaranta (1998) advocated for learning environments that provide students with tools and methods for motivation and effective self-study. Based on this idea they describe a design for hypermedia-based learning in university math. This software presented each topic in cells, which allowed for easy access to information. There were several tools such as user specific document instances, hypermedia “textbooks”, visual and non-linear navigation tools, and intelligent navigation aids and search mechanisms that allowed users to easily access information. Additionally, there was a discussion forum with workspace and collaborative tools. Teachers had the ability to follow progress of students, answer questions, and participate in discussions. This program also allowed researchers to collect

statistics of the paths taken, and examine the frequency that various features were accessed.

One type of asynchronous tool that has been extensively used is the digital library. A digital library is “a managed collection of information, with associated services, where the information is stored in the digital formats and accessible over a network” (Arms, 2000, p. 2). Information in a digital library can be print, audio or video and many digital libraries contain well-defined objects for specialized topics, similar to a special collections section of a traditional library (Wolfram and Xie, 2002). Development of digital libraries has increased significantly since their inceptions in the 1990s (Jeng, 2006) and have often been incorporated as tools in educational courses (ex. Hansen, 2006; Koohang and Ondracek, 2005). It seems that having the opportunity to view organized collections of specialized material via a network can make great contributions in providing access to information, as it may facilitate learner autonomy. Additionally, since it can effectively store and transmit print, audio or video information, this tool can be beneficial in the field of music, as it can relay performance in both audio and/or video.

Distance education seems to be a multi-faceted system that includes a variety of learning situations that can occur at any time and/or place and which could be beneficial for many. This variety in proximity (both in time and/or space), therefore, allows people to engage in activities despite their distance from the instructor. When considered within the context of the definitions of distance education (ex. Perraton, 1988; Holmberg 1988), the above mentioned literature exemplifies the components needed. It therefore seems that distance education has the potential to offer programs in a variety of subject areas that due to transmission limitations may not have been readily available in the past. One

example of this is the field of music, where knowledge transmission was often limited to paper-based information, which made it difficult to provide applied instruction. However, the development of new technologies that were able to transmit audio and video information has facilitated the development of distance music programs.

1.4 Distance Education in Music

Distance education programs in music have been developed in several areas including music history, theory, applied instruction, and music education. With the development of new technology, the scope, delivery, and knowledge transmission of ideas have been highly variable to facilitate learning in various settings. Consequently, the following section will explore distance education programs in music, including those using synchronous, asynchronous and blended learning tools.

1.4.1 Synchronous Courses in Music

There have been several accounts of instrumental music lessons that have been offered through synchronous distance education methods. Rees and Downs (1995) reported on the Iowa Communication Network (ICN) as a means of delivering private harp lessons to a remote and rural location. They indicated that this program was successful in delivering quality programs, and was well liked by its participants; however they also noted that the picture quality did not allow one to see facial expressions or fine motor actions. Overall, this report suggested a fine program that facilitated learning for many people despite their location.

Since this account, the Canadian project MusicGrid has capitalized on the broadband capabilities delivering music instruction to students in Canada, Europe and Australia (Masum, Brooks, and Spence, 2005; MusicGrid 2002/03). Smith (1996)

documented a series of master classes given via videoconference by a well-known violin teacher, Pinchas Zuckerman, to university students at the Manhattan School of Music. In another publication, Covert (2004) reported on a series of Yamaha group lesson that were delivered via videoconference to a group of young students in Kangiqsualujjuaq, Quebec. This program facilitated a specific type of music instruction that would otherwise not be available to these children, as there was no piano teacher in the community. It seems that synchronous instruction provides an important opportunity for students to receive applied instruction from teachers that are outside of their physical proximity, and in some cases this may be the only opportunity to engage in such an activity. One drawback of this paradigm is that it is inflexible in time. In other words, one does not necessarily have the opportunity to receive instruction at their own convenience; and therefore, some may not be able to participate due to time constraints.

1.4.2 Asynchronous Courses in Music

Asynchronous distance education courses allow student to interact on their own time, and similar to synchronous distance education, this paradigm has also facilitated many courses in applied instruction. In one study, the freedoms and constraints of using podcasting¹ to teach instrumental music on-line by transmitting podcasts of instrumental instruction was explored (Swan, 2005). Each audio file contained verbal explanations of what was to follow in the podcast, and various versions of a tune to be learnt. All materials were intended for music students who could already play the instrument.

¹ "Podcasting is a term used to describe a collection of technologies for automatically distributing audio programs over the Internet using a publisher/subscriber model. It differs from earlier on-line delivery of audio or video because it automatically transfers the digital media files to the user's computer for later use. Podcasting enables independent producers to create self-published, syndicated 'shows,' and gives broadcast radio or television programs a new distribution method. In general, these files contain audio or video, but also could be images, text (ex. PDF), or any file type." (Wikipedia Encyclopedia, 2005)

Results from the users' feedback indicated that most of the constraints were surrounding the technology (being able to access and download the material). Swan concluded that podcasting was a good medium for teaching music.

In another study, Bond (2002) compared the performance of three groups of beginner guitarists. Two groups received instruction relying on on-line modules (asynchronous instruction), while the third group received face-to-face lessons. All subjects received fourteen graded lessons via the Internet with notes on technical elements, music theory, learning resources as well as an audio and video demonstration. The method of instruction was also different for each of the groups. One of the groups using the on-line modules was given a set of objectives they were to achieve, while the other group was asked to use the modules using a constructivist approach, where each user developed his/her own curriculum. The face-to-face groups also received a set of objectives from their instructor. Performance-based results indicated that there was no critical difference in outcomes for students in the asynchronous-based groups; the face-to-face group scored higher on the performance based tests. One reason for this difference could be that although the technology was readily available to establish a suitable learning environment, students did not necessarily have the learning skills to adequately learn the content from the modules. Similarly, Bond (2002) noted lack of access to a teacher may have had a negative affect on the quality of performance, the level of engagement of students in their learning activities and the development and refinement of skills and knowledge. He also noted that technical issues may have hindered development as some of the regional learners had difficulty accessing all of the materials via the Internet, and thus worked offline.

It seems that the usefulness of an asynchronous material may be contingent upon the setting in which it is used, where the setting includes both the person and the physical context. For example, it may be that the background knowledge in terms of learner's comfort with the subject content and/or the technology may affect the success of the interaction with the tool. Additionally, the person's motivation or intentions for using the tool may influence its usefulness which may affect the results of the interaction.

Therefore, in some cases it may be beneficial to create blended learning situations; to combine the synchronous availability to instantaneously interact with others with the convenience of asynchronous materials to acquire information at one's convenience may yield interesting results. Consequently, the next section will explore various blended learning environments that have been developed in music education.

1.4.3 Blended Learning in Music Education

The field of education has capitalized on the use of transmitting video cases of authentic teaching to preservice and inservice teachers as a way of observing authentic teaching situations without having to be on site (ex. Rees and Fanelli, 1997). Wilcox and Upitis (2002) noted that video cases demonstrate a broad range of teaching styles and situations for analysis of reflective discussion. The ability to reflect on expert teaching and/or apply new teaching practices seems to be an opportunity that could be beneficial to a teacher throughout his/her career, as teachers have a mandate to provide learning situations to meet a great diversity of students, and having the opportunity to view others as they interact with children may provide insights into the teaching and learning process that could be applied to others. Therefore, the following section will explore programs that have taken advantage of distance education for teacher education.

Hatfield (1996) advocated for the use of multimedia in training preservice teachers. She emphasized its use as a means of providing models of exemplary teaching. She explained that preservice teachers needed to have the opportunity to observe and reflect upon pedagogical skills, and suggested that a multimedia resource would provide an ideal opportunity to do this. Consequently, many education and music education programs have begun to use asynchronous and synchronous tools to support learning by providing additional learning opportunities for students. This may include preservice teachers viewing and/or participating in authentic teaching environments in addition to their face-to-face lectures with their professor. For example, Reese (2001) examined the feasibility of integrating on-line mentoring of music composition into music teacher education courses and to describe the outcomes of this instructional program. Seventeen university students taking a survey course in music education technology served as mentors for three classes of 43 middle and high school students (Grades 8-12) studying music in three Chicago suburban schools. Students sent their compositions as MIDI files to the mentors, who then gave feedback through the form of an e-mail. Reese determined that it was possible to integrate on-line mentoring on music composition into music education courses and to develop distributed partnerships for promoting the teaching of composition with public school colleagues, and that mentors (in this case, preservice teachers) can improve their ability to provide constructive feedback and increase their confidence in teaching composition and using technology.

Other blended learning environments have been created to facilitate the observation of teaching in authentic situations using synchronous and asynchronous tools. Rees and Fanelli (1997) described an initiative to create observational opportunities

for undergraduate music education majors to view a string orchestra class through the use of Interactive television (ICTV). They noted that the students being watched preferred the ICTV format because it did not interfere with the television teacher's and students' attention or continuity of a given lesson; therefore the students did not exhibit any apparent awkwardness or anxieties in the ICTV setting. Benefits for the music education majors included: mutual focus of teaching-learning behaviours, ability through special camera effects to see teacher and student simultaneously (and therefore the cause and effect of teaching strategies), opportunity for observers to review with their professors, and opportunity for the professor to highlight salient moments of instruction and student response as they were occurring without being an interruption.

Blended learning opportunities seem to provide an appropriate balance between structure and autonomy. It has the potential to provide support to learners through face-to-face or other synchronous instruction which can facilitate communication and clarification for the learner. Additionally, the incorporation of asynchronous tools allows students to interact with materials as often as they wish on their own accord and at their convenience and with the increased capabilities of technology these tools can now include audio, video and multimedia information which can allow for a richness of information to be delivered. These new opportunities seem especially important in music and music education as it allows for the transmission of music performance, which illuminates the musical product as well as the process (techniques, movements) that are employed. In turn, this provides the opportunities for music educators to view authentic learning situations to elicit the components of the learning process.

It seems that the use of video cases can provide a rich learning environment in teacher education. One reason for this could be that it enables one to view authentic learning situations while also having access to an instructor who can assist with ascertaining salient information. Additionally, the asynchronous aspect allows the viewers to examine the footage at their convenience to perhaps gain a more in-depth understanding or clarify a concept. Given that observational case studies are beneficial for many educational settings, it seems reasonable to posit that a tool specific to piano pedagogy could be used to support piano educators and facilitate the immediate application of new knowledge into the teaching situation. Little research has examined the application of this type of activity (in terms of both the content and the context) in piano pedagogy; however, based on research within the broader field of education, it seems that it would be beneficial.

1.5 Overview of the Thesis

The second chapter will present the research questions guiding this study as well as outline the development of a digital video library (DVL) of piano teaching. The third chapter will present case-study methodology (Yin, 2003) which was used to examine the experiences of five piano teachers as they interacted with the DVL. In addition, the theoretical framework brought forth by Guskey (2000) that was used to examine the professional development that of the participants. The fourth chapter will outline the results and analysis of the teacher participants and their experiences with the DVL specifically presenting the demographic and professional backgrounds of the subjects, their interactions with the DVL, and the professional development that ensued. Finally,

the fifth chapter will provide a discussion, conclusion and recommendations for further research.

Chapter Two

Research Questions

The following chapter outlines the questions guiding this study and describes the professional development tool developed for piano teachers. Consequently, a digital video library (DVL) for piano pedagogy is presented by describing its contents and its development, as well the need to examine its effectiveness is also explored.

2.1 Justification and Research Questions

Opportunities for developing new skills and promoting reflection are an integral part of professional growth; however, finding programs that facilitate this may prove difficult for piano teachers. Many of these educators work independently, and are frequently limited in their proximity to engage in such opportunities; and although they do engage in professional development, they must often travel to attend these activities. This may also mean that availability for on-going teacher training could be limited. It therefore seems appropriate to develop resources that will easily allow piano teachers access to professional growth opportunities within their teaching environment.

To this end, distance education may be quite beneficial as it develops programs and resources that transcend proximity in time and/or space often through the use of technology that facilitates communication and knowledge transmission. Distance education consists of three paradigms: synchronous, asynchronous and blended learning. Within each of these paradigms music programs have been successfully developed, which has allowed many learner to engage despite their geographical location. Additionally, this method of delivery seems to have been beneficial to those who cannot engage in such activities due to various time constraints.

Distance education programs have also been especially useful in teacher training including music education, where many opportunities to view authentic teaching situations have been employed. Much research has suggested that observing case studies that occur within an authentic learning context can provide beneficial learning opportunities for teacher education (Schon, 2005; Wilcox and Upitis, 2002). Consequently, many resources have been developed for teacher education; however, little such resources exist in the field of piano pedagogy. Given the observed advantages of such a tool in education, it seems reasonable that this type of resource could be appropriate for the training of piano teachers. To this end, a digital video library (DVL) of piano teaching has been developed as part of a blended learning program for Suzuki piano teachers. This tool consists of authentic teaching of a Master teacher, Powell, and is intended to be used by the teacher trainees in their homes or workplace as an extension of their face-to-face training.

Distance education can provide increased access to information; however, successful interaction may be contingent upon the learning setting. In other words the background of the user and his/her intentions and goals for engaging in such an activity may affect the resultant outcome. When examining the usability of this DVL it seems important to ascertain the perceptions of the users during their engagement with this tool. It is therefore the intent of this study to examine the experiences of piano teachers as they interact with an on-line digital video library which they will access in their homes. Consequently, it seems important when examining the interactions of the participants with the DVL to fully understand their background. In other words, what their intentions are for using such a tool and what experiences result from this interaction may influence

its usability. Therefore, the goal of this study is to examine the experiences of piano teacher as they interact with this digital video library and to elicit their views of the tool and its applications to their teacher training. The questions driving this study will consequently include:

- a) Who is engaging in this activity?
- b) What were their experiences interacting with the tool?
- c) How does this interaction support their professional development?

2.2 Contents of the DVL

This DVL was developed using the video footage of the teaching of Mary Craig Powell. Powell is an internationally recognized Suzuki Teacher Trainer, who has given workshops and short-term teacher training courses in North and South America, Europe and Australia, and is a member of the World Suzuki Piano Committee. She is a faculty member at Capital University and also maintains a private piano studio in Columbus, Ohio where many of her students have received awards in State and National competitions (Comeau, 1997). This digital video library (DVL) consists of 5.5 hours of footage from home studio lessons taught by Powell to two beginner students (David and Vicky); it also contains 45 minutes of Powell explaining and demonstrating various technical gestures.

The featured lessons were recorded throughout the students' first year of lessons. Each of the lessons consists of two broad segments. The first segment involves five-finger patterns, which are employed to enhance the students' aural skills (Powell, 1988). Powell (1988) further noted that during this segment, she gradually changes the note and rhythm patterns within the five notes, largely incorporating the rhythms found within the

Twinkle Variations. Once the children have mastered this, she adds other concepts such as having the children close their eyes, incorporating dynamic changes, or altering the articulation.

The second segment surrounds the learning of various Suzuki piano repertoire. In this instance, David's and Vicky's lessons largely employ pieces found in Suzuki piano Book One. This segment incorporates the application of various strategies to help the child attain the desired sounds within each piece. In keeping with the Suzuki method, the child's parent attends all of the lessons, and Powell often includes him or her in the lesson, providing explicit instructions to assist in the home practice.

Powell's lecture footage features explanations of various playing techniques that she teaches her students. To support these descriptions, she demonstrates the gesture itself, and performs repertoire that require its use.

2.3 Categories in the DVL

While all the lessons may be viewed in their entirety, they have also been categorized according to various aspects that occur within the session. Entire lessons can be viewed within two different categories: Lesson and Age of Child. The Lesson category pertains to 30 minute one-on-one sessions between the teacher, student, and parent. Consequently, each lesson was catalogued according to the name of the student (David or Vicky). Also, within the Lesson category, one is able to watch the complete footage of Powell's technique lecture (Mary Craig Techniques). Within the Age of Child category, lessons are first coded according to the age of the featured student. In this case, both of the students were between the ages of three and six. In addition, components of the lesson

were indexed within the following categories: Repertoire, Technique, Teaching Strategy and Parental Interactions.

Repertoire refers to a specific piece. The Suzuki method consists of seven volumes of repertoire in which the child passes through systematically. However, most of the footage in the digital video library (DVL) features repertoire from Book One, with the inclusion of some pieces from other volumes (See Table 1 in Appendix A for a complete list repertoire featured in the DVL).

Within the DVL, the Technique category contains various gestures as well as patterns that are used to develop playing technique. In particular, gestures refers to specific movements at the instrument, which can include general posture and/or hand position, as well as more specific motions used to create various sounds (ex. use of the wrist (rolls), fingers staccato, circle technique, etc.). Furthermore, common patterns in piano playing include scales, chords, arpeggios, or five-finger patterns (Powell, 1988) which can help to develop facility. Within the DVL, the patterns presented most frequently are the five-finger patterns, which serve as the context for developing various gestures. For example, while playing the five-finger patterns, students may concentrate on improving their use of the wrist (See Table 2 in Appendix B for a description of the terminology used in the Technique category).

Teaching Strategy refers to the method in which concepts are approached in attempt to effectively communicate with the student and/or parent. These strategies include: tapping rhythm or beat, adding lyrics, changing registers, demonstration, eyes closed, game, hand over hand, imagery, one point focus, physical markers, playing together, steps, stop-prepare, and/or using a stuffed animal. Within the DVL, these

strategies were often employed in various technical patterns, or, alternatively, were used to assist in the learning of repertoire. (See Table 3 in Appendix C for description of terminology in the Teaching Strategy category.)

Parental Interaction is one of the cornerstones in the Suzuki method (Suzuki, 1983; Powell, 1988; Comeau, 1997). Parents are considered the “home teacher”, and are expected to attend all lessons, take notes during the lesson, and practice at home with the student between lessons (Powell, 1988, 2004). To support this it seems important that the teacher communicates effectively with the parent, ensuring that they have appropriate strategies to conduct the home practice (Powell, 1988, 2004). To this end, the Parental Interaction category is dedicated to the interactions between the teacher and parents. Specifically, footage within this category centers on the communication of practice suggestions, which include tasks that the teacher hopes will be accomplished during the week. As well, the teacher may present practice strategies which are ideas that the parent could incorporate to accomplish the assignments.

In total, there are six main categories in the DVL (Age of Child, Lesson, Parental Interaction, Repertoire, Teaching Strategy, and Technique). In addition, each category contains two levels of subcategories used to further describe the footage. The first subcategory refers to a general description of an item within the main category. The second subcategory gives a specific description of the contents. For example, if one wanted to search for video footage of teaching dynamics in *The Honeybee*, one would look under the Repertoire category where he/she would find *The Honeybee* (This would be the general description.). After selecting this, all of the annotations relating to *The Honeybee* would be listed, and a specific description of the footage would appear (This is

the second subcategory.). Within this list, one would find the term “Dynamics”. By clicking on “Dynamics” all the instances where this occurs in the DVL would appear. In total, there are 458 annotations that can be viewed in the DVL. (See Appendix D for complete list of all annotations.)

2.4 The DVL Interface

The DVL was available on-line on a secure website, meaning that it was not accessible to the public, and required authentication to access (ie. user name and password). Once entered, the user was able to choose the size of video that he or she wanted to view (Appendix E). After making this selection, the user was taken to a list of annotations, which presented the main categories. Here, the user could expand one or all of the categories to view its components. Due to the fact that there could be several layers of analysis and similar tags of footage, a folder icon () was used to denote folders where footage was organized, while the computer icon () represented an actual video clip (annotation). Once the user clicked on this annotation, a hyperlink opened on a separate page containing the selected video.

2.5 Examining the Experiences of Those Using the DVL

In establishing such a digital video library it seems important to understand how this tool may be perceived and experienced by its intended users. Researchers have examined usability of asynchronous tools (ex. Koohang, 2004) which has often employed quantitative methodology focusing on perceptions of the subjects. Many times these experiences are based on a single use of the tool, which often does not consider its context; therefore, the limitations of the tool’s setting cannot be elicited. However, recently, some research has focused on the use of asynchronous tool within the intended

setting (ex. Mann, 2006; Woit and Mason, 2006), employing case-study methodology where the inquiry examines experiences with the tool within its intended setting; therefore, results also shed light upon how the users and the learning environment may affect its ease and effectiveness. Given that piano teachers often work in isolation, it is important that the DVL is user-friendly. Consequently, examining the perceptions of the users in an authentic situation allows one to ensure that the DVL is appropriate for the intended audience.

Additionally, examining the setting in which a tool is used may add richness to understanding its effectiveness. By doing this one can elicit how the subject interacts with the DVL and how and what type of product this interaction produces. Previous literature in distance education has suggested that the participants' comfort with the technology may influence his/her interaction with the tool (ex. Bond, 2002). Additionally, the convenience of having the DVL may not necessarily mean that the participant will interact with the tool as other day-to-day activities may prevent this. Also, based on the participant's previous experience with the content (in this case piano pedagogy training), or demographic of learners in which the participant is teaching, the content of the DVL may not be appropriate for their personal professional development. Therefore it seems important that research examining the effectiveness of professional development of piano teachers take into consideration the educational background of the teacher, be conducted in an authentic situation, and consider the effectiveness of the professional development in an in-depth manner.

2.6 Summary of Chapter

Opportunities for the professional growth of piano teachers are needed, and these activities should allow piano teachers to engage in active learning and to be able to readily apply new knowledge into their teaching situation. One tool that could facilitate this is an on-line digital video library (DVL) of piano teaching. This database contains a series of lessons taught by Powell as well as lecture material featuring the various technical gestures. This footage has been catalogued into seven categories: Age of Child, Lesson, Parental Interaction, Repertoire, Teaching Strategies and Technique. Users have the option of viewing lessons in their entirety (by accessing the Age of Child or Lesson categories), or may access salient portions of the footage through the other categories (ex. Parental Interaction, Repertoire, Teaching Strategies and Technique). In establishing such a resource, it seems important to conduct research that examines its appropriateness for piano teachers. Consequently, the next chapter will outline a multiple-case-study methodology that was used to examine the experiences of five piano teachers and the professional development that ensued as they interacted with the DVL.

Chapter Three

Methodology

The following chapter outlines the methodology employed for this study by providing a general overview of qualitative methodology, multiple-case-study strategy, and the professional development evaluation framework presented by Guskey (2000). Subsequently, the questions guiding this study, the procedure followed during this study, as well as the data-collection tools and data-analysis techniques that were used are presented.

3.1 The Use of Qualitative Methodology

This investigation focused on examining the experiences of piano teachers as they engaged in professional development through the use of an on-line digital video library. As discussed in the previous chapter, piano teaching is not a regulated profession and, consequently, even though piano teachers may have some similar teacher education there may also be several differences in their training that may affect their professional development interests, as well as variations in their teaching situation which could influence the professional development that is garnered from an activity. In this study, participants were free to any number of the annotations on the DVL, which could also influence the activity's pertinence to their teaching situation. Therefore, the methodology employed for this study needed to be able to encompass a profile of the participants, the experience of the participants with the DVL, and the subsequent professional development that ensued. In other words, a methodology that would facilitate an in-depth holistic description of the participants' experiences was necessary. The examination of individual experience falls into the realm of qualitative research which "involves an

interpretive, naturalistic approach to the world...[where] qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, the phenomena in terms of the meanings people bring to them” (Denzin and Lincoln, 1998, p. 3).

3.1.1 Multiple-Case Study

A multiple-case-study strategy (Yin, 2003) was used to examine the effectiveness of an on-line digital database as a professional development tool for Suzuki piano teachers. Yin (2003) suggested that a case study could be based on a single or multiple cases, as the same study may contain more than a single case, thus making it a multiple-case study. He further argued that a multiple-case study is often considered more compelling, and the overall study is considered to be more robust (Yin, 2003). Patton (2002) noted: “[c]ase studies are particularly valuable in program evaluation when the program is individualized, so the evaluation need to be attentive to and capture individual differences among participants, diversity of the program, or unique variations from one program setting to another” (p.447). Although many video databases have been developed for educators, this concept is new for piano pedagogy, thus creating a need to explore the possibilities of this medium. Consequently, it seems that a multiple-case-study method facilitates the examination of each of the components within this study (participant, tool and professional development) as well as their interactions.

3.1.2 Unit of Analysis

The unit of analysis refers to the focus of the case (Yin, 2003). In many case studies, the unit of analysis is the individual, but it can also be an event or entity (Yin, 2003). In this study, the unit of analysis was the implementation of a process, and more specifically, the interactions of each piano teacher with the DVL. Thus to examine this,

one needs to understand the background and current teaching situation of the participants, what annotations he or she accessed when using the DVL, and what professional development resulted.

3.1.3 Questions Guiding this Study

The aim of this research study was to describe the experiences of five piano teachers as they interacted with an on-line digital video library. The questions guiding this study included:

1. Who are the participants? This question sought to investigate each participant's educational background, teaching situation and comfort with computers.

2. What were the interactions of the participants with the DVL? The purpose of this question was to gather information about the specific footage that each participant viewed. The DVL contained 458 possible selections, and consequently information about which video clips were accessed was needed to assist in the evaluation of the professional development activity.

3. What was the extent of the professional development that occurred through this process? The goal of this question was to determine what each participant learned through this experience, and how he or she applied it to his or her teaching practice.

3a: What were the participant's reactions to using the DVL?

3b. What learning resulted from the participant's use of the DVL?

3c. Does the participant have appropriate organizational support to structure this learning?

3d. Was the participant able to apply his or her learning to his or her present teaching situation?

3e.What were the student outcomes from the participant's use of the DVL?

The research questions pertaining to the professional development that occurred were derived from a framework presented by Guskey (2000), which will be presented in the following section.

3.1.4 Framework for the Evaluation of Professional Development

Guskey (2000) has developed an evaluation framework that has been used for evaluating professional development programs (ex. Bridges, 2001; Sampsell, 2005). This framework consists of a hierarchy of five levels in which each proceeding level becomes more complex. The first level evaluates participants' reaction to the program. This includes eliciting information regarding their views about the content and process of the program through questionnaires, which are administered at the end of the activity or reflective learning logs that participants have throughout the session (Guskey, 2000). The second level evaluates participants' learning in the cognitive, affective, and psychomotor domain. The cognitive domain refers to content and pedagogical knowledge. The affective domain refers to the attitudes, beliefs or dispositions that are developed during the course of the activity while the psychomotor domain refers to the skills, practices and behaviours that the participants acquire (Guskey, 2000). Here again, Guskey (2000) advocates for the use of evaluation forms to ascertain teachers' perceptions of the professional development experience, and emphasizes the inclusion of open-ended questions. He noted that open-ended questions "provide participants with maximum versatility in describing what they learned and can be used with any form of professional development" (Guskey, 2000, p.131).

The third level examines the organizational support and change within the educational setting. Organizations have a powerful influence on all aspects of professional development. Particularly important is the culture of the organization. Culture refers to the values, beliefs, and norms that operate within that organization. It may involve shared understandings about teaching and learning processes, beliefs about professionalism, or commitment to ideas such as continuous learning on the part of all educators or collaborative means of problem solving (Deal & Peterson in Guskey, 2000, p.151). Data collection tools used to elicit information regarding this may include gathering organizational policies that may relate to the program or activity that the teacher is trying to implement, and examining whether the organization's goals are aligned with concepts from the professional development activity. In addition, how the professional development activity alters or influences the change or development of any organizational procedure is examined (Guskey, 2000). Guskey (2000) advocates for the use of direct observations, analyses of district school records, analyses of the minutes from committee meetings or follow-up sessions, questionnaires, structured interviews, personal learning logs or reflective journals, and participant portfolios to examine this aspect (Guskey, 2000).

The fourth level explores the use of new knowledge and skills, which regards three different aspects of application: (1) The concerns that individual experience as they go through the process of change; (2) the various degrees or levels of use involved in implementing new practice or techniques; (3) the linking of professional development to improvements in student learning (Guskey & Sparks, 1996). Guskey (2000) further notes: "This includes determining whether the new practices are really different from what

participants used in the past or from what other teachers or administrators are using at the present time” (p.182). Data collection techniques may include interview, questionnaires, or reflective logbooks (Guskey, 2000).

The fifth level of evaluation relates to the impact on students, with regard to the mastery of particular competencies, attainment of specific academic goals, or the acquisition of defined learning proficiencies. Guskey (2000) divides learning into the same three domains as he used to evaluate teacher learning in level two of his model, namely the cognitive, affective and psychomotor domains. Cognitive domain refers to students’ academic achievements and accomplishments, while the affective domain includes the attitudes, beliefs, and feelings that the student may develop. Psychomotor learning describes behaviours, actions or practices that one may want their students to acquire. Data collection techniques that may ascertain information regarding students’ learning within these domains include standardized performance assessments, teacher developed classroom assessments, group tasks or activities, and interviews or questionnaires (Guskey, 2000).

3.2 Data Collection Tools

Many researchers advocate for triangulation or multiple-data-gathering techniques to investigate the same phenomenon as a means of mutual confirmation of measures and validation of findings (Berg, 2004). Therefore, three data collection techniques were used in this study: questionnaires, observations, and participant logbooks. The use of these data collection techniques were also recommended by Guskey (2000) to explore professional development, and have been used to create participant profiles (Schon, 2005), as well as to track the use of various technology (Hansen, 2006; Jeng, 2006).

3.2.1 Questionnaires

Questionnaires have often been used to gather information about participants' experiences with technology (Hansen, 2006; Jeng, 2006) and professional development experiences (Bridges, 2001; Guskey, 2000). In some cases, when the study occurs over a significant period of time two questionnaires are used, one at the outset, and one at the end of the study (ex. Hansen, 2006). This study utilized two questionnaires, with an initial questionnaire given at the outset of the study and a follow-up questionnaire distributed after the participants had completed all viewing sessions.

The initial questionnaire (Appendix F) consisted of closed- and open-ended questions¹ relating to the participant's demographic information, current teaching situation, teacher education, professional development interests, computer skills, and expectations for participation with the DVL. Some questions related to eliciting teaching information were taken from a questionnaire developed by Schons (2005) for her investigation into piano teachers' attitudes about piano pedagogy course topics. Additional questions related to the teacher's present teaching situation, teacher education, and computer skills were developed by this researcher, and piloted by a team of local piano teachers who were not otherwise participating in the study.

The follow-up questionnaire (Appendix G) consisted of closed- and open-ended questions. Questions were taken from a variety of sources relating to usability and professional development. The purpose of the first section of the questionnaire was to elicit information related to the usability of the DVL and was based on the usability questionnaire developed by Koohang (2004). Questions from the remaining sections were

¹ Closed-ended questions have a finite set of possible answers (ex. multiple choice questions), while open-ended questions do not have definite answers.

based on sample questions provided by Guskey's (2000) framework for evaluating professional development. This questionnaire was also piloted by piano teachers who were otherwise no apart of this study.

3.2.2 Observations

The primary interaction in this study is that of the teacher participant with the DVL. Additionally, given the number of video clips available on the DVL, it seemed important to track how each participant used the DVL and, in particular, which clips were viewed during each session. Observations of usage often require viewing the paths that the users take during their sessions, which were recorded by the computer (Luotonen, 1995; Hallam-Baker and Behlendorf, 1996; Nykänen and Ala-Rantala, 1998; Christel and Conescu, 2006). For this study, each participant needed to provide authentication (user name and password) to access the site. The server then tracked the access to the video clips (annotations) using Apache and QuickTime Streaming server for streaming the videos. This data was then used in correlation with the participant logbooks to garner the specific content of each viewing session and to enhance the reliability of the participant logbooks.

3.2.3 Participant Logbooks

To support the observation logs, participant logbooks (Appendix H) were used to gather information about the use of the DVL and the professional development that ensued. This data collection technique has been an important aspect of qualitative research in education as it enables participants an opportunity to share their thoughts and ideas (Creswell, 2002; Guskey, 2000). The participant logbook consisted of open-ended questions that were based on samples presented in Guskey's (2000) description of the

various levels of professional development. Specifically, open-ended responses were designed to elicit information pertaining to participants' learning (Level 2), application to their teaching (Level 4), and student outcomes (Level 5). Logbook questions were piloted by piano teachers, who were otherwise not apart of the study after they viewed the DVL.

During the study, participants were asked to keep logbooks documenting their goal(s) for the viewing session: if they found what they were looking for, the most beneficial footage viewed, drawbacks experienced, whether or not they found ideas that could be applied to their teaching, and what the resulting outcomes were from its application.

3.3 Procedure

The following section will present the procedure that was employed for this study by describing the components of the study including the recruitment of the participants, the administration of the initial questionnaire, the interactions with the DVL, the completion of the participant logbooks, and the administration of the follow-up questionnaire.

3.3.1 Recruitment of the Participants

Upon receiving ethics approval, a criterion sample of piano teachers was elicited. Piano teachers needed to have completed a Suzuki piano teacher training course with Powell and have high-speed Internet access in their homes. Participants were recruited from the contact information given to a director of a Teacher Training Program that provided training with Powell (See Appendix I for invitation to participate). E-mail recruitment was chosen to increase the likelihood of access to high-speed Internet in their homes. Participants were provided with informed consent forms (Appendix J) that

outlined the study and assured them that their participation would remain anonymous through the use of pseudonyms. The participants were free to withdraw at any time at which point any data collected from them would be deleted. In total, ten participants responded to the recruitment e-mail, and five participants completed all the components of the study.

3.3.2 Initial Questionnaire

The initial questionnaire was administered before the participants were introduced to the DVL and took approximately thirty minutes to complete. Participants were given the option of receiving this questionnaire as an e-mail attachment or through the post. The object of this questionnaire was to ascertain background knowledge of the participants in terms of their present teaching situation, educational background, comfort with computers, professional development goal, and what they hope to learn from the interaction with the DVL.

3.3.3 Introduction to the DVL

Participants were given a user name and password so that they were able to access the DVL, and to assist the researcher in the gathering of the electronic observations. Introductory information was e-mailed to each participant explaining the interface and its contents (Appendix K). Each participant was also assured that technical assistance was available throughout the course of the study by contacting the researcher. Follow-up by the researcher was also provided to ensure that participants were able to access the DVL.

3.3.4 Interactions with the DVL and Completion of Logbooks

Participants were instructed to login to the DVL a minimum of eight times over the course of four weeks; however, there was no limit as to how long they could access the DVL. During the course of each interaction, participants were asked to complete a logbook entry, stating their goals for each session, whether or not that goal was met through viewing the DVL, which clips were most beneficial clips, and if they experienced any drawbacks. Additionally, they were asked to note any ideas that they could apply to their teaching, and consequently, what outcomes resulted from the application of these ideas. Participants were given the option of completing the logbook entries electronically and returning them to the researcher via e-mail, or writing their responses on paper and delivering them to the researcher.

3.3.5 Follow-Up Questionnaire

The purpose of the follow-up questionnaire was to gather information about the participants' overall experiences with the DVL and how it contributed to their professional development. Specifically, this questionnaire contained four sections. The first section asked participants for feedback on using the DVL. The second section asked participants to rate the contents of the DVL, while the third section inquired about the participants learning from the DVL. The fourth section asked if the participants' teaching location and situation could support learning from the DVL, as well as eliciting information about benefits that the participants' students experienced as a result of this professional development activity. Participants were given the option of receiving the questionnaire via e-mail or receiving it through the mail.

3.4 Data Analysis

The data-analysis techniques employed for this study consisted of analytical techniques advocated for by Yin (2003) and Miles and Huberman (1994). Yin (2003) asserted that it is important that the research have an analytic strategy, which will help to treat the case fairly and help in choosing appropriate analytical tools. One such approach is to develop a case description (Yin 2003). This procedure has been used to describe a program and can elicit the sequence of events and their causal outcomes (Yin, 1982), and therefore seems appropriate in this instance.

Miles and Huberman (1994) suggested that data analysis consisted of three flows of activity: data reduction, data display and conclusion drawing with verification. Data reduction was defined as “the process of selecting, focusing, simplifying, abstracting, and transforming the data...[and it] is a form of analysis that sharpens, sorts, focuses, discards, and organizes data in such a way that final conclusions can be drawn” (p. 11). The authors further suggested that this form of analysis included selection, summary or paraphrase. They described data display as referring to the organized and compressed assembly of the information, and further noted that in case studies this often takes the form of text. The final aspect of data analysis was that of forming conclusions that could be verifiable.

Yin (2003) presented five techniques for analyzing data, of which three were employed during this study including time-series analysis, pattern matching logic, and cross-case synthesis. Yin described time-series analysis as means of depicting events over time, and further defined a special type of time-series analysis—chronologies, which allowed one to view events over time. He further explained pattern matching logic as one

of the most desirable techniques in case-study analysis, which consisted of relating perceived patterns to predetermined variables. Cross-case synthesis treats each individual case as its own entity and compares these cases through quantitative synthesis or meta-analysis.

Consequently, in this study, data reduction was achieved through the use of pattern matching to create a profile of each participant in terms of correlating responses from the first questionnaire within the categories of present teaching situation, educational background and use of computer. Pattern matching was also used to examine the sessions with the DVL. In addition, these sessions with the DVL were examined using chronology analysis. The professional development that resulted from these sessions was analyzed using pattern matching comparing and organizing the finding in terms of the levels presented by Guskey (2000). Finally, a cross-case synthesis was conducted between the participants in terms of the participants' profile, use of the DVL and the professional development that occurred. Data is presented in the form of text, with the support of appropriate charts and tables. Further conclusions are drawn within each case and a cross-case synthesis bringing out trends and distinctions (See Appendix L for coding sheet).

3.5 Summary of Chapter

Researchers in the fields of education (ex. Guskey, 2000; Hansen, 2006; Jeng, 2006) have advocated for the assessment of resources within their intended context for an extended period of time. This type of inquiry often relies on qualitative methodology to elicit the individual experiences of participants within a given setting. Based on this idea, this study employed a multiple-case-study approach (Yin, 2003) to describe the piano

teachers in this study, their interactions with the DVL and the professional development that ensued. Data was collected using questionnaires, observation logs, and participant logbooks. Data was examined using qualitative data analysis strategies as presented Yin (2003) and Miles and Huberman (1994). The following chapter will examines the results and analysis of this study.

Chapter Four

Results and Analysis

The following chapter presents information elicited from five female piano teachers as they interacted with a digital video library via the Internet over the course of four weeks. All the participants in this study were female; two participants lived in the United States of America, while three lived in Canada. The participants ranged in age from 36 to 64. This chapter presents the results and analysis guided by the research questions. Consequently, this chapter is organized in three sections: (1) creating a profile of each participant; (2) eliciting each participant's use of the DVL; (3) evaluating each participant's professional development that ensued from this activity.

4.1 The Participants

The following section introduces each of the participants presenting her geographical location, current teaching situation, educational background, and comfort with computers. Data was collected from the initial questionnaire, which consisted of closed- and open-ended questions. Responses were categorized and summarized according to aforementioned categories using pattern matching.

4.1.1 Sophia

Sophia is a piano teacher living in Ontario Canada, who has been teaching piano for 18 years. Although she has received Suzuki teacher training, she currently teaches private traditional piano lessons for 12 hours a week, as well as providing an hour of theory instruction. Sophia teaches 19 students. Six students are between the ages of 7 and 11, while 13 students are between the ages of 12 and 17. Sophia has completed a Master's degree in music education and her primary instrument is the piano. She also

completed a Bachelor's degree in English and a Master's degree in library services. In addition, Sophia has studied under the Royal Conservatory of Music where she completed the associate level (ARCT). Sophia initially learned to teach piano by speaking with others, studying available materials on teaching (texts, articles, videos) as well as studying piano method books, attending workshops, clinics and conferences on teaching, taking teacher training courses as well as learning from her experiences. Sophia has engaged in specific piano teacher training through a university course, and has completed Book One Suzuki piano teacher training. She has also received training from the Music for Young Children organization that specializes in early childhood group classes.

Sophia engages in professional development activities monthly and within the past year her activities have included informal conversations with colleagues, taking piano lessons, attending workshops, lectures, and conferences. The most salient factor affecting her choice of professional development is the time required to participate, however other factors such as the distance to the event, its cost, and relevance to her teaching also affect her activity choices. Her current professional development interests include learning more about teaching piano technique and expanding her knowledge about the repertoire she teaches. Specifically, Sophia is hoping that the DVL will provide her with the opportunity to learn technique tips that will help her assist her students in developing their tone production skills and artistic expression abilities.

Sophia uses a computer daily where she searches the Internet 2 to 4 times a week, although she rarely views video footage on the Internet and rarely searches for teaching

ideas on the Internet as she finds it difficult to access appropriate materials. Overall, Sophia rates her own computer skills as fair.

4.1.2 Elizabeth

Elizabeth, a piano teacher who currently lives in Quebec, Canada, has been providing piano instruction for 20 years. She currently teaches both individual traditional and Suzuki piano lessons. Elizabeth provides 15 hours of instruction a week, where she spends 10 hours teaching Suzuki piano lessons and 5 hours giving traditional piano lessons. Elizabeth instructs 25 students. Three students are 6 years old or younger, while, eight students are between the ages of 7 and 11. Eleven students are between the ages of 12 and 17 and Elizabeth also teaches three adult students. Specifically, Elizabeth teaches eight students playing Suzuki Book One repertoire.

Elizabeth has completed a Master's degree in music; additionally she has studied with the Royal Conservatory of Music where she reached the associate level (ARCT). Her primary instrument is the piano, but she also plays the viola. Initially, Elizabeth learned to teach piano by emulating her own teachers, studying available materials on teaching, attending workshops, clinics and conferences on teaching. Elizabeth has also taken teacher training courses from a conservatory and a university. She taught piano for 10 years before receiving Suzuki teacher training and has completed training up to and including Book Four.

Elizabeth engages in professional development activities monthly and, in the past year, activities have included observing lessons taught by other teachers, informal conversations with colleagues, reading teaching textbooks or handbooks, journal articles, and articles from the Internet. Additionally, she has attended workshops, lectures and

conferences as well as taking university courses. The most salient factor affecting her choice of professional development activities is distance to the event although its cost, relevance to her teaching and the time required to participate in the activity also influences her choices. Currently, Elizabeth is interested in learning more creative teaching ideas and hopes that using the DVL will help her in becoming a better teacher.

Elizabeth uses a computer daily and searches the Internet approximately 5 to 6 times a week. She views video footage over the Internet approximately once a week. She searches the Internet for teaching ideas approximately once a week, and often has difficulty finding appropriate teaching materials. Elizabeth rates her computer skills as good.

4.1.3 Sarah

Sarah, a teacher currently living in Connecticut, USA, provides Suzuki piano and early childhood music classes exclusively at a music school. Sarah has spent the past three years as a piano educator. She teaches 16 hours a week, where 12.5 hours are spent instructing individual Suzuki piano lessons, and 30 minutes are allocated to Suzuki group instruction as well as 3 hours of early childhood music classes. Currently, she teaches 124 students where 100 students are taught in early childhood general music classes and 24 students receive Suzuki piano lessons. Of her Suzuki piano students, 7 are 6 years old or younger, while 15 are between the ages of 7 and 11, and 2 students are between the ages of 12 and 17. Specifically, Sarah instructs 17 students who are studying repertoire from Suzuki Book One.

Sarah has completed a Bachelor's degree in music where her majors were music education and vocal performance. While her primary instrument is the voice, Sarah also

plays the piano and the guitar. Sarah did not start teaching piano until after she received Suzuki teacher training, consequently, this is where she originally learned to teach piano. She has also taken university music education classes, and has completed Suzuki teacher training up to and including Book Three.

Sarah engages in professional development activities monthly and in the last year this has included observing lessons taught by other teachers, informal conversations with colleagues, reading teaching textbooks of handbooks, and journal articles, attending workshops and lectures, as well as attending a teacher training course. Her choice of professional development activities is most dependent upon its relevance to her teaching, however, the distance to the event, its cost, and the time required to participate also influence her decisions. Her professional development interests include improving her teaching skills and her understanding of the learning process. Sarah is also interested in developing her vocal performance skills as well as her piano and guitar playing abilities. She is hoping that this experience “refreshes” ideas presented in her previous Suzuki training, and facilitates the learning of new teaching techniques.

Sarah uses a computer daily and searches the Internet approximately 5 to 6 times a week, but only views video footage approximately once a week. She rarely searches the Internet for teaching ideas and has difficulty finding appropriate lesson plans. She rates her computer skills as good to very good.

4.1.4 Sheila

Sheila is based in Ontario, Canada, and has been teaching piano for 23 years. Currently, she provides individual traditional and Suzuki lessons, as well as group Suzuki and Yamaha lessons. Lessons are given in both a home studio as well as at a music

school. Sheila has 110 students under her tutelage and teaches a total of 23 hours a week where she spends 4.5 hours providing individual Suzuki piano lessons, 17.5 hours of traditional individual lesson, and 9 hours teaching Yamaha group keyboard lessons. She also offers Suzuki group lessons 4 times a year. Of her 110 students, 39 under 6 years old, 48 are between the ages of 7 and 11. Nine students are between the ages of 12 and 17, and Sheila also instructs students. Sheila has completed a music certificate at the college level where piano was her main focus. She has also studied through the Royal Conservatory of Music where she completed the requirements for the Grade 10. In addition to the piano, Sheila plays the flute as well as a type of electronic keyboard known as the electone.

Sheila originally learned to teach piano by emulating her own teacher. She has taken teacher training courses in both the Yamaha and Suzuki methods. Sheila taught piano lessons for 18 years before receiving Suzuki teacher training, and has taken training up to and including Book Three. She engages in professional development activities weekly and in the past year this has included observing lessons taught by other teachers, informal conversations with colleagues, reading textbooks or handbooks, reading articles from the Internet, attending workshops, lectures and conference as well as taking teacher training, and university courses. Her main professional development interest is to gain skills to become an early childhood specialist as well as a teacher who specializes in composition and arranging. The main factor that affects her choice of professional development activity is the relevance it has to her teaching.

Sheila uses a computer and searches the Internet approximately 2 to 4 times a week. She rarely views video footage over the Internet or searches the Internet for

teaching ideas, as she finds it difficult to locate appropriate teaching materials on the Internet. Overall, Sheila rates her own computer skills as poor.

4.1.5 Jessica

Jessica lives in Tennessee, USA, and has been giving piano instruction for 21 years. Currently, she teaches Suzuki piano in both individual and group settings at a conservatory in a university. Jessica instructs 40 students, providing 22 hours a week of individual Suzuki lessons and 2 to 4 hours a month of Suzuki group instruction. Specifically, 12 students are 6 years old or under, 24 students are between the ages of 7 and 11, and 4 students who are between the ages of 12 and 17. Within her studio, 23 students are currently studying Suzuki piano Book One repertoire.

Jessica has completed a Bachelor of Music degree in piano performance. Her primary instrument is the piano, and she also plays the organ. Prior to receiving Suzuki training, Jessica taught piano for 18 years. She first learned to teach piano by emulating her own teachers, observing other teachers, and studying available teaching materials. Additionally, Jessica has also completed a university piano pedagogy courses and Suzuki piano teacher training up to and including Book Five.

Jessica engages in professional development activities monthly, which may include observing lessons taught by other teachers, informal conversations with colleagues, reading textbooks, handbooks, journal articles, or articles from the Internet as well as attending a Suzuki teacher training session. While travel, cost, relevance to her teaching and time required to participate all factor into Jessica's choice of professional development activities, cost is the most salient factor. Her current professional development interests center around examining the learning process, finding different

ways to present material to facilitate learning at a reasonable pace, and developing students' sense of pride in their accomplishments. Jessica is also interested in learning more about the physical aspect of piano playing.

Jessica uses a computer daily, where she searches the Internet 5 to 6 times a week, although she rarely views video footage over the Internet. Jessica searches the Internet for teaching ideas approximately once a week, and often finds it difficult to access appropriate materials. Overall, Jessica rates her computer skills as good.

4.1.6 Cross-Case Synthesis

Four of the participants have been teaching piano for more than 18 years, while one participant (Sarah) had only been teaching for 3 years. Of the four participants (Sophia, Elizabeth, Sheila and Jessica) who had been teaching for 18 years or more, each had provided piano instruction for more than 10 years before seeking Suzuki piano teacher training. Conversely, Sarah, did not begin teaching piano until after completing Suzuki piano teacher training (See Table 13)

Table 13

Piano Teaching Experience

Years Teaching Piano		
	Total	Before Receiving Suzuki Teacher Training
Sophia	18	14
Elizabeth	20	10
Sarah	3	0
Sheila	23	18
Jessica	21	18

The participants presented variations in the number of hours of piano instruction and the type of lesson they provided. For example, among the participants, the mean number of teaching hours per week was 19, with the number of contact hours ranging from 12 to 31 (Table 14). Four participants taught individual Suzuki piano lessons, with two participants (Jessica and Sarah) teaching only Suzuki piano lessons, and two teachers (Elizabeth and Sheila) providing both Suzuki and traditional piano lessons. One participant (Sophia) taught traditional piano lessons exclusively. In addition, three participants (Sarah, Sheila and Jessica) provided group instruction. One participant (Sarah) also taught pre-school group lessons, and one participant (Sheila) gave Yamaha group piano lessons.

Table 14

Type of Instruction Given

Type of Lessons				
Number of Hours				
	Total	Individual Suzuki Lessons	Individual Traditional Lessons	Other
Sophia	12	0	12	1
Elizabeth	15	10	5	0
Sarah	16	12.5	0	3
Sheila	31	4.5	17.5	9
Jessica	22	22	0	0

Additionally, the mean number of students that each participant teaches was 64 with the number of students ranging from 19 to 124 (Table 15). Two teachers (Sarah and Sheila) stated that they instructed more than 100 students; however, the majority of their students were taught in a group setting. For three of the participants (Sarah, Sheila and

Jessica), the majority of their students were 11 years old or younger. One participant (Elizabeth) had an equal number of students above and below the age of 12 and the majority of one participant's (Sophia) students were 12 years old or older (Table 15).

Table 15

Distribution of Students' Ages

Participant	Age				Total
	6 and Under	7-11	12-17	Adults	
Sophia	0	6	13	0	19
Elizabeth	3	8	11	3	25
Sarah	107	15	2	0	124
Sheila	39	48	9	4	100
Jessica	12	24	4	0	40

Also, during the time of the study, four participants (Elizabeth, Sarah, Sheila and Jessica) were teaching students who were playing pieces for Suzuki Book One, with the number of students playing this repertoire ranging from 1 to 23 (Table 16).

Table 16

Number of Students Playing Suzuki Book One Repertoire

Participant	Number of Students
Sophia	0
Elizabeth	8
Sarah	17
Sheila	1
Jessica	23

Participants relied on a variety of means to learn how to teach piano (See Table 17). Three participants (Sophia, Elizabeth, and Jessica) used a variety of materials and experiences, while two teachers (Sarah and Sheila) relied on a single resource. Informal

activities such as emulating one's own teacher, experience, and studying available books and materials on teaching were the resources that were most frequently used.

Table 17

Initial Teacher Training Resources

	Emulating your own teacher	Observing another teacher	Speaking with other teachers	Experience/trial and error	Studying available materials on teaching (ex. texts, articles, videos)	Studying piano method books and materials	Attending workshops, clinics and conferences	Conservatory course	University pedagogy courses	Teacher training course (ex. Suzuki, Music for Young Children)
Sophia	0	0	1	1	1	1	1	0	0	1
Elizabeth	1	0	0	1	1	0	1	1	1	1
Sarah	0	0	0	0	0	0	0	0	0	1
Sheila	1	0	0	0	0	0	0	0	0	0
Jessica	1	1	0	1	1	0	0	0	0	0
Total	3	1	1	3	3	1	2	1	1	3

During the past year, all the participants stated that they had engaged in professional development activities. All the teachers stated that they had been a part of informal discussion with colleagues. Four teachers (Elizabeth, Sarah, Sheila, and Jessica) observed others and read books and articles on piano teaching as part of their professional development. Similarly, attending workshops and lectures was an activity for four participants (Sophia, Elizabeth, Sarah, and Sheila). Generally, it seems that the participants relied on organization support for professional development activities that occurred at a specific time (ex. lectures, conferences, teacher training programs, etc.), as well as other informal activities that they could access at their own disposal (conversations with colleagues, observing other teachers, reading books and journals, etc.) (Table 18).

Table 18

Professional Development Activities

	Ob- serving lessons taught by another teacher	Informal discussions with colleagues	Taking piano lessons	Reading teaching text-books or hand- books	Reading journal articles	Reading articles from the Internet	Going to work- shops	Going to lectures	Going to con- ferences	Recording one's own teaching	Teacher training course (ex. Suzuki)	Uni- versity Courses
Sophia	0	1	1	0	0	0	1	1	1	0	0	0
Elizabeth	1	1	0	1	1	1	1	1	1	0	0	1
Sarah	1	1	0	1	1	0	1	1	0	0	1	0
Shelia	1	1	0	1	0	1	1	1	1	0	1	1
Jessica	1	1	0	1	1	1	0	0	0	0	1	0
Total	4	5	1	4	3	3	4	4	3	0	3	2

Four participants (Sophia, Elizabeth, Sarah and Jessica) stated that they used a computer daily, while one participant stated that she only used a computer 2 to 4 times per week. Three participants (Elizabeth, Sarah and Jessica) listed their computer skills as good, while the two others (Sophia and Sheila) rated their computer skills as fair and poor respectively. All the participants searched the Internet less frequently than the amount of times they used a computer. Generally, participants did not often view video footage via the Internet as two participants (Elizabeth and Sarah) indicated that they viewed video footage on the Internet once a week while the remaining three (Sophia, Sheila and Jessica) indicated that they rarely did so. All five participants stated that they found it difficult to find appropriate teaching materials via the Internet.

4.2 Use of the DVL

The following section presents each participant's use of the DVL by examining the average length of time of each session, categories and topics consulted. Participants were asked to complete logbooks stating the date, time, goals, benefits, and outcomes of

the session. Additionally, observation logs were captured using Apache technology that noted the date, time, and annotations viewed. Consequently, data was selected when the date of the participant logbook entry and observation logbook correlated, and a summary of these sessions are provided. Analysis of each participant's viewing sessions was completed through pattern matching, which was used to elicit trends in the participant's use of the DVL. The sessions are presented chronologically, followed by a summary of the viewing trends. A cross-case synthesis is also provided, bringing forth similarities and differences in the participants' use of the DVL.

4.2.1 Sophia

Sophia's mean length of viewing time per session was 39 minutes. Six logbook entries correlated with the observation logs (sessions one, four, five, six, seven, and eight).

Session One

Sophia viewed the DVL for a total of 30 minutes with the goal of finding footage relating to piano technique. She accessed 16 different annotations from the Technique category, viewing footage related to the use of five-finger patterns. Information related to various playing technique such as using the wrist (rolls), playing legato repeated notes, and releasing hand from the keys were also accessed (Appendix M). Sophia noted that the most beneficial clips were those demonstrating students being engaged in learning and listening to these techniques and producing the desired sound. Consequently, Sophia has incorporated the use of the legato repeated notes concept into her teaching, and tries to include more critical listening with her students through the use of five-finger patterns ("Follow the Leader"). In addition Sophia incorporated the legato repeated notes concept

with a student who was playing *Sonatina, Op. 36, No.1* by Clementi and found that using this concept improved the rhythm and tone of this sonatina. The only drawback encountered during the viewing session was the asynchrony between the sound and picture in some of the clips.

Session Four

Sophia's fourth session lasted 25 minutes. Her goal for this session was to view more footage on parental interaction, with specific regards to Powell's management of parental support with regards to practicing technique. Sophia accessed 19 clips from the Parental Interaction category which featured practice suggestions for technique and repertoire (Appendix M). She found that the most beneficial clips were those that demonstrated interactions with the students and parents about specific practice suggestions for playing techniques such as the following: combining gestures, adding lyrics, and using a game to improve tone quality. The strategy of setting hand position with regard to fingernail placement was also helpful. Sophia noted that there were several ideas that she could readily apply to her teaching, which included using the stop-prepare (hand position) technique, incorporating the imagery "hiding" fingernails to curve fingers, and introducing a game that involves the parent listen for full tone. In trying to apply these ideas, Sophia found that it would probably be much easier to implement them at the beginning of the year or when the student was learning new pieces. Sophia experienced no drawbacks interacting with the DVL throughout this session.

Session Five

Sophia's goal during this 30 minute session was to watch the complete video of Mary Craig's Teaching Technique, which was located in the Lesson category. Within the

same session, Sophia also accessed some specific segments from the Technique category, which shared the same source video as that found in the Lesson category. She found that the complete video segment located in the Lesson category was long and that she was unable to control the video by rewinding and/or fast forwarding. Additionally, some of the crossed-reference clips, which were found in the Technique category, contained sound but the image did not move, and some of the shorter segments in the Technique category that were only 20 or 30 seconds in length were not beneficial for her. However, footage that included a discussion on physical nature of the arm and various aspects of playing gestures (wrist rolls, exaggerated vs. smaller movements) were quite beneficial. Sophia also indicated that the close-up pictures of Powell's playing were quite helpful. In particular, Powell's demonstration of an *Arabesque* by Burgmüller, which was a part of the footage in the Mary Craig Teaching Technique video, was helpful, as it is a piece that Sophia teaches to some of her students. Sophia noted that that she did not have a chance to apply these concepts at this time of the year (April) as it was not conducive to introduce these ideas as students were in the process of polishing their pieces. However, she intended to add these ideas within the technique and tone production section of the lessons when possible.

Session Six

Sophia's viewing session lasted 30 minutes, and her goal was to return to the footage viewed in the previous session (Appendix M). This time, Sophia felt more in control of the video, as she now used the bar underneath the picture to rewind and/or fast-forward the video. The most beneficial clips were those that presented various ideas from the Mary Craig Powell Technique footage. This included playing techniques such as

circle technique, finger staccato, and drop roll as well as information pertaining to hand and finger positions. Sophia indicated that the footage explaining and demonstrating these ideas were quite beneficial. In addition, viewing information regarding specific repertoire that she taught to her students was also beneficial. From this viewing session, Sophia wanted to apply these technical ideas into her teaching, as well as the strategy of previewing a technique before introducing it into a piece. Sophia applied these concepts, but noted that it was not readily received, especially with more advanced students, who had already established a playing technique, which would mean that the students would have to alter their already established gestures. Consequently, Sophia felt that the application of these ideas would require constant repetition and reinforcement. The drawback noted during the viewing sessions asynchrony between the sound and picture.

Session Seven

During her seventh session, Sophia viewed the DVL for 45 minutes with the goal of watching footage involving parental interaction—specifically in regards to practice. Consequently, Sophia accessed 23 clips from the Parental Interaction category that provided practice suggestions for both repertoire and technique. Sophia also viewed footage that featured Powell explaining various concepts to the parent, and asking the parent about the week's practice (Appendix M). Sophia indicated that the most beneficial clips were those that included a report on week's practice (given by the parent), as well as those that features Powell providing suggestions to the mother about practicing repertoire and technique. From this session, Sophia noted that seeing Powell's very positive nature when giving instructions and assignments to the parent (often praising the accomplishment of the child, asking for an "extra" detail) was interesting. Additionally,

seeing how Powell involves the parents in the lesson (ex. games) was helpful. Sophia acknowledged that her students' parents sometimes have difficulty making time for piano, and, in some cases, the parents need to more fully understand what the teacher wants the student to accomplish to help facilitate efficient practicing. However, Sophia also wondered if some of her students would resist these parental interactions, as it may be more difficult to apply these interactions with older students.

Session Eight

During this session, Sophia viewed the DVL for 90 minutes with the goal of browsing through the Lesson videos (Appendix M). Sophia accessed each of the annotations featured in the Lesson category, where each clip was a complete 30-minute piano lesson. She found that it was most beneficial to see the progression of each student featured in this section. Sophia also found it helpful to follow an experienced teacher through a typical lesson. The most salient ideas that Sophia wanted to apply to her own teaching was emphasizing hand position and posture at the beginning of each lesson, facilitating parental involvement in the lessons, maintaining a positive and encouraging outlook, and encouraging perseverance. From this viewing session, Sophia expressed her need to remember long-term strategies that she would like to review at the beginning of the year.

Summary of the Viewing Sessions

Sophia seemed to have specific goals during each of her viewing sessions. Each of these goals related to one of the categories represented on the DVL. Consequently, the footage viewed during each session was often limited to one category. Moreover, Sophia accessed footage from each category, with the exception of the Repertoire. One reason

for this could be due to the fact Sophia only teaches traditional piano lessons, and currently none of her students were playing repertoire from Suzuki piano Book One.

Sophia tried to implement some technical ideas from the viewing session with limited success as students would have to change gestures that had already been learned. Although it seemed that Sophia wanted to encourage her students to develop these playing skills, she was also aware that a more appropriate time to focus on this may have been when the student is learning to play a piece, rather than adding changes after the piece has already been learned.

Sophia was also interested in gaining more insights into communicating with parents. While it seemed that she was intrigued by watching Powell's interactions with her students' parents, she was dubious of the use of these strategies with parents of her students. One reason for this could have been due to the age of her students, as many of her students were older than those featured on the DVL.

In general it seemed that Sophia accessed the DVL in a very organized way, focusing her sessions to facilitate the exploration of a breadth of categories over the course of her viewing. Sophia seemed to find many interesting ideas that she felt could eventually be applied into her teaching. However, she felt that many of her students were not in a position to readily apply these new ideas as they were in the process of polishing their repertoire. While Sophia wanted to apply many ideas, she felt it best to wait until new pieces were being learned to introduce new concepts.

4.2.2 Elizabeth

Elizabeth completed 10 logbook entries in which 8 corresponded with the observation logs (sessions one, two, three, four, five, six, seven and nine), which will be described in the following subsection.

Session One

Elizabeth viewed the DVL for a total of 20 minutes where her goal was to see if the DVL was functional. Elizabeth accessed one clip: a whole lesson clip from the Age of Child category (Appendix N). She found that the most beneficial footage was the part of the lesson that focused on exercises to develop the use of wrist (rolls) playing technique. This viewing inspired Elizabeth to introduce and in some cases reintroduce wrist rolls while students are playing *Twinkle Variation B*.

Session Two

Elizabeth's second session was 20 minutes, and her goal was to browse the DVL. During this session she accessed the same footage as the previous session (Appendix N). She found the video footage regarding rolls and phrasing most beneficial to her, which prompted Elizabeth to try and emphasize these ideas into her teaching.

Session Three

The third session was 20 minutes long, in which Elizabeth's goal was to focus on video related to wrist rolls. Consequently, she accessed 17 annotations from the Technique category which provided examples of Powell teaching the use of the wrist, as well as footage of Powell explaining and demonstrating this technique (Appendix N). From this session, Elizabeth found viewing footage within a lesson situation as well as Powell's demonstration of the techniques helpful. Specifically, Elizabeth liked seeing the

gestures demonstrated from two different angles, hearing Powell explain the various gestures, as well as seeing her interact with the students and parents. Similarly, Elizabeth noted that she enjoyed watching short clips that focused on one aspect and included both an explanation and demonstration. From this viewing session, Elizabeth would try to introduce this playing technique earlier in the repertoire. The only drawback that Elizabeth acknowledged from this session was that she found the organization and coding of the footage in the DVL was not conducive to finding information quickly. Elizabeth suggested that a color and symbol system could give the users a more comprehensive idea of contents and context of each of the clips.

Session Four

A fourth viewing session lasted approximately 30 minutes, and again Elizabeth's goal was to continue browsing the DVL, with no specific goal in mind. During this session, Elizabeth accessed two annotations from the Age of Child category, as well as one annotation from the Technique category. The Age of Child annotations contained footage of entire lessons, while the Technique clip contained a demonstration of the use of the wrist (Appendix N). During this session Elizabeth noted that from viewing these lessons, she would like to try and introduce phrasing sooner with her beginner students. Additionally, she indicated that she would like to include the "Follow the Leader" game (five-finger patterns) incorporating the idea of the students listening to the passage with their eyes open and closed. As well, Elizabeth planned on applying other dimensions in this game such as varying the dynamics and articulations.

Session Five

During the fifth session, Elizabeth viewed the DVL for approximately 30 minutes, where her goal was to continue browsing the DVL. This time spending much of the session accessing footage from the Teaching Strategy category, including clips related to adding lyrics and using imagery in a piece, playing a game to practice an aspect of a piece, demonstrating the desired sound, playing a passage in various registers to facilitate repetition, and playing with one's eyes closed (Appendix N). From this session, Elizabeth indicated that the most beneficial clips were those relating to the strategy of incorporating imagery. She also noted that viewing shorter clips allowed her more variety of material to view. The greatest drawback experienced during this session was distinguishing between the clips she had already viewed and the clips that she wanted to view, as the hyperlink to the video footage does not change color once it has been selected. Additionally, she noted that the video did not close automatically if another clip is chosen, which sometimes resulted in two clips playing simultaneously.

Session Six

During the sixth session, Elizabeth viewed the DVL for approximately 40 minutes with no specific goal in mind. She decided to watch all the annotations featuring Powell explaining the various playing techniques, consequently the only clip she accessed was that found in the Lesson category which featured Powell demonstrating and explaining various playing techniques (Appendix N). Elizabeth found that listening to the explanations of each playing technique as well as viewing footage from various camera angles (close-up/distant shots) was quite beneficial. She also enjoyed watching demonstrations from both beginner and advanced Suzuki piano repertoire as part of

Powell's demonstrations. The most significant drawback experienced was the asynchrony between sound and picture. Despite this, Elizabeth was able to find information that she could use in her teaching. For example, technical gestures such as finger staccato and circle technique, as well as ideas including playing closer to the key to achieve a softer sound, and playing the sixteenth notes in *Twinkle C* lighter could all be applied in various piano lessons.

Session Seven

Over the course of the seventh session, which lasted for 30-minute session, Elizabeth searched the DVL with no specific goal in mind. Elizabeth accessed two clips during this session, which were both whole lessons from the Age of Child category. From viewing these lessons, Elizabeth decided to incorporate such strategies as repeating tricky passages in different registers to encourage repetition, and incorporating more details in the piece *The Honeybee* including using the idea of phrasing and the wrist roll technique. Elizabeth also intended on using the "Follow the Leader" game to focus on the development of various playing techniques such as legato and staccato repeated notes, and changing dynamics on repeated notes (big/softs). Additionally, she would also try to use this game as a means of introducing difficulties that will be encountered in the repertoire, rather than using it exclusively as a memory exercise. Subsequent to this viewing session, Elizabeth was able to apply these ideas to assist her students in learning new repertoire.

Session Nine

A ninth session, 30 minutes in length, consisted of Elizabeth watching an entire lesson featuring David (Appendix N). Elizabeth found that one of the chosen lessons had

no sound, although she did find one that had sound. From this session, Elizabeth expressed her surprise at the amount of emphasis Powell places on tonalization with young children. Elizabeth found it very helpful to gain new ideas about technique (rolling, tonalization, etc.). She indicated that when listening to one of her students in recital she noticed that the student played with more tone and better balance, which she attributed to the tonalization and balance ideas that she learned from watching the footage on the DVL.

Summary of the Viewing Sessions

Elizabeth's mean length of viewing time per session was 29 minutes, and she often did not have a specific goal during each session; rather, she used the DVL to explore. A total of eight sessions were selected to examine Elizabeth's use of the DVL. She often accessed whole-lesson clips rather than annotations that featured specific components. While the whole lesson consisted of the teaching of specific repertoire, interactions with parents, as well as focusing on the development of technical skills, many of Elizabeth's reflections from the viewing sessions related only to ideas surrounding technique. And in particular, this was mostly related to tone production through the use of the wrist. Elizabeth's teaching situation seemed to readily facilitate the application of ideas related to the teaching of tone production, as she often cited ideas related to tonalization exercises as being helpful in eliciting improved tone production.

It is difficult to speculate why Elizabeth chose to view whole lessons rather than watching specific clips regarding technique. One reason could be that viewing a whole lesson allowed her to view the concepts and strategies within the context of the whole lesson. Another reason could have been that Elizabeth did not understand the

categorization of the videos. She noted in her logbook that she found the categorization of the DVL confusing and, therefore, she could have chosen to access footage from categories that she thought were organized in a clearer manner.

4.2.3 Sarah

Sarah completed eight logbook entries, five of which corresponded to observation logs (sessions two, three, four, five and six). These sessions will be presented in this subsection.

Session Two

During the second session, Sarah viewed the DVL for approximately 20 minutes with the goal of finding some technical points that would be applicable to her beginning and transfer students. She accessed annotations from two different categories: Technique and Repertoire, with the majority of the clips being from the Technique category. Topics included viewing Powell's use of five-finger patterns, and footage regarding the execution of finger staccatos (Appendix O). From this session, Sarah found many exercises that were beneficial, especially those focusing on how Powell uses and alters the five-finger patterns to introduce and develop new playing techniques. In particular, Sarah was hoping to apply these steps in her teaching, to help to improve her students' ability to imitate the desired sound. Sarah was able to apply some of these strategies, and although she could not make a conclusive assessment, she was confident that over time this would assist in her students' ability to produce musical expressions. Sarah also indicated that after applying the idea of "Mississippi Hop Frog" for pitch recognition and dynamic testing in five-finger patterns, students were able to play the patterns much

better, simply by using that rhythm instead of quarter notes. The only drawback noted was the asynchrony between the sound and the picture in some clips.

Session Three

During the third session, Sarah viewed the DVL for approximately 25 minutes, with the goal of searching for some additional ideas for teaching early Book One repertoire. Consequently, only annotations from the Repertoire category were accessed, and in particular those relating to *French Children's Song*, *London Bridge* and *Sonatina, Op.36, No.1* by Clementi (Appendix O). From this session, Sarah was reminded of some descriptive phrases that Powell uses (ex. Let the high G “ring”; give it an extra big “hug”; “How soft can you make that note?”). Sarah found that all of these phrases could be very helpful in communicating with her students. She also commented that the phrase “You make that sound so easy!” was one she wanted to use in her teaching. Further, Sarah noted that the Repertoire clip, which featured the drop roll concept within *Sonatina, Op.36, No.1* by Clementi, was very valuable. She thought this idea was especially timely as she had many students playing this piece, and further indicated that after applying this strategy in this piece, the desired balance between the hands was achieved.

Session Four

During the fourth session, Sarah viewed the DVL for approximately 25 minutes, with the goal of finding ideas about communicating aspects of the Suzuki Book One repertoire. Again, Sarah only viewed footage from the Repertoire category, this time focusing on footage featuring *Long Long Ago*, *Chant Arabe*, *Christmas Day Secrets*, and *Allegro I* (Appendix O). From this session, Sarah was reminded of some of the ideas that she had forgotten in her original teacher training, such as the idea of describing the

dynamic shaping as a “rainbow” in *Long, Long, Ago*, as well as the idea of making up a story with the student’s family to associate dynamic levels in *Christmas Day Secrets*. From this viewing session, Sarah would try and apply these ideas in lessons that she was teaching later that day, as she was seeing a student who was struggling with dynamics in *Christmas Day Secrets*, and another student who was struggling with dynamics in *Chante Arabe*. The only drawback incurred by Sarah during this session was the absence of sound for a moment while she was viewing a clip.

Session Five

During the fifth session, Sarah viewed the DVL for approximately 20 minutes, with the goal of finding more ideas for the communication of technical points within specific repertoire. Based on this, Sarah viewed footage from the Repertoire category which featured *Clair de Lune* and *Cuckoo* (Appendix O). Two ideas stood out from this viewing session, namely, connecting the motif in *Cuckoo* to that in *French Children’s Song*, and describing a deficiency in the performance of *Minuet in G Minor* in terms of something concrete (tempo) rather than something abstract (lacking confidence). From this session, Sarah believed that, in particular, this session would help her teach *Minuet in G Minor*, a Book Two piece that is often played very slowly. Drawbacks encountered included one clip where a “plug in” error occurred, and one where there was skipping.

Session Six

In the sixth session, Sarah viewed the DVL for approximately 30 minutes, during which time her goal was to watch all the repertoire videos to gain insights about communicating ideas with her students and their parents. Footage from the Repertoire category was Sarah’s sole focus, accessing annotations featuring *Goodbye to Winter*,

Allegro I, and *Go Tell Aunt Rhody* (Appendix O). Viewing these annotations reminded Sarah of an idea from her original teacher training, namely the phrase “taking a ride” on the teacher’s wrist to experience the movement of the wrist in *Go Tell Aunt Rhody*. Additionally, the clip that features a student beginning a piece was beneficial for understanding the concepts required to play the piece as well as the notion that a master teacher also needs to rely on a multitude of ideas to communicate the desired effect. Specifically, Sarah has noted that she will be able to apply the concepts of “roll, finger, roll, roll” idea for *Go Tell Aunt Rhody*, along with the “little, little, big” roll instruction from *Lightly Row*. The only drawback from this viewing experience was that one clip failed to load the first time that it was clicked, but after reloading it, no other problems occurred.

Summary of the Viewing Sessions

Sarah’s mean length of viewing time per session was 24 minutes. Sarah accessed almost exclusively footage from the Technique and Repertoire categories. She found many ideas from the Repertoire category that she could readily apply to her teaching and, consequently, spent much of her time viewing repertoire that she was also currently teaching. One reason for Sarah’s extensive use of ideas presented on the DVL could be that the repertoire and age of students featured on the DVL very closely mirrored that of her teaching situation as she provided Suzuki piano lessons with the majority of her students currently playing repertoire from Suzuki piano Book One. Furthermore, many of Sarah’s students were under the age of 12 and consequently, the ideas she viewed may have also been pertinent to the age-level of her students.

In general, it seemed that Sarah's viewing sessions presented a cause-effect relationship, as she would often view footage related to pieces that she was currently teaching, finding ideas that she could readily incorporate in lessons that week (cause). She would also indicate in her logbook the often positive outcome from applying these ideas (effect).

4.2.4 Sheila

Although Sheila viewed the DVL eight times, the observation log and participant logbooks only corresponded twice: the fourth and fifth viewing sessions. This data is presented in this section.

Session Four

Sheila viewed the DVL for one hour in her fourth session and her goal was to examine information regarding technique. She accessed footage from several categories: Teaching Strategy, Lesson, Technique, and Parental Interaction (Appendix P). She noted that the most beneficial footage was that which provided a close-up view of the performer's hands. However, she also found that the sound on some clips she wanted to see did not work; consequently, the technical difficulties experienced were her biggest drawback. Despite these difficulties, this session still reinforced concept that Sheila was already using in her teaching.

Session Five

The fifth session, which lasted one hour, was focused on learning more about interacting with parents. Specifically, Sheila wanted to examine ways to communicate practice instructions and to teach the students the importance of practice (Appendix P). Sheila accessed footage that demonstrated the teacher relaying specific instructions to the parents. She noted that the footage featuring teacher discussing the week's practice was

quite helpful. From this session, Sheila tried to ask more frequently about the week's practice, and give more specific practice explanations. Sheila experienced limited success by doing this, as she felt it put too much pressure on her students, and in fact, one her students cried when she asked about the practice, as the student had not completed one of the components. The biggest drawback experienced during the viewing session was at the beginning of each clip as it took some time for each annotation to load.

Summary of the Viewing Sessions

Sheila's mean length of viewing time per session was 60 minutes. The most salient feature of these viewing sessions was the limitations that Sheila experienced due to technical difficulties. It seemed that Sheila had many difficulties interacting with the DVL, which may have influenced her choice of footage viewed, limiting herself to the video that loaded. Despite these technical difficulties, Sheila indicated that she found helpful ideas related to technique and parental interaction which caused her to examine her own teaching practices. Consequently, Sheila felt more confident about her teaching and also decided to expand her use of various playing techniques that she had observed on the DVL. Overall, Sheila was able to garner information from using the DVL, but the extent of her learning was limited by the technical problems that she encountered.

4.2.5 Jessica

Jessica completed eight logbook entries, and all eight corresponded with the observation logs. The results from these sessions will be presented in the following subsection.

Session One

Jessica viewed the DVL for 15 minutes in her first session, where her goals were twofold: to become familiar with the DVL and to review some of the physical techniques of piano playing. During this time, Jessica accessed two annotations, one from the Repertoire category and the other from the Lesson category (Appendix Q). Jessica noted that the clips that featured Powell demonstrating beginner and advanced techniques were most beneficial. From this viewing session, Jessica thought that she would be able to implement the idea of drop roll especially for her student that is playing the second movement of *Sonatina, Op.36, No.1* by Clementi. Moreover, the idea of playing repeated notes with small rolls was a technical concept that she would be able to apply with students who were playing *Lightly Row* and *Mary had a Little Lamb*. Viewing this footage reminded Jessica how tone is affected by wrist movement.

Session Two

Jessica viewed the DVL for approximately 25 minutes in the second session, where her goal was to continue watching technique footage demonstrated by Powell, as well as to find some ideas to assist in developing students' tone. Consequently, Jessica accessed footage from the Teaching Strategy Category as well as viewing the same footage from the Lesson category that she watched in the previous session (Appendix Q). Jessica found that the most beneficial clips were those where Powell demonstrates a playing technique, and then provides an example of its use in the literature. Additionally, viewing a game focusing on tone between parent, teacher and child was also quite helpful. From this session, Jessica felt that she would be able to apply many concepts. For example, the game between the child, parent and student focusing on tone, would be easy

and enjoyable to implement. Technique examples such as alignment and a natural hand were also ideas that she was going to try and incorporate into the students' technique. The only drawback experienced during the viewing session was the asynchrony between the sound and the image in the video.

Session Three

In the third session, Jessica viewed the DVL for 20 minutes with the intention of reviewing footage pertaining to the "Follow the Leader" game, as well as examining annotations related to parental interactions. Jessica mostly accessed clips from the Teaching Strategy category, which included watching Powell use approaches such as demonstration and asking the child to close his/her eyes (Appendix Q). Those that featured the student imitating Powell's five-finger patterns with the student's eyes open and closed were most helpful. The only drawback experienced during the session was the asynchrony between the sound and the picture in some of the clips.

Session Four

Jessica viewed the DVL for 13 minutes in her fourth session, and her focus was to review legato repeated notes; she consequently accessed several annotations that related to technique (Appendix Q). The most beneficial clips were those that pertained to sticky fingers. Jessica noted that everything she has seen, including the footage from this session, has inspired her to become a better teacher and to strive to help her students produce more precise playing. She also acknowledged that implementing the exercises presented by Powell regarding legato repeated notes may assist her students' development of this skill. Based on her experiences thus far, Jessica felt that everything

that she has applied into her teaching has been successful, and in particular the preparation exercises for specific pieces have been quite helpful.

Session Five

Jessica viewed the DVL for approximately 20 minutes in her fifth session, and her goal was to review ideas pertaining to the teaching of dynamics and hand/arm alignment at the piano (Appendix Q). From this session, she found that clips relating to exercises focusing on changing dynamics, repeated notes (big/softs), as well as those that provided a close-up demonstration of playing scales and hand/arm alignment were especially pertinent to her goals. She felt that these ideas would be helpful to those students who were playing *Allegretto*, which has a passage of repeated Gs where she would be able to apply the concept of big/soft. Additionally, Jessica acknowledged that those students playing Book Two repertoire were also playing scales, and, consequently, she could apply some concepts she learned from the tapes pertaining to hand/arm alignment.

Session Six

Jessica viewed the DVL for 20 minutes in her sixth session. During this time, her goal was to watch footage pertaining to piano technique, specifically, slides, staccato, and wrist rolls (Appendix Q). Jessica felt that the most beneficial clips were those that featured close-up views of Powell's playing, as well as the footage of students playing wrist rolls in their lessons. In particular, footage relating to finger staccato was helpful for Jessica's student who was currently playing *The Wild Rider*. Footage focusing on slurs was also helpful for those students playing *Ecossaise* and *Arabesque*. The only

drawback noted from this viewing session was the asynchrony between the sound and picture in the Mary Craig Technique footage.

Session Seven

In the seventh's session, Jessica's goal was to view footage pertaining to parental interaction (Appendix Q). Jessica accessed the DVL for approximately 25 minutes and found many clips that featuring this, and noted that footage that featured Powell marking the score for parents and asking them about the home practice was most beneficial. Jessica felt that one of her biggest professional challenges was to communicate with parents in a way that ensures that they will be successful during the week's practice. Consequently, finding footage pertaining to strategies to assist parents (making score, giving them practice procedures) was very helpful. From this session, Jessica was inspired to apply some of these ideas with her students' parents.

Session Eight

Jessica's goal during the eighth session was to review the teaching methods used by Powell in the Book One pieces on the DVL (Appendix Q). From this 30-minute session, Jessica found that she would try to incorporate the teaching strategy of adding lyrics to the repertoire, as well as concentrating on the phrasing in pieces in addition to learning the notes and rhythm. Jessica also wanted to focus more on smaller sections of a piece, which may help to promote success during the daily practice sessions.

Summary of the Viewing Sessions

Jessica's mean length of viewing time per session was 20 minutes. During the first several sessions, Jessica accessed footage from a number of categories; however, in the last half of the viewing sessions her focus shifted to accessing clips from one category

(Appendix S). In one of her logbook entries, Jessica referred to her goals as professional “One Point Focuses”. This suggests that she used the DVL to observe a specific aspect of the lesson, and would then apply salient concepts from her viewing sessions to her teaching. Most of the footage she viewed was from the Technique, Parental Interaction and Teaching Strategies categories. Jessica spent three consecutive sessions viewing footage from the Technique category, noting several ideas that she could incorporate into her lesson. Similarly, she found many ideas in the Teaching Strategies category that she could readily apply to her teaching. Footage viewed from the Parental Interaction category was accessed after Jessica decided she would like to improve her communications with the students’ parents. After viewing several clips from the Parental Interaction category, Jessica was able to successfully apply some of these ideas in various lessons.

Jessica’s viewing intentions seemed to be quite purposeful as they were responses to areas that Jessica wanted to improve upon. Some of her interests surrounded adding or changing components of the lesson, such as the adding five-finger patterns as a component of the lesson and changing the level of involvement the parent had within the lesson. In addition, Jessica was also able to find strategies to enhance existing parts of the lesson, which often included the use of new teaching strategies for specific Suzuki Book One pieces.

Jessica’s use of the DVL also seemed to readily present a cause-effect situation, as she was able to access many ideas directly to lessons that she would be teaching that week, and would subsequently note of the positive effect that would come from these applications. In general, it seems that viewing the DVL had a positive effect on Jessica’s

teaching of technique and repertoire as well as improving her interactions with her students' parents.

4.2.6 Cross-Case Synthesis

While there was a variety in the number of sessions that could be chosen for analysis, a pattern of viewing did emerge for each participant. From this pattern, it seemed that each participant viewed DVL in one of two ways: either to encapsulate footage from several categories during this viewing session, or to focus on accessing footage in one or two categories. Sophia seemed to access information from the full lessons footage as well as viewing information from the Parental Interaction, Technique, and Teaching Strategies categories. However, she spent very little time accessing footage from the Repertoire category. Jessica also retrieved footage from several categories throughout her viewing sessions, attaining information from each of the categories. However, the majority of her sessions were spent focusing on footage from the Technique, Parental Interaction, and Teaching Strategies categories. Similarly, the majority of Sheila's time was spent accessing footage from the Technique and Parental Interaction categories. Elizabeth and Sarah viewed information from one category with Elizabeth focusing on annotations from the Age of Child category, and Sarah watching footage from Repertoire category. While each participant seemed to have a unique way of using the DVL, all were able to find information that was pertinent to their own teaching situation.

Cause and effect relationships were often seen within each viewing session, as well as over the course of several interactions. For example, Sarah indicated many successes which were largely in terms of improved performance. She often found several

ideas that she presented in lessons taught shortly after viewing the DVL. Elizabeth also noted that most of her students' success was achieved within the realm of technique and tone production. Jessica presented cause and effect relationships that resulted in the application of various strategies in pieces as well as changes that she applied surrounding various lesson components. While Jessica was able to incorporate various strategies to the repertoire that she taught, footage viewed from the DVL also caused her to apply technique exercises (ex. the use of tonalization) that she had stopped using, thus adding another component to the lesson. In addition, Jessica was able to focus on information that supported her relationship with her students' parents. This resulted in Jessica changing the seating position of the parent during the lesson, as well as the communication of practice suggestions. These alterations brought forth positive results.

Viewing the DVL elicited a cause and effect relationship for Sheila; however, the effects were both positive and negative, as the application of technique ideas was positively received while the idea of asking about the week's practice resulted in tears from the student.

Sophia was positively influenced by the footage she accessed from the DVL; however, she was more apprehensive in applying various strategies, as she believed that many of her students were not in an appropriate position to receive this new information, and would therefore apply these ideas at a later date.

Overall it seemed that the interactions with the DVL were helpful for each of the participants. However, further analysis is needed to evaluate the extent of professional development that occurred from these interactions. Consequently, the next section will examine this in terms of Guskey's (2000) framework.

4.3 Evaluation of Professional Development

The following section examines the experiences of each of the participants in terms of the five evaluation levels presented by Guskey (2000), namely, participants' reactions, participants' learning, organizational support and change, application of new knowledge, and student outcomes. Analysis of this section was based on a pattern matching from the participant logbooks and follow-up questionnaire.

4.3.1 Participant's Reaction

According to Guskey (2000) the first level of evaluation is to elicit the reactions of the participants, namely, what they thought about their experience, its benefits, and its drawbacks. Consequently, this first section will present the participants' reactions in terms of the benefits of the DVL including how easy it was to use, and how relevant it was to the participants' professional development. This section will also examine the weaknesses of the tool, as well as possible improvements to the system. Data for this section was collected using the follow-up questionnaire (section one, questions 1-11), and participant logbook. The first two sections of the follow-up questionnaire consisted of two 5-point Likert scales, where 5 = strongly agree and 1 = strongly disagree. The first section examined DVL's ease of use, with eight aspects being explored. The average ratings of each of these responses were used to determine the mean score of the DVL's usability. Similarly, the second section examined the contents of the DVL, asking the participants to rate the content within each of the categories using the 5-point Likert scale. An average of these findings was used to determine the mean score of the contents of the DVL. Open-ended questions in the participant logbooks and second questionnaire were used to garner the greatest benefits of the DVL and the drawbacks of having the

DVL available in the home. Additionally, open-ended questions were used gather suggested improvements to the DVL. A summary of these findings were collected to elicit the participant's attitudes the DVL. Each participant's reactions are presented as well as a cross-case synthesis.

Sophia

Sophia noted that the DVL was a very beneficial, citing its ability to be an "instant" resource as its greatest benefit. Based on a 5-point Likert scale, Sophia's mean score of the usability of the DVL was 5. Additionally, her mean score of the contents of the DVL was 4.4, which was based on her rating of the various DVL categories (Lesson, Age of Child, Parental Interaction, Repertoire, Technique, and Teaching Strategies). She found that the longer clips (ex. footage in the Lesson category) were most beneficial for her. Sophia indicated on the follow-up questionnaire that there were no drawbacks to having the DVL available in one's home. The only improvement that she noted was the need to profile different teachers and include footage of lessons that feature students of a variety of levels and abilities.

Elizabeth

Elizabeth found that the DVL was very beneficial. She noted that being able to observe Powell's teaching was its greatest feature. Furthermore, Elizabeth also found that having immediate access in the home was its greatest advantage. Based on a 5-point Likert scale, Elizabeth's mean score of the usability of the DVL was 4; as well, her mean score of the contents of the was 3.2, which was based on her rating of the various DVL categories (Lesson, Age of Child, Parental Interaction, Repertoire, Technique, Teaching Strategies). The biggest drawback of the DVL experienced by Elizabeth was the lack of

sound quality as it was often difficult to hear the variations in tone quality that were being addressed within the lesson. Additionally, she further expressed that the most beneficial categories were the Lessons and Teaching Strategy categories. Specifically, Elizabeth noted the organization and terminology of the footage was rather confusing and suggested that if the contents of the video were more clearly labeled the DVL would be much more accessible for quick access to the desired footage. Another improvement that was suggested was the need to profile different teachers and different levels of students.

Sarah

Sarah found that the DVL was a very beneficial due to the organization of the clips. Additionally, having immediate access in the home was its greatest advantage. Based on a 5-point Likert scale, Sarah's mean score of the usability of the DVL was 4.4. Additionally, her mean score of the contents was 4.7, which was based on her rating of the DVL categories which she used (Lesson, Parental Interaction, Repertoire, Technique). She found that the biggest drawback of the DVL was the video quality, and suggested that new videos with higher quality should be incorporated. Furthermore, Sarah indicated that the videos on the DVL did not always allow her to see the child's face (to see his/her reaction), and sometimes she could not hear the interactions between the teacher and the parent. Sarah felt that viewing the entire lesson rendered a lot of duplication, especially given that all of the lessons (with both materials) by and large covered the same material.

Sheila

Sheila found that the DVL was beneficial to her professional development. Based on a 5-point Likert scale, Sheila's mean score in terms of DVL's usability was 4.1. Furthermore, her mean score in terms of the helpfulness of the contents of each of the

DVL categories was 5. She felt that the most beneficial aspect of the DVL was Powell's teaching of technique, parental interaction, and repertoire. The regularity of watching the footage on the DVL was the most advantageous part of the DVL. The one drawback that Sheila noted was using the DVL alone in one's home, especially when one experiences technical problems.

Jessica

Jessica felt that the DVL was very helpful to her professional development. Based on a 5-point Likert scale assessing the usability and content of the DVL, Jessica rating was 5. Additionally, she noted that the most beneficial aspect of the DVL was the convenience of having it available in her home. This ease of access allowed Jessica to view small segments, and then take the time to process the ideas that had been presented. However, she also indicated that the least beneficial aspect was that it only worked when her computer was working. She also noted that sometimes viewing was difficult because of external distraction that may occur in a household. One improvement that Jessica noted was to remedy the asynchrony that seemed to occur during some of the footage. If given the opportunity, Jessica would view the DVL again since she feels that it would help keep her teaching "fresh".

Cross-Case Synthesis

At the end of the study, all participants said that they would use the DVL again. Two 5-point Likert scales were used to measure the ease and effectiveness of DVL. The first group of questions related to using the DVL (navigation, loading time). The mean score between the participants was 4.5. Similarly, the next set of questions related to the use content of each of the categories presented on the DVL (Age of Child, Lessons,

Repertoire, Technique, and Teaching Strategies). Here, too, the group's mean score was 4.5. Open-ended responses regarding the most beneficial aspects of the DVL included both its contents and its accessibility, as responses indicated that viewing Powell in particular, as well as having instant access to the information, was the greatest benefit. When asked what improvements participants would like to see to the DVL responses included increasing the sound and picture quality of the present DVL, as well as expanding the present library to include more teachers and a great variety of students.

4.3.2 Participant's Learning

Participant's Learning includes the ascertainment of new knowledge in the cognitive, affective and psychomotor domain. The cognitive domain refers to content and pedagogical knowledge. The affective domain includes the attitudes, beliefs or dispositions that are developed during the course of the activity, while the psychomotor domain encompasses the skills, practices and behaviours that the participants acquire in relaying information (Guskey, 2000). This information was collected through open-ended questions in the participant's logbook (questions 1-5), and follow-up questionnaire (section 3, questions 1-14), specifically asking participants what their goal was for each session, if they found what they were looking for, and what the most beneficial aspect of their session was. These answers were coded according to the specific aspects of participant learning and summarized. Each participant's learning is presented, as well as a cross-case synthesis.

Sophia

During each session, Sophia concentrated on viewing clips from different sections. From this, Sophia became aware of strategies or ideas that she could use in her

teaching. For example, she noted such strategies as ghosting, using the metronome, using lyrics, changing registers, various games, and stop-prepare were all helpful strategies to use at the lesson, as well as to assign as part of the home practice. Furthermore, she found metaphors such as “helicopter lift” (to use to help the release from keys), “magic glue” (for playing legato repeated notes) helpful for eliciting the desired gesture. In regards to teaching technique, Sophia found that by watching Powell’s use of five-finger patterns very helpful. This included the use of this pattern to focus on various articulations and dynamics, as well as using these exercises for the left hand, and having the child listen to the pattern with his/her eyes open or closed. Sophia also indicated the annotations featuring Powell demonstrating and explaining various playing techniques were quite beneficial.

Watching Powell communicate with her students’ parents was also helpful for Sophia as she noted several phrases and ideas that she could now communicate with some of her students’ parents. Sophia enjoyed watching the lessons as a whole and, in particular, seeing the progression of students’ skills as they progress through the Suzuki Book one repertoire. Additionally, she found it helpful to see a lesson in its entirety and to see how an experienced teacher structures a lesson.

Elizabeth

Elizabeth often viewed the DVL with no specific goal in mind. However, she seemed to have found various segments that were beneficial. In particular, watching footage about the use of rolls in Book One was quite beneficial, as well as clips that featured the use of imagery in the lesson to elicit various sounds or gestures. Elizabeth also found it interesting to see how much emphasis Powell placed on tone with beginner

children and how much detail she inserted into each piece with young students. During Elizabeth's second session, she viewed the DVL with the specific goal of learning more about the use of the wrist (rolls). She noted that it was beneficial to see footage that featured explanation and demonstrations by Powell, as well as viewing it within the context of a lesson. Furthermore, Elizabeth enjoyed watching Powell apply various strategies to support the child in learning various skills, and encouraging the parent to help the child during the home practice.

Sarah

Each time Sarah viewed the DVL she had a specific goal in mind. These goals mostly centered on being reminded of ideas and strategies that may have been presented at her Book One teacher training course. The majority of Sarah's goals often included finding communication ideas that would facilitate the learning of the Suzuki Book One Repertoire. Sarah was able to find helpful ideas/strategies during her viewing sessions. Specifically, clips demonstrating Powell's use of imagery in *Christmas Day Secrets*, *Long, Long Ago*, *French Children's Song* and *The Honeybee* to assist in dynamic shaping and nuance were pertinent to her teaching. Strategies that supported the development of technical skills were also useful. This included the use of the Stop-Prepare strategy to facilitate a left hand harmony change in *Mary had a Little Lamb*. Sarah also found that viewing the DVL provided her with some technical exercises that she could use with her students. Furthermore, by seeing these ideas used as a whole, she was able to see how Powell built on each technical skill. Watching Powell use a myriad of strategies to assist the child in mastering skills was quite encouraging to Sarah, noting that all teachers may

have to use many strategies to assist the child in mastering a concept, as it may not always work for the child after the first try.

Sheila

Sheila viewed the DVL with the goal of finding information relating to technique (alignment, finger staccato), teaching strategies (use of lyrics, tone production), and parental interaction (communicating about practice). Within each session, she found video footage that was beneficial. In particular, seeing a close-up view of Powell's demonstration of alignment, finger staccato was helpful. She also found watching how Powell incorporates singing and her use of tone production activities in her lessons were beneficial for refining her own use of these strategies. Viewing interactions between Powell and the students' parents allowed Sheila to increase the number of strategies she could ask parents to use at home.

Jessica

During each session, Jessica noted a very specific viewing goal which included looking for and watching footage related to five-finger patterns, physical playing techniques, ideas to help students improve their tone production and dynamic control, ideas to enhance parental interactions, posture, and teaching strategies for specific Book One pieces. Throughout her viewing sessions, Jessica found many video clips that were helpful to her cognitive and psychomotor learning. Annotations related to piano technique were quite useful, specifically, citing the clips that featured Powell's demonstration of differences between beginner and advanced motions. Jessica also viewed footage illustrating the demonstration of playing techniques, and their use in Suzuki literature and technical exercises. Furthermore, Jessica felt that many video clips

demonstrating various teaching strategies were very beneficial. The footage featuring a tone production game was also interesting as well as clips that incorporated strategies used to enhance the teaching of wrist (rolls), legato repeated notes, and changing dynamics in repeated notes. Jessica also indicated that viewing interactions between the teacher and parent provided interesting examples of dialogue that she could use to relay practice directions and suggestions.

Cross-Case Synthesis

The second level of Guskey's (2000) model evaluates the participant's learning within three domains: cognitive, psychomotor, and affective. The cognitive domain relates to knowledge which many include content and/or pedagogical knowledge, while the psychomotor domain relates to skills, practices and behaviours that are acquired. Finally, the affective domain relates to the attitudes, dispositions, and beliefs that the participants develop through the professional development process (Guskey, 2000). Participant's learning was garnered through the use of logbook questions, most notably the ascertaining of a goal for each viewing session and which footage was most beneficial. Within the context of this study, several participants noted learning within the cognitive domain, which often related to increased content knowledge of piano technique. For example, many participants noted that they enjoyed watching the footage found within the Mary Craig Technique video. This annotation features Powell explaining and demonstrating technical ideas such as the use of the wrist (rolls), finger staccato, and hand and arm alignment. As well, Powell distinguishes between technical movements of a beginner and advanced player.

Learning within the psychomotor domain included the increased knowledge of exercises and imageries that could help produce a desired outcome. Also, interactions between the parent and teacher could be viewed on the DVL, and these conversations could become templates for teachers for relaying information to the parents of their students. This footage was embedded in the videos in the Lessons and Age of Child categories. Footage was also extracted that demonstrated various five-finger patterns which emphasized the development of finger independence, legato repeated notes, as well as the enhancement of tone and the ability to change dynamics. Furthermore, phrases and imageries were indexed in the Repertoire and Teaching Strategies sections of the DVL. From their logbook entries, many participants noted that by watching Powell's application of five-finger patterns they learned how to apply these exercises to help to improve students' control over the sounds they could produce. Similarly, many noted strategies and phrases that could assist in improving technical difficulties within various pieces, and enhancing artistry.

Learning within the affective domain related to enhanced awareness of children's and parents' abilities and increased teacher self-efficacy. Information related to this was elicited from logbook entries as well as comments made on the follow-up questionnaire. Many participants noted that from watching the lessons on the DVL they had gained awareness of the level of mastery young children could be capable of achieving. Similarly, some participants became more aware of the role that parents could play both in the lesson and during the home practice, and that it was possible to give them detailed instructions for parents to apply. Furthermore, viewing the DVL seemed to lead to improved self-efficacy. Viewing clips that mirrored what the participant was already

doing or through gaining new ideas that were successfully applied into the teaching situation may have contributed to this. All the participants stated that they were better teachers as a result of this activity, and many felt refreshed and rejuvenated.

4.3.3 Organizational Support and Change

This section referred to how the teaching location and situation supported the application of new knowledge gained by the teachers through their interaction with the DVL. Data pertaining to where the participant teaches was contained in the initial questionnaire. The follow-up questionnaire (Section IV, questions 1&2) consisted of open-ended questions related to how the teaching location (size of room, instrument available) and teaching situation (type of students and parental interaction) was conducive to applying ideas learned from the DVL. This information was used to determine how the organizational support facilitated the application of ideas learned from the DVL. The responses from these open-ended questions were categorized according to these aspects and summarized. In addition to presenting information for each participant a cross-case synthesis is also conducted.

Sophia

Sophia teaches in a home studio, where she feels that both her teaching location and situation facilitates the application of the ideas presented on the DVL.

Elizabeth

Elizabeth teaches piano in a home studio, and feels that her teaching location allows for the application of the ideas and concepts presented on the DVL. She also believes that her teaching situation is conducive to the application of ideas presented on the DVL.

Sarah

Sarah teaches piano at a music school and feels confident that her teaching location supports the application of ideas presented on the DVL. In particular, she noted that the parents of her students are always willing to support the ideas she presents.

Sheila

Sheila teaches in two locations: a home studio and a music school. She also teaches private and group piano lessons. She feels that both of these locations and situations are appropriate for the application of ideas presented on the DVL.

Jessica

Jessica teaches piano lessons in a conservatory in a university. She too, believes that both her teaching situation and teaching location facilitated the incorporation of ideas and strategies she learned on the DVL.

Cross-Case Synthesis

Within the context of this study, all the participants indicated that their teaching space and their teaching situations facilitated the application of concepts presented on the DVL. Guskey (2000) noted that this level addressed such issues as “organizational policies, resources, protection from instructions, openness to experimentation, and alleviation of fears, collegial support, principal’s leadership and support, higher level administrator’s leadership and support, recognition of success and provision of time” (p.152). Consequently, it seems that organizational support and change largely relates to administrative support and various levels in terms of physical needs (resources and time) and psychological support in the applying new ideas. This model has largely been applied to the professional development of school teachers, who often work under the guidance

of many policies and under the scrutiny of multiple levels of administration. Additionally, their timetables may be predetermined and the amount of resources and support may also be variable and not directly under the teacher's control. Conversely, piano teachers often work independently, even though some piano teachers do work in conservatories or music schools that often have a director overseeing the program. However, in some of these communities, teachers are hired by contract and are considered self-employed. Consequently, organizational support from administrators may not be an issue for many piano teachers.

4.3.4 Application of New Knowledge

This level examines the knowledge that is used in the teaching situation. Data used to examine this was taken from open-ended questions from the participant logbook (question 7) and the follow-up questionnaire (Section III questions 2-8). For each participant, the responses to these questions were coded and summarized in terms of the cognitive, affective, and psychomotor domain. A cross-case synthesis examining trends within each of these domains was also conducted.

Sophia

From her interactions with the DVL, Sophia was able to apply knowledge from the cognitive, psychomotor and affective domains. Cognitive knowledge learned from this experience was related to playing techniques. For example, the idea having successive finger placements land in a diagonal relationship instead of a horizontal relationship was a concept that was new to Sophia. Additionally, ideas to assist in the refinement of "circle technique" were also elicited during her viewing sessions. Psychomotor knowledge gained included the use of various strategies for assisting in the

refinement of repertoire. To this end, Sophia indicated that she would apply the use of the stop-prepare strategy to check hand position and the ghosting strategy to help differentiate between various musical lines. Two striking ideas that Sophia commented on in viewing the DVL were Powell's constant positive and persistent attitude, as Sophia felt that Powell was always positive in relaying her feedback, as well as showing great perseverance with the students, always working toward improvements in both their technique and artistry. Furthermore, Sophia indicated that Powell's interactions with the parents, actively involving them in every aspect of the lesson, was intriguing and, consequently, Sophia was encouraged to try and involve her students' parents more in the learning process.

Elizabeth

Elizabeth applied a significant amount of information from the affective, cognitive, and psychomotor domain to her teaching. The most salient idea applied from her viewing session was the idea that young children could be capable of achieving a wide variety of sounds. To help achieve this, Elizabeth viewed footage that demonstrated techniques and strategies related to tone production and phrasing. Specifically, Elizabeth noted that she would try to introduce such techniques as wrist rolls, finger staccatos, and circle technique earlier in the repertoire, as well as incorporating the concept of playing closer to the key to help produce a soft sound. From viewing the DVL, Elizabeth indicated that she would begin tonalization exercises sooner and increase the ideas presented within these five-finger patterns by using them to "preview" various playing techniques within these patterns. In addition, she would try to incorporate wrist rolls within *Twinkle Variation B*, and *The Honeybee*. Moreover, the teaching strategy of

asking the child to play a passage in different registers to facilitate repetition could also be applied in Elizabeth's teaching.

Sarah

Sarah seemed to have found many ideas from the DVL which she was able to apply directly to her students. Much of this new knowledge related to strategies for improving playing technique and the performance of various Suzuki repertoire. Specifically, Sarah noted that she would apply several of the five-finger patterns that Powell introduced and, in particular, follow a similar order in introducing new playing techniques within these exercises. Sarah was also able to apply new teaching strategies seen on the DVL directly to her teaching. For example, Sarah found ideas that could be applied to *Chant Arabe*, as well as ideas related to increasing dynamic shaping in *Christmas Day Secrets* and *The Honeybee*. Strategies to support the establishment of an appropriate tempo and atmosphere in *Minuet in G Minor*, adding lyrics in *Go Tell Aunt Rhody* and *Lightly Row*, and developing appropriate balance in the second movement of Clementi's *Sonatina, Op. 36, No.1* were also found. The elapsed time between the learning of these materials and their subsequent application was also quite short. Sarah would often indicate that an idea was particularly timely, since she was teaching someone later in the day that was playing the repertoire featured on the DVL and was often having similar issues to those that Powell had addressed.

Sheila

Sheila noted several instances where she was already applying ideas learned from her original teacher training. However, she has subsequently elaborated upon them after viewing the DVL, facilitating the application of knowledge within the psychomotor and

affective domains. Based on these viewings, Sheila lengthened the number of repetitions during tonalization exercises, as well as introduced the wrist roll technique to more of her students. Additionally, she also noted that applying the harmonic terminology (tonic, dominant, subdominant) when children are playing these harmonies was something Sheila could apply to her teaching. Within the affective domains, Sheila wanted to apply a similar attitude exemplified by Powell regarding parents, and in particular, facilitating the development of parents as the “home teacher.” Sheila felt that she may have been underestimating the capabilities of her students’ parents, and would try to apply more strategies seen on the DVL with them.

Jessica

Jessica noted that all the footage viewed from the DVL inspired her to become a better teacher and to expect more precise playing. To assist with this, she found several clips that could readily help her in improving her students’ technique, level of performance in repertoire, and interactions with parents. Specific technique ideas included ensuring proper alignment while playing scales and having students maintain a natural hand position. She also indicated that the technical exercises that focused on legato repeated notes would be beneficial, which would assist in playing repeated note passages within their repertoire. Furthermore, the implementation of a tone production game that would involve the teacher, parent, and student was quite helpful. Jessica found many ideas to help improve the artistry and mastery of many pieces in the Suzuki repertoire. Specifically, she the idea of drop roll to enhance the balance in the second movement of *Sonatina, Op.36, No.1* by Clementi, finger staccato in *The Wild Rider* by Schumann, two-note slurs in *Ecoisaise* and five-note slurs in *Arabesque* were all helpful.

The use of rolls in *Lightly Row* and *Mary had a Little Lamb*, the use of lyrics in *French Children's Song* and the idea of Big/softs in *Allegretto* assisted in the dynamic shaping of the repeated "G" were all ideas that Jessica could readily apply. Jessica also noted that she learned many new strategies to assist her in communicating with the parents of her students, and in particular providing them with specific practice directions and instructions.

Cross-Case Synthesis

It seems that all the participants were able to apply knowledge from the cognitive, psychomotor and affective domains learned from the DVL into their present teaching situation. The cognitive knowledge acquired often included the use of new playing techniques (ex. use of wrist (rolls), circle technique, hand alignment). The application of psychomotor knowledge included such strategies as new five-finger patterns (ex. Tonalization, "Follow the Leader") and strategies to assist in developing greater variety of tone. Additionally, some participants noted specific Repertoire where they viewed ideas and strategies that would assist in developing a higher level of mastery for their students.

Within the affective domain, the most salient concept mentioned among the participants was the "refreshing" feeling viewing the DVL elicited. In addition, the participants also noted a change in the attitude towards the role their students' parents play, and the level of achievement their students could be capable of. It was noted in many logbooks and questionnaires that this process gave a level of "refreshment" to its participants, inspiring them in their teaching. Secondly, many participants also noted that viewing Powell's interactions with the parents of her students afterwards caused them to

reconsider the role their students' parents play in the lesson. One participant applied concepts from the Parental Interaction category immediately and noted success from this. Another participant also applied ideas from this category and reported that it was not as successful as she had hoped. A third participant seemed intrigued, but questioned its applicability to older students, although was willing to try at a later time. Finally, many participants were inspired by the high level of artistry that Powell was able to elicit from her students. This, in turn, caused the participants to apply this attitude to their own performance standards. While it could be considered that none of these concepts are "new" per se, they do seem to suggest that they have caused renewed interest and application for the participants into their teaching situations and, therefore, could be considered newly applied.

4.3.5 Student Outcomes

The fifth level of evaluation examines the impact on students, which may include examining the mastery of particular competencies, attainment of specific academic goals, or the acquisition of defined learning proficiencies. Data used to determine student outcomes was limited to the perceptions of the teachers regarding student achievement. This data was ascertained using participant's logbook (question 7) and the follow-up questionnaire (Section IV question 3). These outcomes were largely related to improved performance; consequently, the specific strategies that were applied along with the outcome that they elicited were extracted from these questions and summarized for each participant as well as for a cross-case synthesis.

Sophia

Sophia found some positive strategies and ideas that were easily incorporated into students' lessons and produced results quickly, as well as other ideas that could be beneficial, but which would take longer to garner results. Specifically, Sophia indicated that the incorporation of the "sticky finger" idea was immediately beneficial, where a student was able to correct a rhythm problem as well as produce a better tone in *Sonatina Op. 36, No.1* by Clementi. Sophia also tried to incorporate technical concepts (ex. circle technique, having the contact area with successive keys form a diagonal line rather than a horizontal line, align knuckles with the fallboard); however, this was not immediately successful, and would require much repetition and reinforcement. Sophia also felt that some ideas were harder to implement into her present lessons (ex. "bounce-roll-bounce"), as many students' fingers already were "set" and, consequently, these ideas may be more beneficial when beginning a new piece when first learning the gestures needed to execute a piece, rather than having to change a gesture after it has been learned. However, Sophia was going to begin using these gestures in tonalization exercises, in hopes that it would facilitate their use in learning new repertoire.

Elizabeth

Student outcomes from Elizabeth's studio consisted of students' increased ability to produce the desired sound. In particular, Elizabeth noted the use of tonalization exercises to focus on tone produced good results. At the end of the study, Elizabeth reflected that when she was listening to her student in a recital that she felt they played with better tone and nuance, and attributed this to her application of ideas seen on the DVL.

Sarah

Sarah found that some of her students responded quickly to ideas learned from the DVL. For example she incorporated the “Mississippi Hop Frog” that she saw on the Technique’s video to reinforce rhythm, pitch and dynamics, and found that this pattern increased the students’ ability to translate ideas into musical expressions. In another lesson, she noted that the use of drop roll at the beginning of *Sonatina Op. 36, No.1*, second movement was highly successful in eliciting the desired effect. Additionally, Sarah was able to use the lyrics “roll, fing-ers, roll, roll” in *Go Tell Aunt Rhody*, which she thought worked well for her student. One idea that Sarah had incorporated from her original teacher training was the use of a studio mascot “Fred.” After watching the DVL, Sarah saw how Powell often used Fred to deliver the “bad news” or to point out things that needed to be corrected. Sarah decided that she was going to adopt this idea. However, when applied, the child looked really sad and, consequently, she decided that for this student, using Fred as the “bad guy” would not work. Sarah, did conclude from this that the idea of her not being the person to always be “picky” was good and, consequently, from this she thought she may introduce another stuffed animal to be the “bad guy” in the studio.

Sheila

Sheila indicated three specific instances where she was able to refine her presentation of ideas for some of her students. Specifically, she was able to alter a student’s hand position in attempts to emphasize a more independent thumb helped to counteract student’s hand position that appeared very flat. As well, Sheila changed the tempo of her singing demonstrations. She also incorporated more exercises focusing on

tone production into both her private lessons as well as her group piano lessons. From applying this idea, Sheila found that her students increased their ability to identify and produce the desired sound. Sheila also noted that from watching the DVL she decided to apply the roll gesture to more students in her studio. She was surprised at how easily this gesture was acquired by students, and consequently, Sheila has decided to introduce it to more of her students. After viewing footage about parental interaction, Sheila resolved to inquire more about the week's practice. When doing this, one student cried, which led Sheila to decide that perhaps this strategy may not be applicable in her studio at this time.

Jessica

Generally, Jessica has found that the viewing sessions have given her renewed excitement and helped her to refine her teaching. Consequently, she has noted that the lessons seem to be accomplishing more specific goals and that the students seem to be having fun at the same time. Specifically, Jessica has found that the idea of previewing techniques required in specific pieces has been very beneficial to students. The use of two-note slurs in *Ecossaise* with down/up wrist resulted in the student produces a very lovely tone. Similarly the incorporation of the five-note slur technique demonstrated by Powell resulted in the student being able to perform the passage with increased speed and musicality. Additionally, Jessica noted that after she focused on providing more specific instructions to parents that they seemed encouraged and ready to implement the suggestions, and that her students seemed to enjoy having the parent closer to the piano.

Cross-Case Synthesis

The most salient student outcome noted was decreased amount of time to create a desired effect. Most notably, this would occur within the Suzuki repertoire. Additionally, one participant found that she thought that a student was producing better tone at the instrument as a result of the incorporation of ideas from the DVL. Results from the second questionnaire revealed that each participant believed that students of all ages benefited from the teacher viewing the DVL.

One participant did note that she had garnered some interesting ideas; however, it was difficult to ascertain the results, as it would take longer to accurately assess outcomes. Furthermore, in some cases, ideas were applied to no avail. For one participant this was seen in the application of various technical gestures for older students. One reason for this could be that a structure was already established that perhaps was not ready to be changed. In other words, the student already had a technical gesture learned, thus making it harder to adopt a different technique. Given the relatively short time period of this study it is difficult to accurately examine the extent of student outcomes, although initial results seem promising.

4.4 Summary of Chapter

Pattern matching was used to create a profile of each participant, her use of the DVL, and the resultant professional development based on the framework presented by Guskey (2000). This analysis determined that the participants were varied in their teaching situations, providing instruction to different numbers of students and giving a combination of Suzuki and/or traditional lessons. Variation was also seen in their educational backgrounds and professional development activities. Similarly, the use of

the DVL seemed to fall into two categories, those that viewed clips from many categories and those that viewed footage from one or two categories. All of the participants felt that viewing the DVL had been very beneficial to their professional development, and further stated specific contents of the DVL that they found helpful. From these viewing sessions, participants were also able to directly apply the skills acquired from the DVL to their current teaching situation. Although, they also listed drawbacks of the tool, the feedback and results of their encounters with the DVL were all very positive. Furthermore, each participant felt that their students had also benefited from this professional development process.

Chapter Five

Summary, Discussion, and Conclusions

This final chapter contains three broad sections. The first section provides a summary of the thesis. The second section scrutinizes the employed methodology by presenting limitations of the study and examining the application of Guskey's (2000) framework within piano pedagogy. The third section provides discussions and conclusions of the findings.

5.1 Summary of Thesis

This thesis examined the professional development of piano teachers as they accessed an on-line digital video library of piano teaching. The first chapter explored the literature relating to professional development and distance learning within the fields of piano pedagogy and education. Teacher training processes in piano pedagogy are quite difficult to categorize, as there seems to be no clear distinction between teacher education and professional development. In addition to one's own training as a pianist, several resources exist to support teacher's pedagogical development. These programs are available through universities, conservatories or other independent organizations.

While there are many piano pedagogy professional development programs, little research has examined the effectiveness of these activities. Therefore, one must often rely on research within the broader context of education to find related literature. This research has advocated for teacher training programs that include active learning, with one example of active learning being the observation of other teachers. Furthermore, research has suggested that professional development activities need to take place in a context that allows the participants to immediately apply their new knowledge in their

teaching situation. Consequently, literature surrounding distance education was also explored, bringing forth programs that have harnessed technology to facilitate participants' learning. Research examining various applications of technology to support learning has presented many positive findings by noting increased access to learners and greater autonomy for participants.

The second chapter presented the questions guiding this study, and outlined a digital video library (DVL) of piano teaching that had been assembled. The DVL contained a series of piano lessons featuring Powell and two of her students, as well as a series of demonstrations and explanations of various piano-playing techniques. These lessons were then catalogued within a number of categories, thus allowing its users the option of viewing the lesson in its entirety or accessing specific components within the lesson.

The third chapter outlined case-study methodology (Yin 2003), which was used along with Guskey's (2000) professional development framework to examine the experiences of piano teachers as they interacted with the DVL. Five female piano teachers from Canada and the United States, who had completed Suzuki piano teacher training with Powell, participated in this study. They were asked to access the DVL eight times, completing logbook entries after each session. Also during these viewing sessions, an electronic log recorded the annotations that were accessed during each sitting. In addition, each participant was required to complete two questionnaires, one at the outset of the study, and one at its conclusion. Generally, data was analyzed through the use of pattern-matching techniques (Yin, 2003; Miles and Huberman, 1994).

The fourth chapter examined the results and analysis of the data, first by creating a profile of each of the participants, then by exploring how each teacher used the DVL; and finally examining the professional development resulted. The profile of each of the participants described her teaching situation, education, and computer skills. This analysis found that each participant maintained a piano studio in a home studio, in a music school, or in a conservatory. The extent that each participant taught Suzuki piano lessons was divergent as two participants taught Suzuki piano lessons exclusively, two participants taught a mixture of private and Suzuki-based piano lessons, and one participant taught only traditional piano lessons. In addition, the teachers provided instruction to learners of all ages; however there was great variety in the number of students that each participant instructed.

There were also many differences in the level and type of education that each participant had received. Two teachers held Master's degrees in Music, two teachers had received Bachelor's degrees in Music and one teacher had completed a certificate in Music. Additionally, the three Canadian teachers had studied under the Royal Conservatory of Music system. Moreover, the amount of Suzuki teacher training was also variable ranging from the completion of Book One to the completion of Book Five.

The second section of this chapter examined each participant's use of the DVL. Each teacher seemed to use the DVL in a unique way, which was seen in the differing lengths of the viewing sessions and the variation in the categories that each accessed. For example, one participant focused almost exclusively on viewing entire lessons and often accessed video from the Age of Child category. Similarly, another participant accessed footage mainly from the Repertoire category. Other participants divided their time

between several categories, as one participant spent each session viewing footage from a different category, accessing all of the categories with the exception Repertoire. Furthermore, two participants seemed to have divided their viewing between several categories.

The third section evaluated the DVL based on five different levels of professional development, namely, Participants' Reactions, Participants' Learning, Organizational Support and Change, Application of New Knowledge and Student Outcomes. Generally, participants reacted positively to their interactions with the DVL, citing the contents, organization and accessibility among its greatest benefits. The most significant drawback expressed was related to picture and sound quality. Additionally, one participant was confused by the terminology within the DVL and found it to be a significant drawback. While all the participants seemed to enjoy viewing the DVL, they felt that further improvements could be made; most notably they recommended expanding its contents to include more teachers and a greater variety of students.

Participants' Learning referred to increased understanding within the cognitive, psychomotor and affective domain. Based on their viewing sessions, many participants gained new insights about piano technique. Additionally, participants noted that viewing the DVL facilitated the learning of strategies to assist in developing artistic and technical skills. And finally, many participants indicated that they became more aware of the high level of artistry that young children could be capable of, and that many of their students' parents were also capable of assisting more with their child's learning.

The third level examined how the administrative support and physical space could support the application of concepts and ideas the participants learned through viewing the

DVL. Two teachers worked exclusively in home studies, one teacher taught in a conservatory, one teacher taught in a music school, and one teacher taught in both a music school and a home studio. All of the teachers stated that their teaching location (physical space and quality of instrument) could facilitate the application of ideas and concepts presented on the DVL. Additionally, many indicated that their teaching situation (parental interaction, students, administrative support) also supported the application of ideas presented from the DVL.

The fourth level, Application of New Knowledge, related to the implementation of ideas into the participants' present teaching situation. All of the participants found ideas presented on the DVL that they could readily use in their lessons. Many of these concepts related to improvements in playing technique either through using a new gesture (ex. rolls, drop roll) or a new exercise (ex. Tonalization). Additionally, teachers that taught students who were studying Suzuki piano Book One repertoire often found ideas that they could use in improving the mastery of these pieces. Various parental-interaction strategies were applied with mixed results. Three participants described experiences related to their application of parental interaction strategies: one participant was apprehensive to try various strategies due to the age range of her students; one participant applied the strategy of asking about week's practice, which resulted in tears from the student, while a third teacher applied many parental interaction strategies from the DVL with much success. Another application of learning seemed to be present within the affective domain, as the attitudes of many teachers changed throughout this study. Participants noted that this experience inspired them as educators. Also, many participants indicated that they were applying the notion that their young students were

capable of greater artistry than they had expected, and in turn were applying strategies viewed on the DVL that would help to bring this new idea to fruition.

The fifth level, Student Outcomes, was examined through the teachers' perceptions of student achievement, which was often assessed through the performance of the student within the lesson. Two participants often noted that students were frequently successful in creating the desired effect when applying strategies learned from viewing the DVL. Furthermore, one participant realized the level of improvements in her student's playing from listening to her recital performance, and attributed these advancements to the application of ideas seen on the DVL.

Overall, it seemed that the use of a DVL facilitated the professional development of all the participants. Their reactions were very positive and they were all thankful for the opportunity to take part. In addition, all the participants were willing to use the DVL again. And most importantly, all the participants felt that they had become better teachers through this experience and found that their students had also benefited from this professional development activity.

5.2 Limitations

The results of this study suggest that an on-line digital video library can facilitate the professional development of piano teachers, however, these results must also be considered within the context of some limitations. Firstly, the number of participants used in this study was small. The primary goal of this study was to conduct an in-depth examination of the experiences of the participants, and consequently, much caution must be taken in generalizing these findings to all piano teachers. Secondly, the length of the study did not facilitate full analysis of student outcomes and application of new

knowledge. Each participant interacted with the DVL for four weeks and, consequently, very little insights could be garnered as to long-term outcomes and applications.

5.3 Application of the Model to Piano Pedagogy

Guskey (2000) presented his model with the primary purpose of evaluating professional development programs intended for classroom educators. The five-level evaluation framework includes both the participants' initial opinion of the program, as well as the application of these new ideas in the teaching situation. Since its presentation, it has been used to evaluate professional development programs including those in Biology (Sampsell, 2005) and English (Bridges, 2001). Given that applied piano instruction is a teaching and learning process, the application of this model to teacher training programs in piano pedagogy seems appropriate. Furthermore, its application to this project facilitated an in-depth look at the teachers' learning and how they in turn applied this new knowledge to their students.

One difficulty that seems to exist when applying this framework in this study was assessing organizational support and change. Many piano teachers are independent contractors and, therefore, organizational support and change is largely the instructor's responsibility; consequently, this level of investigation did not seem to be pertinent to these participants. Additionally, within this study, the DVL seemed to serve mostly to deepen the professional knowledge of the participant; and, therefore, already had the necessary support in place. Consequently, more research is needed to examine piano teachers who are implementing new methods and/or procedures to investigate how organizational support provides structure for new and different methods.

5.4 Discussion and Conclusions

The following section will discuss the findings from each of the research questions with regards to previous research surrounding the questions as well as provide insights for further exploration.

5.4.1 The Participants

While all participants received teacher training with Powell, they had other similarities and, in some cases, differences in their education and teaching situations. All the participants had some form of post-secondary education, although the level of attainment was divergent among them. Furthermore, all the Canadian-based teachers had received training from a conservatory system. It also seems that each participant relied on various resources to support their first teaching endeavors, including emulating his/her own teachers, experience, studying available books as well as more formal programs such as taking conservatory or university courses, and/or taking other teacher training programs (ex. Suzuki teacher training). These findings are consistent with literature pertaining to teacher training, noting that piano teachers can have great variety of education (Lopinski, 2005; Skaggs, 2004). The prominence of a conservatory system in supporting piano teachers supports Babin's (2005) acknowledgement that one of the roles of Canadian conservatories was to train teachers.

Furthermore, there seems to be little difference in the resources that each participant used for their initial teacher training and their professional development. Although each participant had received teacher training, all, except for one, had sought Suzuki teacher training after several years of providing piano instruction, while one participant did not start her piano teaching career until after receiving Suzuki piano

teacher training. Additionally, the depth of Suzuki training was also variable, as one participant had received Book One training, two participants had completed Book Three training, one participant had received Book Four training, and one participant had finished Book Five training.

Similarly, professional development activities included observing other teachers, informal conversations with colleagues, reading articles from books, journals and the Internet, attending workshops and lectures, and taking teacher training and/or university courses. This profile supports the description by Skaggs (2004) who suggested that if one compared piano teachers, there would be differences in their training experiences. Little research has examined the teaching training process of piano instructors and their motivation to pursue various professional development activities. Further research is needed to examine the profiles of piano teachers and their educational needs and motivations for engaging in professional development.

Differences in teaching situations were also present between these participants with the number and age of students, and the type of lesson presented being variable. However, according to the results of the second questionnaire, all of the participants stated that the ideas and concepts viewed on the DVL could be applied to all of their students. Consequently, it seems that in this case, the contents of the DVL were appropriate for both traditional and Suzuki students of all ages. This finding seems different from the description of the Suzuki method as a unique form of music education (Suzuki, 1983); however it does support the notion that the content of piano lessons is largely determined by the piano teacher. More investigation is therefore needed to explore the differences between traditional and Suzuki piano lessons.

5.4.2 The Use of the DVL

The digital video library was available to the participants in their home. They were free to peruse it at their leisure and could access the categories at their own choosing. From the analysis of their viewing paths, it seems that each teacher was able to find information that was pertinent to their teaching situation. From the analysis between participants, it was also determined that there were many differences in viewing tendencies, as two participants almost exclusively viewed only one category, while examined footage from two or three categories. The participants who provided Suzuki piano lessons exclusively seemed to access the Repertoire category the most, while the participant who instructed traditional lessons exclusively accessed the Repertoire category the least. Additionally, one participant mainly watched entire lessons, rarely accessing the footage from other categories, noting that she was confused with the categorization of the DVL. It is also interesting to note that there was not one annotation that all five participants accessed. These viewing discrepancies bring to light the flexibility that the DVL provided, as teachers were free to choose content that was of the greatest interest to them, thus facilitating a constructivist approach to professional development. This finding was different than that of Bond (2002). Bond found that those who received instructivist-based lessons benefited more than those who employed a constructivist approach. One reason for this discrepancy could be due to the fact that the participants in this study were already familiar with the subject matter, as they were knowledgeable of both teaching and playing the piano. Consequently, they were using the DVL to build on existing knowledge, rather than to elicit ideas within a new paradigm.

The contents of the DVL seemed pertinent to the teachers, as observing this master teacher seemed to be an effective professional development activity. This finding is similar to other research results (ex. Rees and Fanelli, 1997; Schon, 2005) that examined the viewing of other teachers to promote professional growth. Furthermore, watching these lessons could be considered a form of active learning as presented by Birman et al. (2000) and similarly, this study found that this activity was beneficial to its participants.

The use of the DVL seemed to facilitate a high level of learner autonomy as participants were free to choose the content and length of each session. This finding is similar to other studies (ex. Hansen, 2005; Koohang and Odracek, 2005) which revealed that the incorporation of technology, and specifically, video libraries and databases facilitated learner autonomy. While being able to access the DVL in one's home was also stated as being one of its greatest assets, there were also some drawbacks. In particular, one participant noted that using it alone in one's home was difficult especially when one had questions about maneuvering through the interface, or was experiencing technical difficulties and may have been apprehensive to contact the technical support person. This finding supports other case studies that have commented on technical problems being a major factor which influenced learning (ex. Ross, 2001). Despite these issues, all participants seemed to still benefit from the DVL. However, more research is needed to access the training that is needed to assist users in accessing and controlling the DVL.

Furthermore, Killion (2000) argued that drawbacks of asynchronous tools may include the need for the user to have appropriate computer skills and the cost to the producer, along with other hidden costs. Findings from this study supports that of Killion,

who emphasized the importance of having appropriate computer skills was brought forth. However, it seems that for this project the desired computer skills were not very advanced, as even the participants who rated their computer skills as fair or poor were able to learn from the DVL. One reason for this could be the ongoing technical support that was available to the participants. Consequently, in order to sustain a tool such as this, technical support seems to be necessary to provide feedback when problems arise.

Additionally, financial resources are needed to support the development and maintenance of such a tool. More research is needed to examine the sustainability of digital video libraries of piano teaching to determine if professional development organizations have the infrastructure in terms of time, finances, and expertise to support this type of activity.

5.4.3 Professional Development that Resulted from the DVL

All of the participants seemed to enjoy engaging with the DVL, and stated that they found this experience “refreshing”. Many noted that it seemed to remind them of ideas that had been presented at their initial teacher training but had been forgotten. As well, a sense of pride and encouragement was elicited, especially when the participants found ideas that they were already using.

The DVL also allowed the users to control the rate in which they could receive information. For example, one participant noted that she could watch a few clips, stop, and reflect on ideas and their potential application to her teaching situation. This finding supports the results of Tomlinson (1999) who suggested that viewing teaching situations allowed participants to develop new solutions and to compare them to their own teaching situations. Short-term teacher training courses are often saturated with information; the

participant often does not have the ability to control the rate at which information is presented, which may impinge on learning.

The DVL seemed to facilitate a level of flexibility where the teachers were allowed to choose a topic suitable to their teaching situation, watch as much as they saw fit, and then apply pertinent ideas directly to their teaching. Consequently, the time between learning a new idea and applying this concept in lessons seemed relatively short. This supports the ideas presented by Hodges (1996) and Donovan, Sousa and Walberg (1987), who suggested that professional development activities should readily translate into the teaching practice. This may be different than other short-term teacher training, as many teachers engage in the summer, which could mean that there may be a prolonged period of time before new knowledge is applied. Further investigation is needed to examine the transfer of information from the professional development activity into the teaching situation.

Viewing the DVL seemed to promote increased student learning for the participants' students, which supports Spark and Hirsch's (2000) idea that better student outcomes can be achieved through better teacher training. One limitation of this finding is that outcomes were based solely on the perceptions of the teachers. Further research is therefore needed to probe students' perceptions of the contents of piano lessons and their comprehension of new strategies presented by their teachers.

Very little research has focused on evaluating and examining professional development programs in piano pedagogy, consequently, it is very difficult to determine exactly what constitutes an effective professional development program. However, the results of this study do shed light on the experiences of piano teachers, and suggest that

having on-going teacher training through the observation of a master teacher facilitates their professional growth. In conclusion, it seems that the observation of others' teaching provides appropriate content for the professional development of piano teachers. Further, the use of the Internet as a vehicle for dissemination of this activity appears to be viable.

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Appendix A

List of Repertoire in DVL

Table 1

Repertoire Featured in the DVL

Piece	Composer	Location in Suzuki Repertoire
<i>Allegro I</i>	Suzuki	Suzuki Book One
<i>Arabesque</i>	Burgmüller	Suzuki Book Five
<i>Chant Arabe</i>	Anonymous	Suzuki Book One
<i>Christmas Day Secrets</i>	Dutton	Suzuki Book One
<i>Claire de Lune</i>	Folk Song	Suzuki Book One
<i>Cuckoo</i>	Folk Song	Suzuki Book One
<i>French Children's Song</i>	Folk Song	Suzuki Book One
<i>Go Tell Aunt Rhody</i>	Folk Song	Suzuki Book One
<i>Goodbye to Winter</i>	Folk Song	Suzuki Book One
<i>Lightly Row</i>	Folk Song	Suzuki Book One
<i>Long, Long Ago</i>	Bayly	Suzuki Book One
<i>Mary Had A Little Lamb</i>	Folk Song	Suzuki Book One
<i>Minuet in G Minor</i>	Bach	Suzuki Book Two
<i>Sonatina Op. 36. No. 1,</i>	Clementi	Suzuki Book Three
<i>The Honeybee</i>	Folk Song	Suzuki Book One
<i>Twinkle A</i>	Suzuki	Suzuki Book One
<i>Twinkle B</i>	Suzuki	Suzuki Book One
<i>Twinkle C</i>	Suzuki	Suzuki Book One
<i>Twinkle D</i>	Suzuki	Suzuki Book One

Appendix B

Description of Techniques in the DVL

Table 2

Description of Terminology in the Technique Category

Technique	Description
Alignment	The configuration of the fingers, hand, wrist, and arm in relation to each other at the keyboard
Circle Technique	This technique incorporates the lateral movement of elbow and arm.
Combining Gestures	The united of various gestures, with the most notable combination being bounce roll bounce as seen in <i>Twinkle B</i>
Drop roll	This is similar to the Use of Wrist (roll) motion, with the exception that the gesture begins above the key. In other words one drops onto the key, then rolls the wrist forward.
Dynamics	The ability to change the loudness of subsequent notes.
Finger Staccato	A short motion using only the fingers.
Five-finger Patterns ("Follow the Leader")	A series of melodic patterns that incorporate five adjacent notes. Powell (1988) notes that "Follow the Leader" is series of five-finger exercises, which she uses primarily to aid melodic development. Within these exercises, she gradually changes the note and rhythm patterns within the five notes, and largely incorporates the rhythms found within the Twinkle Variations. Powell further noted that after the child masters the rhythm and the notes, she adds other concepts, such as having the child close his/her eyes, adding dynamic changes within these patterns, altering the articulation.
Posture and Hand Position	This incorporates the position of the back, arm, hand and fingers, in a position conducive to piano playing.
Legato Repeated Notes	The connecting of the sounds of the same notes.

Size of Gesture	The amount of movement that occurs when executing a gesture. Usually in small children the gesture is exaggerated to accommodate the student's coordination abilities, and subsequently as he/she becomes more adept with the gesture, its size decreases.
Slide	This is the movement of the finger in a vertical motion as it makes contact with the key.
Use of Wrist (Rolls)	In an interview, Powell (in Comeau, 1997) noted that the wrist must also become loose. Its movement involves the use of the upper arm, which is so important to good piano playing. Use of the wrist also affects the tone quality, for it serves as the shock absorber and takes away the impact of the elbow. A flexible wrist is something I stress heavily.
Tonalization	A specific five-finger exercise used to facilitate the development of beautiful even tone. "Tonalization (playing a five-finger pattern up and down from C to G) teaches the first continuous legato playing and should be taught before proceeding further in the repertoire. It is another technique (although it is not designated as such) and is intended to teach legato playing with a beautiful tone. It may be used as a small step if a child is having difficulty using legato while simultaneously playing a melody such as <i>Twinkle Theme</i> " (Comeau, p.55).

Appendix C
Description of Teaching Strategy Terms in the DVL

Table 3
Description of Terminology in Teaching Strategy Category

Teaching Strategy	Description
Tapping Beat/Rhythm	Tapping the beat or rhythm on the child's lap.
Adding Lyrics	Adding words to a piece (Powell, 2004).
Changing Registers	Repeating a passage in different octave of the piano.
Demonstration	To play the passage and/or pattern in the desired manner. The demonstration and imitation process is the key to success in developing the student's ability to learn listen to himself...Imitation follows the demonstration. It is an "I play, you play" approach with as little verbalizing as possible." (p.27)
Eyes Closed	Having the student close his/her eyes as they listen.
Game	Using a game to focus on the desired aspect. To assist in developing the Suzuki premise of listening first, Powell advocates the use of many types of listening games; and often engages the child and/or parent in listening games to assist in developing skills in discerning differences in tone, dynamics and articulation (Powell, 1988).
Hand Over Hand	The teacher placing his/her hand over that of the student's to assist in making the desired gesture.
Imagery	Using a story or metaphor to assist the child in eliciting the desired sound and/or effect. Powell advocates for the use of metaphors and stories to assist the child in creating a high level of artistry, and in particular has found it helpful in developing the desired dynamics, tempo, and gesture (Powell, 1988).
One Point Focus	Concentrating on one aspect of a piece/gesture to ensure success (Powell, 2004).
Physical Markers	Placing a mark (ex. stickers, pencil mark) to denote where the student is to place his/her fingers (Powell, 2004).

Playing Together	When the teacher and student play at the same time. This can include a duet (each person is playing a different part), or a doubling (where the teacher is playing the same notes as the students, providing a demonstration as the child is playing) (Powell, 2004).
Steps	This is a series of One Point Focuses, where the teacher breaks down a concept into its component parts, and then sequences them to assist the child in ascertaining the concept. This facilitates the mastery of each component (Powell, 1988).
Stop-Prepare	This is a two-part process, where one inserting a break (stop) into a piece/exercise to allow the student to make the necessary adjustments (prepare) to play the subsequent material (Powell, 1988, 2005).
Stuffed Animal	This involves the use of a stuffed toy (Mrs. Powell often uses a frog named "Fred") to communicate with the students (Powell, 1988).

Appendix D
Catalogue of Clips in the On-line Digital Video Library (DVL) of Piano Teaching

Table 4

Annotations in the Age of Child Category

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
1	3-6 Years	David	David (Book 1 Tape 1)	0:00:00	0:26:20
2	3-6 Years	David	David (Book 1 Tape 2)	0:00:00	0:26:50
3	3-6 Years	David	David (Book 1 Tape 4)	0:00:00	0:27:13
4	3-6 Years	David	David (Book 1 Tape 5)	0:00:00	0:30:01
5	3-6 Years	David	David (Book 1 Tape 6)	0:00:00	0:29:52
6	3-6 Years	Vicky	Vicky (Book 1 Tape 2)	0:00:00	0:27:58
7	3-6 Years	Vicky	Vicky (Book 1 Tape 3)	0:00:00	0:26:50
8	3-6 Years	Vicky	Vicky (Book 1 Tape 4)	0:00:00	0:29:00
9	3-6 Years	Vicky	Vicky (Book 1 Tape 6)	0:00:00	0:28:23

Table 5

Annotations in the Lesson Category

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
10	David	Book One Tape 5	David (Book 1 Tape 5)	0:01:44	0:30:01
11	David	Book One Tape 4	David (Book 1 Tape 4)	0:00:00	0:27:13
12	David	Book One Tape 1	David (Book 1 Tape 1)	0:00:00	0:26:20
13	David	Book One Tape 6	David (Book 1 Tape 6)	0:00:00	0:29:52
14	David	Book One Tape 3	David (Book 1 Tape 3)	0:00:00	0:27:53
15	David	Book One Tape 2	David (Book 1 Tape 2)	0:00:00	0:26:50
16	Technique Examples	Mary Craig Powell	Mary Craig (Techniques)	0:00:00	0:42:24
17	Vicky	Book One Tape 4	Vicky (Book 1 Tape 4)	0:00:00	0:29:00
18	Vicky	Book One Tape 1	Vicky (Book 1 Tape 1)	0:00:00	0:27:29
19	Vicky	Book One Tape 2	Vicky (Book 1 Tape 2)	0:00:00	0:27:29
20	Vicky	Book One Tape 6	Vicky (Book 1 Tape 6)	0:00:00	0:28:23
21	Vicky	Book One Tape 3	Vicky (Book 1 Tape 3)	0:00:00	0:26:50

Table 6

Annotations in the Parental Interaction Category

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
22	Practice Suggestion (Technique)	Tonalization	Vicky (Book 1 Tape 1)	0:15:30	0:16:02
23	Practice Suggestion (Repertoire)	<i>Twinkle B</i> (Tone)	Vicky (Book 1 Tape 1)	0:09:38	0:11:13
24	Practice Suggestion (Repertoire)	<i>Twinkle A</i>	David (Book 1 Tape 1)	0:22:20	0:22:57
25	Concept Explanation	<i>Lightly Row</i>	Vicky (Book 1 Tape 3)	0:24:08	0:25:07
26	Concept Explanation	Legato Repeated Notes	Vicky (Book 1 Tape 1)	0:16:01	0:19:00
27	Practice Suggestion (Repertoire)	<i>Allegro I</i>	David (Book 1 Tape 5)	0:27:12	0:29:12
28	Practice Suggestion (Repertoire)	<i>Clair de Lune</i> (Lifts)	David (Book 1 Tape 6)	0:25:00	0:25:47
29	Practice Suggestion (Repertoire)	<i>Claire de Lune</i>	David (Book 1 Tape 5)	0:10:51	0:11:49
30	Practice Suggestion (Repertoire)	<i>Goodbye to Winter</i>	David (Book 1 Tape 5)	0:21:49	0:22:40
31	Practice Suggestion (Technique)	Hand Position	David (Book 1 Tape 6)	0:08:14	0:09:35
32	Practice Suggestion (Technique)	Hand Position	David (Book 1 Tape 6)	0:13:16	0:13:33

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
33	Practice Suggestion (Technique)	Left Hand (Hand Position)	Vicky (Book 1 Tape 3)	0:16:16	0:16:36
34	Practice Suggestion (Repertoire)	<i>Twinkle A</i> (Left Hand)	Vicky (Book 1 Tape 3)	0:17:37	0:18:28
35	Practice Suggestion (Technique)	Left Hand	Vicky (Book 1 Tape 2)	0:24:33	0:26:17
36	Practice Suggestion (Repertoire)	All Twinkles (Left Hand)	Vicky (Book 1 Tape 4)	0:13:57	0:14:32
37	Practice Suggestion (Repertoire)	<i>Lightly Row</i>	Vicky (Book 1 Tape 3)	0:21:02	0:21:46
38	Practice Suggestion (Repertoire)	<i>London Bridge</i>	David (Book 1 Tape 6)	0:22:43	0:22:57
41	Practice Suggestion (Technique)	Tonalization	David (Book 1 Tape 1)	0:18:55	0:20:15
42	Practice Suggestion (Technique)	Tonalization	David (Book 1 Tape 3)	0:17:31	0:17:55
43	Practice Suggestion (Technique)	Tonalization	David (Book 1 Tape 4)	0:09:10	0:09:19
44	Practice Suggestion (Technique)	Tonalization	Vicky (Book 1 Tape 4)	0:08:04	0:08:38
45	Practice Suggestion (Repertoire)	<i>Twinkle B</i>	David (Book 1 Tape 1)	0:08:33	0:10:34

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
46	Practice Suggestion (Repertoire)	<i>Twinkle B</i>	David (Book 1 Tape 4)	0:16:27	0:16:53
47	Practice Suggestion (Repertoire)	<i>Twinkle B</i>	David (Book 1 Tape 1)	0:11:32	0:12:52
48	Practice Suggestion (Repertoire)	<i>Twinkle C</i> (Tempo)	David (Book 1 Tape 4)	0:24:07	0:26:00
49	Practice Suggestion (Repertoire)	<i>Twinkle D</i> (Fingering)	David (Book 1 Tape 2)	0:15:56	0:17:06
50	Practice Suggestion (Repertoire)	<i>Twinkle D</i> (Increase Flow)	David (Book 1 Tape 2)	0:13:14	0:14:26
51	Practice Suggestion (Repertoire)	<i>Twinkle D</i> (Thumb)	David (Book 1 Tape 4)	0:13:43	0:14:12
52	Practice Suggestion (Repertoire)	Twinkle Graduation	Vicky (Book 1 Tape 3)	0:13:46	0:14:51
53	Practice Suggestion (Technique)	Learning New Five-finger Pattern	David (Book 1 Tape 1)	0:02:15	0:02:59
54	Practice Suggestion (Technique)	Five-finger Patterns (Practicing)	David (Book 1 Tape 3)	0:14:46	0:16:35
55	Practice Suggestion (Technique)	Five-finger Patterns	Vicky (Book 1 Tape 4)	0:06:29	0:07:07

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
56	Practice Suggestion (Repertoire)	<i>Christmas Day Secrets</i>	David (Book 1 Tape 5)	0:26:23	0:27:12
58	Practice Suggestion (Technique)	Combining Gestures	David (Book 1 Tape 3)	0:10:12	0:10:54
59	Practice Suggestion (Technique)	Tone Production (Game)	Vicky (Book 1 Tape 2)	0:08:11	0:10:05
60	Practice Suggestion (Repertoire)	<i>Lightly Row</i>	Vicky (Book 1 Tape 3)	0:25:07	0:26:50
61	Practice Suggestion (Repertoire)	<i>The Honeybee</i>	Vicky (Book 1 Tape 2)	0:15:00	0:15:24
62	Practice Suggestion (Repertoire)	<i>The Honeybee</i> (mm 5-8)	Vicky (Book 1 Tape 2)	0:16:13	0:17:57
63	Practice Suggestion (Technique)	Tonalization (Finger Position)	David (Book 1 Tape 2)	0:08:00	0:09:57
64	Practice Suggestion (Technique)	Tonalization (Game)	David (Book 1 Tape 3)	0:18:32	0:22:12
65	Practice Suggestion (Technique)	Tonalization (Hand Position)	David (Book 1 Tape 2)	0:08:00	0:09:57
66	Practice Suggestion (Repertoire)	<i>Twinkle C</i> (Increasing Tempo)	Vicky (Book 1 Tape 1)	0:24:37	0:25:20

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
67	Practice Suggestion (Repertoire)	<i>Twinkle C</i> (Increasing Tempo)	David (Book 1 Tape 3)	0:25:30	0:26:06
68	Practice Suggestion (Repertoire)	<i>Twinkle D</i> (Legato Repeated Notes)	Vicky (Book 1 Tape 6)	0:12:08	0:12:49
69	Practice Suggestion (Repertoire)	<i>Musette</i> (Metronome)	Vicky (Book 1 Tape 6)	0:02:54	0:03:48
70	Report of Week's Practice		David (Book 1 Tape 2)	0:00:53	0:01:26
71	Concept Explanation	Twinkle Graduation (Starting to Read)	David (Book 1 Tape 6)	0:27:37	0:29:52

Table 7

Annotation in the Repertoire Category

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
72	<i>Allegro I</i>	Left Hand	David (Book 1 Tape 5)	0:27:12	0:29:12
73	<i>Allegro I</i>		David (Book 1 Tape 6)	0:02:15	0:06:55
74	<i>Chant Arabe</i>	Fuller Sound (Drop Roll)	David (Book 1 Tape 5)	0:14:03	0:18:13
75	<i>Chant Arabe</i>		David (Book 1 Tape 5)	0:11:49	0:18:13
76	<i>Christmas Day Secrets</i>	Dynamics (Imagery)	David (Book 1 Tape 5)	0:24:20	0:27:17
77	<i>Christmas Day Secrets</i>		David (Book 1 Tape 5)	0:22:40	0:27:17
78	<i>Claire de Lune</i>	Fuller Sound	David (Book 1 Tape 5)	0:06:07	0:07:40
79	<i>Claire de Lune</i>	Increasing Tempo (Play together)	David (Book 1 Tape 5)	0:07:38	0:11:49
80	<i>Claire de Lune</i>		David (Book 1 Tape 5)	0:04:19	0:11:51
81	<i>Claire de Lune</i>		David (Book 1 Tape 6)	0:24:08	0:25:48
82	<i>Claire de Lune</i>		Vicky (Book 1 Tape 6)	0:26:27	0:27:40
83	<i>Cuckoo</i>	Demonstration (mm1-2)	Vicky (Book 1 Tape 2)	0:18:22	0:19:53
84	<i>Cuckoo</i>	Dynamics	Vicky (Book 1 Tape 4)	0:26:49	0:28:37
85	<i>Cuckoo</i>	Teaching Points	Vicky (Book 1 Tape 2)	0:19:53	0:21:13
86	<i>Cuckoo</i>		Vicky (Book 1 Tape 4)	0:24:22	0:27:19

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
87	<i>Cuckoo</i>		David (Book 1 Tape 6)	0:17:07	0:19:24
88	<i>Cuckoo</i>		Vicky (Book 1 Tape 6)	0:13:56	0:16:23
89	<i>French Children's Song</i>		Vicky (Book 1 Tape 4)	0:14:32	0:18:34
90	<i>French Children's Song</i>		David (Book 1 Tape 6)	0:20:09	0:22:10
91	<i>French Children's Song</i>		Vicky (Book 1 Tape 6)	0:19:15	0:21:46
92	<i>Go Tell Aunt Rhody</i>	Starting to Learn	Vicky (Book 1 Tape 4)	0:21:46	0:24:23
93	<i>Go Tell Aunt Rhody</i>		David (Book 1 Tape 6)	0:23:21	0:24:09
94	<i>Go Tell Aunt Rhody</i>		Vicky (Book 1 Tape 6)	0:25:04	0:26:27
95	<i>Goodbye to Winter</i>	Tone (Game)	David (Book 1 Tape 5)	0:19:35	0:22:40
96	<i>Goodbye to Winter</i>		David (Book 1 Tape 5)	0:18:13	0:22:42
97	<i>Lightly Row</i>	Duet	Vicky (Book 1 Tape 2)	0:26:42	0:28:13
98	<i>Lightly Row</i>	Performance RH	Vicky (Book 1 Tape 2)	0:10:14	0:11:30
99	<i>Lightly Row</i>	Starting to Learn	Vicky (Book 1 Tape 3)	0:20:15	0:26:33
100	<i>Lightly Row</i>		David (Book 1 Tape 6)	0:19:23	0:20:03
101	<i>Lightly Row</i>		Vicky (Book 1 Tape 6)	0:16:24	0:19:15

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
102	<i>London Bridge</i>		Vicky (Book 1 Tape 4)	0:18:33	0:19:56
103	<i>London Bridge</i>		David (Book 1 Tape 6)	0:22:07	0:22:58
104	<i>London Bridge</i>		Vicky (Book 1 Tape 6)	0:21:45	0:23:14
105	<i>Long Long Ago</i>		David (Book 1 Tape 6)	0:25:47	0:27:37
106	<i>Mary Had A Little Lamb</i>	Starting to Learn	Vicky (Book 1 Tape 4)	0:19:55	0:21:46
107	<i>Mary Had A Little Lamb</i>		David (Book 1 Tape 6)	0:22:57	0:23:21
108	<i>Mary Had A Little Lamb</i>		Vicky (Book 1 Tape 6)	0:23:14	0:25:02
109	<i>Musette</i>	Steady Tempo	Vicky (Book 1 Tape 6)	0:02:54	0:03:50
110	<i>Musette</i>		Vicky (Book 1 Tape 6)	0:01:17	0:03:50
111	<i>Sonatina Op. 36. No. 1, Clementi</i>		Mary Craig (Techniques)	0:05:31	0:05:58
113	<i>The Honeybee</i>	Adding Lyrics	Vicky (Book 1 Tape 2)	0:15:18	0:16:21
114	<i>The Honeybee</i>	Articulation (mm1-2)	Vicky (Book 1 Tape 2)	0:12:33	0:13:53
115	<i>The Honeybee</i>	Starting to Learn	Vicky (Book 1 Tape 2)	0:11:45	0:17:57
116	<i>The Honeybee</i>	Observation of Rests (mm2)	Vicky (Book 1 Tape 2)	0:12:40	0:13:53

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
117	<i>The Honeybee</i>	Demonstration	Vicky (Book 1 Tape 2)	0:15:24	0:16:21
118	<i>The Honeybee</i>	Practicing (mm5-8)	Vicky (Book 1 Tape 2)	0:13:50	0:15:26
119	<i>The Honeybee</i>	Practicing (mm5-8)	Vicky (Book 1 Tape 2)	0:16:13	0:17:57
120	<i>The Honeybee</i>	Teaching Points	Vicky (Book 1 Tape 2)	0:11:43	0:12:42
121	<i>The Honeybee</i>		David (Book 1 Tape 6)	0:16:01	0:17:07
122	<i>The Honeybee</i>		Vicky (Book 1 Tape 6)	0:12:49	0:13:56
123	<i>Twinkle A</i>	Performance	David (Book 1 Tape 4)	0:20:45	0:22:43
124	<i>Twinkle A</i>	Duet	Vicky (Book 1 Tape 1)	0:25:20	0:27:29
125	<i>Twinkle A</i>	Duet	David (Book 1 Tape 2)	0:25:19	0:26:42
126	<i>Twinkle A</i>	Duet	David (Book 1 Tape 3)	0:26:19	0:27:49
127	<i>Twinkle A</i>	Hands Together	Vicky (Book 1 Tape 4)	0:11:40	0:12:32
128	<i>Twinkle A</i>	Left Hand (Fingering)	Vicky (Book 1 Tape 3)	0:18:26	0:19:54
129	<i>Twinkle A</i>	Left Hand	Vicky (Book 1 Tape 4)	0:09:23	0:09:55
130	<i>Twinkle A</i>	Left Hand (Hand Position)	Vicky (Book 1 Tape 4)	0:09:55	0:11:17
132	<i>Twinkle A</i>	Smaller Gesture	David (Book 1 Tape 1)	0:21:11	0:22:57
133	<i>Twinkle A</i>	Tempo	David (Book 1 Tape 4)	0:20:45	0:22:34

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
134	<i>Twinkle A</i>		David (Book 1 Tape 1)	0:19:34	0:22:57
135	<i>Twinkle A</i>		David (Book 1 Tape 6)	0:06:54	0:09:35
136	<i>Twinkle A</i>		Vicky (Book 1 Tape 6)	0:05:17	0:06:41
137	<i>Twinkle A</i>	Duet	David (Book 1 Tape 1)	0:19:34	0:21:11
138	<i>Twinkle A</i>	Left Hand	Vicky (Book 1 Tape 2)	0:23:00	0:23:50
139	<i>Twinkle B</i>	Tone	Vicky (Book 1 Tape 3)	0:06:47	0:08:14
140	<i>Twinkle B</i>	Hands Together	Vicky (Book 1 Tape 4)	0:12:10	0:12:40
141	<i>Twinkle B</i>	Rhythm	David (Book 1 Tape 1)	0:09:43	0:12:12
142	<i>Twinkle B</i>	Rhythm	David (Book 1 Tape 4)	0:15:04	0:16:54
143	<i>Twinkle B</i>	Tone	David (Book 1 Tape 1)	0:10:34	0:12:12
144	<i>Twinkle B</i>	Tone	Vicky (Book 1 Tape 1)	0:07:26	0:11:13
145	<i>Twinkle B</i>		Vicky (Book 1 Tape 1)	0:06:05	0:11:13
146	<i>Twinkle B</i>		David (Book 1 Tape 2)	0:21:54	0:23:50
147	<i>Twinkle B</i>		David (Book 1 Tape 4)	0:14:11	0:16:53
148	<i>Twinkle B</i>		David (Book 1 Tape 6)	0:09:35	0:11:30
149	<i>Twinkle B</i>		Vicky (Book 1 Tape 6)	0:06:41	0:07:39
150	<i>Twinkle B</i>	Performance	David (Book 1 Tape 4)	0:22:43	0:24:07
151	<i>Twinkle C</i>	Duet	David (Book 1 Tape 1)	0:22:57	0:26:05
152	<i>Twinkle C</i>	Duet	Vicky (Book 1 Tape 1)	0:22:27	0:24:37
153	<i>Twinkle C</i>	Hands Together	Vicky (Book 1 Tape 4)	0:12:40	0:13:05

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
154	<i>Twinkle C</i>	Increasing Tempo	Vicky (Book 1 Tape 1)	0:20:57	0:22:28
155	<i>Twinkle C</i>		Vicky (Book 1 Tape 1)	0:20:13	0:25:20
156	<i>Twinkle C</i>		David (Book 1 Tape 2)	0:24:10	0:25:00
157	<i>Twinkle C</i>		David (Book 1 Tape 3)	0:22:10	0:26:06
158	<i>Twinkle C</i>		David (Book 1 Tape 6)	0:12:12	0:15:28
159	<i>Twinkle C</i>		Vicky (Book 1 Tape 6)	0:07:39	0:09:48
160	<i>Twinkle C</i>	Increasing Tempo	David (Book 1 Tape 3)	0:24:09	0:25:30
161	<i>Twinkle D</i>	Demonstration	David (Book 1 Tape 3)	0:15:24	0:16:34
162	<i>Twinkle D</i>	Fingering	David (Book 1 Tape 2)	0:14:26	0:17:09
163	<i>Twinkle D</i>	Hands Together	Vicky (Book 1 Tape 4)	0:13:05	0:14:08
164	<i>Twinkle D</i>	Tone	David (Book 1 Tape 4)	0:10:33	0:14:11
165	<i>Twinkle D</i>		David (Book 1 Tape 2)	0:10:58	0:17:05
166	<i>Twinkle D</i>		David (Book 1 Tape 4)	0:09:18	0:14:11
167	<i>Twinkle D</i>		David (Book 1 Tape 6)	0:15:28	0:16:01
168	<i>Twinkle D</i>		Vicky (Book 1 Tape 6)	0:09:47	0:12:49
169	Twinkle Graduation	Preparation	David (Book 1 Tape 4)	0:17:26	0:20:45
170	Twinkle Graduation		Vicky (Book 1 Tape 3)	0:09:26	0:14:51
412	<i>Twinkle A</i>	Left Hand	Vicky (Book 1 Tape 4)	0:09:28	0:09:47

Table 8

Annotation in the Technique Category

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
317	Alignment	Chord	Mary Craig (Techniques)	0:30:02	0:30:24
318	Alignment	Explanation	Mary Craig (Techniques)	0:26:43	0:28:03
319	Alignment	Explanation (Chords)	Mary Craig (Techniques)	0:28:46	0:29:22
320	Alignment	Scale (Close Up)	Mary Craig (Techniques)	0:29:21	0:30:03
321	Alignment	Scales	Mary Craig (Techniques)	0:28:03	0:28:46
322	Alignment	Entire Segment	Mary Craig (Techniques)	0:26:43	0:30:28
323	Circle Technique	Alberti Bass (Explanation)	Mary Craig (Techniques)	0:20:54	0:21:28
324	Circle Technique	Allegretto I	Mary Craig (Techniques)	0:17:56	0:18:26
325	Circle Technique	Arpeggio (Left Hand)	Mary Craig (Techniques)	0:21:56	0:22:11
326	Circle Technique	Broken Chords	Mary Craig (Techniques)	0:18:25	0:19:01
327	Circle Technique	Broken Chords (Left Hand)	Mary Craig (Techniques)	0:21:42	0:21:53
328	Circle Technique	Explanation	Mary Craig (Techniques)	0:16:52	0:18:00
329	Circle Technique	Four Note Chords	Mary Craig (Techniques)	0:19:05	0:20:54
330	Circle Technique	Four Note Chords (Explanation)	Mary Craig (Techniques)	0:19:05	0:20:00

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
331	Circle Technique	Minuet in G	Mary Craig (Techniques)	0:20:02	0:20:37
332	Circle Technique	Sonatina Op. 36. No. 1, Clementi	Mary Craig (Techniques)	0:20:37	0:20:55
333	Circle Technique	Triad (Right Hand)	Mary Craig (Techniques)	0:21:32	0:21:40
334	Circle Technique	Entire Segment	Mary Craig (Techniques)	0:16:52	0:19:01
335	Combining Gestures	Rhythm	David (Book 1 Tape 1)	0:05:07	0:08:33
336	Combining Gestures		David (Book 1 Tape 2)	0:20:03	0:21:54
337	Combining Gestures		David (Book 1 Tape 3)	0:03:43	0:10:54
338	Dynamics	Changing Dynamics (Five-finger Patterns)	Vicky (Book 1 Tape 3)	0:05:30	0:06:20
339	Dynamics	Changing Dynamics (Five-finger Patterns)	David (Book 1 Tape 2)	0:04:01	0:04:29
340	Dynamics	Changing Dynamics (Five-finger Patterns)	Vicky (Book 1 Tape 4)	0:02:33	0:07:06
341	Dynamics	Changing Dynamics (Repeated Notes)	David (Book 1 Tape 2)	0:03:16	0:04:01

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
342	Dynamics	Changing Dynamics (Repeated Notes)	David (Book 1 Tape 3)	0:01:53	0:03:43
343	Dynamics	Changing Dynamics (Repeated Notes)	Vicky (Book 1 Tape 3)	0:02:35	0:05:30
344	Dynamics	Changing Dynamics (Repeated Notes)	David (Book 1 Tape 4)	0:03:25	0:04:10
345	Dynamics	Changing Dynamics (Repeated Notes)	Vicky (Book 1 Tape 4)	0:01:12	0:01:29
346	Finger Staccato	Explanation	Mary Craig (Techniques)	0:22:13	0:22:34
347	Finger Staccato	Finger Staccato (Movement)	Mary Craig (Techniques)	0:23:26	0:24:06
348	Finger Staccato	<i>The Wild Rider</i>	Mary Craig (Techniques)	0:22:33	0:23:26
349	Finger Staccato	<i>The Wild Rider</i> (Close Up)	Mary Craig (Techniques)	0:24:06	0:24:47
350	Finger Staccato	Entire Segment	Mary Craig (Techniques)	0:22:13	0:24:06
351	Five-finger Patterns	Eyes Closed	David (Book 1 Tape 1)	0:00:17	0:01:10
352	Five-finger Patterns	Eyes Closed	David (Book 1 Tape 2)	0:04:29	0:06:27

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
353	Five-finger Patterns	Eyes Closed	David (Book 1 Tape 3)	0:00:58	0:01:53
354	Five-finger Patterns	Eyes Closed	David (Book 1 Tape 4)	0:04:10	0:05:10
355	Five-finger Patterns	Eyes Closed	Vicky (Book 1 Tape 4)	0:01:29	0:02:33
356	Five-finger Patterns	Learning New Pattern	David (Book 1 Tape 1)	0:01:10	0:02:59
357	Five-finger Patterns	Left Hand	Vicky (Book 1 Tape 2)	0:22:04	0:23:01
358	Five-finger Patterns	Left Hand	Vicky (Book 1 Tape 3)	0:16:36	0:18:26
359	Five-finger Patterns	Eyes Closed	David (Book 1 Tape 1)	0:00:03	0:02:59
360	Five-finger Patterns		Vicky (Book 1 Tape 1)	0:00:31	0:03:06
361	Five-finger Patterns		David (Book 1 Tape 2)	0:01:26	0:03:16
362	Tonalization		David (Book 1 Tape 2)	0:06:27	0:09:57
363	Five-finger Patterns		Vicky (Book 1 Tape 2)	0:00:00	0:01:20
364	Five-finger Patterns		Vicky (Book 1 Tape 2)	0:01:19	0:01:46
365	Five-finger Patterns	Eyes Closed	Vicky (Book 1 Tape 2)	0:01:45	0:03:05
366	Five-finger Patterns		David (Book 1 Tape 3)	0:00:00	0:00:58

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
367	Five-finger Patterns		Vicky (Book 1 Tape 3)	0:00:29	0:01:27
368	Five-finger Patterns		David (Book 1 Tape 4)	0:02:05	0:03:33
369	Five-finger Patterns		Vicky (Book 1 Tape 4)	0:00:39	0:01:12
370	Posture and Hand Position	Left Hand	Vicky (Book 1 Tape 2)	0:21:13	0:22:05
371	Posture and Hand Position	Right Hand	David (Book 1 Tape 2)	0:00:26	0:00:53
372	Legato Repeated Notes		Vicky (Book 1 Tape 1)	0:16:01	0:20:14
373	Legato Repeated Notes		David (Book 1 Tape 2)	0:09:57	0:11:04
374	Legato Repeated Notes		David (Book 1 Tape 3)	0:10:54	0:16:34
375	General Finger and Hand Movements	Combining Gestures (<i>Twinkle B</i>)	Mary Craig (Techniques)	0:33:30	0:35:44
376	General Finger and Hand Movements	Example (<i>Twinkle B</i>)	Mary Craig (Techniques)	0:35:44	0:36:10

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
377	General Finger and Hand Movements	Explanation	Mary Craig (Techniques)	0:30:25	0:32:18
378	General Finger and Hand Movements	<i>Twinkle A</i>	Mary Craig (Techniques)	0:32:57	0:33:30
379	General Finger and Hand Movements	<i>Twinkle A</i> (Close Up)	Mary Craig (Techniques)	0:40:58	0:41:19
380	General Finger and Hand Movements	<i>Twinkle B</i>	Mary Craig (Techniques)	0:33:30	0:36:10
381	General Finger and Hand Movements	<i>Twinkle B</i> (Close Up)	Mary Craig (Techniques)	0:41:19	0:41:42
382	General Finger and Hand Movements	<i>Twinkle B</i> (Explanation)	Mary Craig (Techniques)	0:33:30	0:36:09
383	General Finger and Hand Movements	<i>Twinkle C</i>	Mary Craig (Techniques)	0:36:10	0:37:26
384	General Finger and Hand Movements	<i>Twinkle C</i> (Close Up)	Mary Craig (Techniques)	0:41:42	0:42:02

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
385	General Finger and Hand Movements	<i>Twinkle C</i> (Example)	Mary Craig (Techniques)	0:36:58	0:37:26
386	General Finger and Hand Movements	<i>Twinkle C</i> (Explanation)	Mary Craig (Techniques)	0:36:10	0:36:58
387	General Finger and Hand Movements	<i>Twinkle D</i>	Mary Craig (Techniques)	0:37:26	0:40:56
388	General Finger and Hand Movements	<i>Twinkle D</i> (Close Up)	Mary Craig (Techniques)	0:42:02	0:42:23
389	General Finger and Hand Movements	<i>Twinkle D</i> (Example)	Mary Craig (Techniques)	0:40:02	0:40:56
390	General Finger and Hand Movements	<i>Twinkle D</i> (Explanation)	Mary Craig (Techniques)	0:37:06	0:40:02
391	General Finger and Hand Movements		Mary Craig (Techniques)	0:30:25	0:40:56
392	General Finger and Hand Movements	Teaching Suggestions	Mary Craig Techniques)	0:32:19	0:32:57

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
393	Posture and Hand Position	Posture	Vicky (Book 1 Tape 1)	0:00:00	0:00:31
394	Posture and Hand Position	Posture	David (Book 1 Tape 2)	0:00:00	0:00:26
395	Posture and Hand Position	Posture	Vicky (Book 1 Tape 4)	0:00:26	0:00:39
396	Posture and Hand Position	Left Hand	Vicky (Book 1 Tape 3)	0:15:08	0:16:36
397	Posture and Hand Position		Vicky (Book 1 Tape 3)	0:00:10	0:00:29
398	Finger and Hand Movements	Release From Keys (Imagery)	Vicky (Book 1 Tape 2)	0:09:15	0:10:01
399	Size of Gesture	Exaggerated Movements (Beginner)	Mary Craig (Techniques)	0:09:41	0:10:00
400	Size of Gesture	Explanation	Mary Craig (Techniques)	0:09:11	0:10:35
401	Size of Gesture	Exaggerated Movements (Beginner)	Mary Craig (Techniques)	0:10:35	0:11:00
402	Size of Gesture	Smaller Movements (Advanced)	Mary Craig (Techniques)	0:11:00	0:11:24
403	Size of Gesture	Smaller Movements (Advanced)	Mary Craig (Techniques)	0:10:00	0:10:35

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
404	Size of Gesture	Entire Segment	Mary Craig (Techniques)	0:09:11	0:11:24
405	Slide	Explanation	Mary Craig (Techniques)	0:24:46	0:26:25
406	Slide	Explanation for Repeated Notes	Mary Craig (Techniques)	0:25:37	0:26:23
407	Slide	To Achieve Lyrical Sound	Mary Craig (Techniques)	0:25:24	0:25:38
408	Slide	Entire Segment	Mary Craig (Techniques)	0:24:46	0:26:42
409	Slide	Demonstration (Close-Up)	Mary Craig (Techniques)	0:26:23	0:26:41
410	Tonalization	Contact Area With Keys	David (Book 1 Tape 1)	0:16:12	0:18:03
411	Tonalization	Hand Position	David (Book 1 Tape 4)	0:05:21	0:07:30
413	Tonalization	Tone Production	Vicky (Book 1 Tape 2)	0:05:32	0:09:19
414	Tonalization		David (Book 1 Tape 1)	0:12:12	0:19:34
415	Tonalization		Vicky (Book 1 Tape 1)	0:11:13	0:16:02
416	Tonalization		David (Book 1 Tape 2)	0:17:07	0:19:47
417	Tonalization		Vicky (Book 1 Tape 2)	0:03:24	0:05:32
418	Tonalization		David (Book 1 Tape 3)	0:16:34	0:22:10
419	Tonalization		David (Book 1 Tape 4)	0:05:21	0:09:18
420	Tonalization		Vicky (Book 1 Tape 4)	0:07:06	0:09:47
421	Use of Wrist (Rolls)	<i>Arabesque</i> (Close Up)	Mary Craig (Techniques)	0:16:34	0:16:49

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
422	Use of Wrist (Rolls)	Chords	Mary Craig (Techniques)	0:02:24	0:04:03
423	Use of Wrist (Rolls)	Chords	Mary Craig (Techniques)	0:02:00	0:02:18
424	Use of Wrist (Rolls)	Chords	Mary Craig (Techniques)	0:07:00	0:07:19
425	Use of Wrist (Rolls)	Drop Roll	Mary Craig (Techniques)	0:04:42	0:05:58
426	Use of Wrist (Rolls)	Drop Roll	Mary Craig (Techniques)	0:08:11	0:08:45
427	Use of Wrist (Rolls)	Tonalization	Mary Craig (Techniques)	0:00:00	0:01:35
428	Use of Wrist (Rolls)	Explanation	Mary Craig (Techniques)	0:11:27	0:15:20
429	Use of Wrist (Rolls)	5-note Slur	Mary Craig (Techniques)	0:16:16	0:16:49
430	Use of Wrist (Rolls)	5-note Slur (<i>Arabesque</i>)	Mary Craig (Techniques)	0:14:42	0:15:19
431	Use of Wrist (Rolls)	5-note Slur (Close Up)	Mary Craig (Techniques)	0:16:16	0:16:28
432	Use of Wrist (Rolls)	5-note Slur (Explanation)	Mary Craig (Techniques)	0:14:02	0:14:24
433	Use of Wrist (Rolls)	Drop Roll (<i>Chant Arabe</i>)	Mary Craig (Techniques)	0:04:50	0:05:18
434	Use of Wrist (Rolls)	Drop Roll (<i>Chant Arabe</i>)	Mary Craig (Techniques)	0:08:11	0:08:45

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
435	Use of Wrist (Rolls)	Gesture Combination (Bounce-Roll-Bounce)	David (Book 1 Tape 1)	0:04:28	0:08:33
436	Use of Wrist (Rolls)	Legato Repeated Notes	Mary Craig (Techniques)	0:03:31	0:04:02
437	Use of Wrist (Rolls)	Legato Sound	Mary Craig (Techniques)	0:07:19	0:08:11
438	Use of Wrist (Rolls)	Legato Sound (<i>Lightly Row</i>)	Mary Craig (Techniques)	0:02:46	0:03:31
439	Use of Wrist (Rolls)	Legato Sound (<i>Lightly Row</i>)	Mary Craig (Techniques)	0:07:19	0:07:51
440	Use of Wrist (Rolls)	<i>Lightly Row</i>	Mary Craig (Techniques)	0:01:35	0:02:00
441	Use of Wrist (Rolls)	<i>Lightly Row</i>	Mary Craig (Techniques)	0:06:20	0:06:42
442	Use of Wrist (Rolls)	<i>London Bridge</i>	Mary Craig (Techniques)	0:04:08	0:04:40
443	Use of Wrist (Rolls)	<i>London Bridge</i>	Mary Craig (Techniques)	0:06:43	0:07:00
444	Use of Wrist (Rolls)	Long Notes	Mary Craig (Techniques)	0:04:03	0:04:40
445	Use of Wrist (Rolls)	Long Notes	Mary Craig (Techniques)	0:06:20	0:07:00
446	Use of Wrist (Rolls)	<i>Sonatina Op. 36, No. 1</i> by Clementi	Mary Craig (Techniques)	0:08:45	0:09:09
447	Use of Wrist (Rolls)	3 Note Slur (Close Up)	Mary Craig (Techniques)	0:15:55	0:16:18

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
448	Use of Wrist (Rolls)	3 Note Slur (Explanation)	Mary Craig (Techniques)	0:13:24	0:14:02
449	Use of Wrist (Rolls)	2-Note Slur	Mary Craig (Techniques)	0:15:22	0:15:55
450	Use of Wrist (Rolls)	2-Note Slur (Close Up)	Mary Craig (Techniques)	0:15:22	0:15:35
451	Use of Wrist (Rolls)	2-Note Slur (<i>Eccossaise</i> Close Up)	Mary Craig (Techniques)	0:15:40	0:15:55
452	Use of Wrist (Rolls)	2-Note Slur (<i>Eccossaise</i>)	Mary Craig (Techniques)	0:14:24	0:14:42
453	Use of Wrist (Rolls)	2-Note Slur (Example)	Mary Craig (Techniques)	0:11:44	0:12:00
454	Use of Wrist (Rolls)	2-Note Slur (Explanation)	Mary Craig (Techniques)	0:12:00	0:13:24
455	Use of Wrist (Rolls)		David (Book 1 Tape 1)	0:02:59	0:04:28
456	Use of Wrist (Rolls)		Mary Craig (Techniques)	0:00:00	0:02:18
457	Use of Wrist (Rolls)		Mary Craig (Techniques)	0:07:51	0:08:11
458	Use of Wrist (Rolls)	Gesture Combination (Bounce-Roll-Bounce)	Vicky (Book 1 Tape 1)	0:05:10	0:06:05
459	Use of Wrist (Rolls)	Inserting into Tonalization	Mary Craig (Techniques)	0:05:59	0:06:20
460	Use of Wrist (Rolls)		Vicky (Book 1 Tape 1)	0:03:06	0:05:10

Table 9

Annotations in the Teaching Strategy Category

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
112	Tapping Beat	<i>Twinkle B</i>	David (Book 1 Tape 4)	0:15:04	0:16:53
171	Adding Lyrics	<i>The Honeybee</i>	Vicky (Book 1 Tape 2)	0:15:18	0:16:21
172	Adding Lyrics	<i>Twinkle B</i>	Vicky (Book 1 Tape 1)	0:07:26	0:11:14
173	Changing Registers	<i>The Honeybee</i>	Vicky (Book 1 Tape 2)	0:16:13	0:17:51
174	Demonstration (Repertoire)	<i>Allegro I</i> (Chord Progression)	David (Book 1 Tape 5)	0:27:12	0:29:12
175	Demonstration (Technique)	Changing Dynamics	Vicky (Book 1 Tape 4)	0:04:32	0:06:29
176	Demonstration (Repertoire)	<i>Twinkle B</i>	Vicky (Book 1 Tape 3)	0:06:47	0:08:14
177	Demonstration (Technique)	Changing Dynamics	David (Book 1 Tape 4)	0:03:25	0:04:10
178	Demonstration (Technique)	Changing Dynamics	Vicky (Book 1 Tape 4)	0:00:49	0:01:07
179	Demonstration (Technique)	Changing Dynamics	Vicky (Book 1 Tape 4)	0:03:41	0:06:29
180	Demonstration (Repertoire)	<i>Cuckoo</i> (Changing Dynamics)	Vicky (Book 1 Tape 4)	0:24:22	0:26:50
181	Demonstration (Technique)	Changing Dynamics (Repeated Notes)	David (Book 1 Tape 2)	0:03:16	0:04:01
182	Demonstration (Technique)	Combining Gestures	David (Book 1 Tape 3)	0:03:43	0:05:33

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
183	Demonstration (Technique)	Combining Gestures	David (Book 1 Tape 3)	0:07:36	0:10:54
184	Demonstration (Technique)	Combining Gestures	David (Book 1 Tape 1)	0:04:28	0:08:33
185	Demonstration (Repertoire)	<i>Mary Had a Little Lamb</i> (Connecting Phrases)	Vicky (Book 1 Tape 6)	0:23:37	0:25:02
186	Demonstration (Repertoire)	<i>Cuckoo</i> (Changing Dynamics)	Vicky (Book 1 Tape 2)	0:18:22	0:21:14
187	Demonstration (Repertoire)	<i>Cuckoo</i> (Legato Repeated Notes)	Vicky (Book 1 Tape 6)	0:14:58	0:16:22
188	Demonstration (Repertoire)	<i>Cuckoo</i> (Changing Dynamics)	Vicky (Book 1 Tape 4)	0:25:31	0:28:35
189	Demonstration (Technique)	Five-finger Patterns	David (Book 1 Tape 1)	0:00:03	0:02:59
190	Demonstration (Technique)	Five-finger Patterns	Vicky (Book 1 Tape 1)	0:00:31	0:03:06
191	Demonstration (Technique)	Five-finger Patterns	David (Book 1 Tape 2)	0:01:26	0:03:16
192	Demonstration (Technique)	Five-finger Patterns	Vicky (Book 1 Tape 2)	0:00:00	0:01:19
193	Demonstration (Technique)	Five-finger Patterns	Vicky (Book 1 Tape 2)	0:01:45	0:03:05
194	Demonstration (Technique)	Five-finger Patterns	David (Book 1 Tape 3)	0:00:05	0:00:58

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
195	Demonstration (Technique)	Five-finger Patterns	Vicky (Book 1 Tape 3)	0:00:29	0:01:27
196	Demonstration (Technique)	Changing Dynamics	Vicky (Book 1 Tape 3)	0:02:35	0:05:30
197	Demonstration (Technique)	Five-finger Patterns	Vicky (Book 1 Tape 3)	0:05:30	0:06:20
198	Demonstration (Technique)	Five-finger Patterns	David (Book 1 Tape 4)	0:02:05	0:03:25
199	Demonstration (Technique)	Five-finger Patterns	Vicky (Book 1 Tape 4)	0:00:12	0:00:48
200	Demonstration (Repertoire)	<i>French Children's Song</i>	David (Book 1 Tape 6)	0:20:56	0:22:08
201	Demonstration (Repertoire)	<i>French Children's Song</i> (Changing Dynamics)	Vicky (Book 1 Tape 4)	0:16:39	0:18:33
202	Demonstration (Repertoire)	<i>French Children's Song</i> (Changing Dynamics)	Vicky (Book 1 Tape 4)	0:15:35	0:18:10
203	Demonstration (Repertoire)	<i>French Children's Song</i> (Tone)	Vicky (Book 1 Tape 6)	0:20:33	0:21:46
204	Demonstration (Repertoire)	<i>Go Tell Aunt Rhody</i> (Ritardando)	Vicky (Book 1 Tape 6)	0:26:01	0:26:27

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
205	Demonstration (Technique)	Legato Repeated Notes	Vicky (Book 1 Tape 1)	0:16:01	0:20:14
206	Demonstration (Technique)	Legato Repeated Notes	David (Book 1 Tape 2)	0:09:57	0:11:04
207	Demonstration (Technique)	Legato Repeated Notes	David (Book 1 Tape 3)	0:11:00	0:14:45
208	Demonstration (Repertoire)	<i>Cuckoo</i> (Lifting Between Phrases)	David (Book 1 Tape 6)	0:18:17	0:19:23
209	Demonstration (Repertoire)	<i>Lightly Row</i>	Vicky (Book 1 Tape 3)	0:21:47	0:26:36
210	Demonstration (Repertoire)	<i>Lightly Row</i> (Legato Repeated Notes)	Vicky (Book 1 Tape 6)	0:17:16	0:19:16
211	Demonstration (Repertoire)	<i>London Bridge</i> (Change in Hand Position)	Vicky (Book 1 Tape 6)	0:22:09	0:23:14
212	Demonstration (Repertoire)	<i>The Honeybee</i> (Dynamics)	David (Book 1 Tape 6)	0:16:30	0:17:07
213	Demonstration (Repertoire)	<i>The Honeybee</i>	Vicky (Book 1 Tape 2)	0:13:50	0:14:04
214	Demonstration (Repertoire)	<i>The Honeybee</i> (mm5-8)	Vicky (Book 1 Tape 2)	0:13:50	0:15:25

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
215	Demonstration (Technique)	Tonalization (Finger Position)	David (Book 1 Tape 2)	0:08:00	0:09:57
216	Demonstration (Technique)	Tonalization (Length of Last Note)	David (Book 1 Tape 2)	0:18:48	0:19:47
217	Demonstration (Technique)	Tonalization	Vicky (Book 1 Tape 2)	0:05:32	0:08:11
218	Demonstration (Repertoire)	<i>Twinkle A</i> (Tempo)	David (Book 1 Tape 4)	0:20:45	0:22:43
219	Demonstration (Repertoire)	<i>Twinkle B</i> (Rhythm)	David (Book 1 Tape 4)	0:22:43	0:24:09
220	Demonstration (Repertoire)	<i>Twinkle B</i> (Tone)	David (Book 1 Tape 1)	0:10:34	0:12:12
221	Demonstration (Repertoire)	<i>Twinkle D</i>	David (Book 1 Tape 2)	0:14:26	0:15:56
222	Demonstration (Repertoire)	<i>Twinkle D</i> (Legato Repeated Notes)	Vicky (Book 1 Tape 6)	0:11:08	0:12:49
223	Demonstration (Technique)	Combining Gestures	David (Book 1 Tape 1)	0:05:07	0:08:33
224	Demonstration (Technique)	Use of Wrist (Rolls)	David (Book 1 Tape 1)	0:02:59	0:04:28
225	Demonstration (Technique)	Combining Gestures	Vicky (Book 1 Tape 1)	0:05:10	0:06:05
226	Demonstration (Technique)	Use of Wrist (Rolls)	Vicky (Book 1 Tape 1)	0:03:06	0:05:10

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
227	Demonstration (Repertoire)	<i>Allegro I</i> (Chord Progression)	David (Book 1 Tape 6)	0:03:19	0:05:40
228	Demonstration (Repertoire)	<i>Go Tell Aunt Rhody</i> (Starting to Learn)	Vicky (Book 1 Tape 4)	0:21:23	0:24:00
229	Eyes Closed (Technique)	Five-finger Patterns	David (Book 1 Tape 2)	0:04:29	0:06:27
230	Eyes Closed (Technique)	Five-finger Patterns	David (Book 1 Tape 3)	0:00:58	0:01:53
231	Eyes Closed (Technique)	Five-finger Patterns	Vicky (Book 1 Tape 3)	0:01:27	0:02:35
232	Eyes Closed (Technique)	Five-finger Patterns	David (Book 1 Tape 4)	0:04:10	0:05:10
233	Eyes Closed (Technique)	Five-finger Patterns	Vicky (Book 1 Tape 4)	0:01:07	0:02:10
234	Game (Technique)	Tonalization	Vicky (Book 1 Tape 1)	0:11:44	0:12:34
235	Game (Technique)	Combining Gestures (Tone)	David (Book 1 Tape 3)	0:05:33	0:07:36
236	Game (Repertoire)	<i>Goodbye to Winter</i> (Tone)	David (Book 1 Tape 5)	0:19:35	0:22:40
237	Game (Technique)	Legato Repeated Notes	David (Book 1 Tape 3)	0:13:23	0:14:46
238	Game (Technique)	Tonalization	David (Book 1 Tape 1)	0:13:59	0:16:12

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
240	Game (Technique)	Tonalization	Vicky (Book 1 Tape 4)	0:08:15	0:09:23
241	Game (Technique)	Tonalization	Vicky (Book 1 Tape 1)	0:12:34	0:15:30
242	Game (Technique)	Tonalization	David (Book 1 Tape 2)	0:17:07	0:18:48
243	Game (Repertoire)	<i>Twinkle A</i> (Tone)	Vicky (Book 1 Tape 2)	0:23:50	0:24:33
244	Game (Repertoire)	<i>Twinkle D</i> (Fingering)	David (Book 1 Tape 2)	0:14:26	0:15:56
245	Game (Repertoire)	<i>Twinkle D</i> (Tone)	David (Book 1 Tape 4)	0:11:10	0:14:11
246	Game (Technique)	Hand Position	David (Book 1 Tape 6)	0:08:14	0:09:35
247	Game (Repertoire)	<i>Lightly Row</i>	Vicky (Book 1 Tape 6)	0:17:44	0:19:16
248	Ghosting	<i>Twinkle C</i> (Increasing Tempo)	David (Book 1 Tape 6)	0:13:32	0:15:28
249	Hand Over Hand (Technique)	Combining Gestures	David (Book 1 Tape 1)	0:05:07	0:08:33
250	Hand Over Hand (Repertoire)	<i>Go Tell Aunt Rhody</i> (Rolls)	Vicky (Book 1 Tape 4)	0:23:35	0:24:00
251	Hand Over Hand (Technique)	Left Hand	Vicky (Book 1 Tape 3)	0:16:36	0:18:28

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
252	Hand Over Hand (Technique)	Left Hand (Playing Position)	Vicky (Book 1 Tape 2)	0:22:04	0:23:00
253	Hand Over Hand (Technique)	Legato Repeated Notes	David (Book 1 Tape 3)	0:12:48	0:13:23
254	Hand Over Hand (Technique)	Tonalization	David (Book 1 Tape 1)	0:13:25	0:13:59
255	Hand Over Hand (Repertoire)	<i>Twinkle B</i>	Vicky (Book 1 Tape 1)	0:07:26	0:11:14
256	Hand Over Hand (Repertoire)	<i>Twinkle C</i> (Increasing Tempo)	Vicky (Book 1 Tape 1)	0:20:57	0:22:27
257	Hand Over Hand (Repertoire)	<i>Twinkle D</i>	David (Book 1 Tape 2)	0:10:54	0:13:14
258	Hand Over Hand (Repertoire)	<i>Twinkle D</i> (Fingering)	David (Book 1 Tape 2)	0:14:26	0:15:56
259	Imagery (Technique)	Changing Dynamics	Vicky (Book 1 Tape 4)	0:02:33	0:06:43
260	Imagery (Repertoire)	<i>Christmas Day Secrets</i> (Dynamics)	David (Book 1 Tape 5)	0:24:20	0:27:16
261	Imagery (Technique)	Combining Gestures	Vicky (Book 1 Tape 1)	0:11:44	0:12:34
262	Imagery (Technique)	Combining Gestures	David (Book 1 Tape 3)	0:05:33	0:07:36

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
263	Imagery (Technique)	Contact With Keys	David (Book 1 Tape 1)	0:16:12	0:17:15
264	Imagery (Repertoire)	<i>French Children's Song</i> (Tone)	David (Book 1 Tape 6)	0:20:56	0:22:07
265	Imagery (Technique)	Legato Repeated Notes	Vicky (Book 1 Tape 1)	0:16:01	0:20:14
266	Imagery (Technique)	Release From Keys	Vicky (Book 1 Tape 2)	0:09:18	0:10:04
267	Imagery (Repertoire)	<i>The Honeybee</i> (Observation of Rests)	Vicky (Book 1 Tape 2)	0:12:40	0:15:25
268	Imagery (Technique)	Tonalization (Length of Last Note)	David (Book 1 Tape 2)	0:18:48	0:19:47
269	Imagery (Repertoire)	<i>Twinkle B</i> (Tone)	Vicky (Book 1 Tape 3)	0:06:47	0:08:14
270	Imagery (Repertoire)	<i>Twinkle C</i> (Increasing Tempo)	Vicky (Book 1 Tape 1)	0:20:57	0:22:28
271	Metronome	<i>Allegro I</i> (Steady Tempo)	David (Book 1 Tape 6)	0:05:40	0:06:54
272	Metronome	<i>Clair de Lune</i> (Increasing Tempo)	David (Book 1 Tape 5)	0:09:21	0:11:50
273	Metronome	<i>Musette</i> (Steady Tempo)	Vicky (Book 1 Tape 6)	0:01:17	0:03:48

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
274	One Point Focus	<i>Allegro I</i> (Chord Progression)	David (Book 1 Tape 6)	0:03:19	0:05:40
275	One Point Focus	Changing Dynamics (Repeated Notes)	David (Book 1 Tape 3)	0:01:53	0:03:43
276	One Point Focus	<i>Twinkle B</i> (Length of Note)	David (Book 1 Tape 6)	0:10:40	0:11:30
277	Physical Markers	Contact With Keys	David (Book 1 Tape 1)	0:17:15	0:18:03
278	Playing Together (Repertoire)	<i>Change Arabe</i> (Drop Rolls)	David (Book 1 Tape 5)	0:14:42	0:18:13
279	Playing Together (Repertoire)	<i>Chant Arabe</i> (Projection)	David (Book 1 Tape 5)	0:14:03	0:18:13
280	Playing Together (Repertoire)	<i>Clair de Lune</i> (Increasing Tempo)	David (Book 1 Tape 5)	0:07:38	0:11:51
281	Playing Together (Technique)	Combining Gestures	David (Book 1 Tape 1)	0:05:58	0:08:35
282	Playing Together (Technique)	Tonalization	David (Book 1 Tape 1)	0:12:48	0:13:25
283	Playing Together (Technique)	Tonalization	David (Book 1 Tape 3)	0:16:34	0:17:31

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
284	Playing Together (Repertoire)	<i>Twinkle B</i>	David (Book 1 Tape 1)	0:08:33	0:10:34
285	Playing Together (Repertoire)	<i>Twinkle D</i>	David (Book 1 Tape 4)	0:09:18	0:10:33
286	Playing Together (Technique)	Tonalization	Vicky (Book 1 Tape 1)	0:04:10	0:05:10
287	Playing Together (Technique)	Tonalization	Vicky (Book 1 Tape 1)	0:11:13	0:11:45
288	Playing Together (Technique)	Tonalization	David (Book 1 Tape 2)	0:06:27	0:08:00
289	Playing Together (Technique)	Tonalization	David (Book 1 Tape 4)	0:05:21	0:07:30
290	Playing Together (Repertoire)	<i>Twinkle B</i>	Vicky (Book 1 Tape 1)	0:06:40	0:07:26
291	Playing Together (Repertoire)	<i>Twinkle C</i> (Increasing Tempo)	David (Book 1 Tape 3)	0:24:09	0:25:30
292	Playing Together (Repertoire)	<i>Twinkle C</i> (Increasing Tempo)	Vicky (Book 1 Tape 1)	0:20:57	0:22:28
293	Playing Together (Repertoire)	<i>Twinkle D</i>	David (Book 1 Tape 2)	0:10:54	0:13:14
294	Steps (Technique)	Changing Dynamics	Vicky (Book 1 Tape 3)	0:02:35	0:05:30

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
295	Steps (Technique)	Tonalization	David (Book 1 Tape 3)	0:16:34	0:17:31
296	Steps (Technique)	Changing Dynamics	Vicky (Book 1 Tape 4)	0:02:33	0:07:06
297	Steps (Repertoire)	Combining Gestures	David (Book 1 Tape 3)	0:05:33	0:10:54
298	Steps (Repertoire)	<i>Lightly Row</i> (Starting to Learn)	Vicky (Book 1 Tape 3)	0:20:15	0:26:33
299	Steps (Technique)	Tonalization	David (Book 1 Tape 4)	0:05:21	0:07:30
300	Steps (Technique)	Tonalization	Vicky (Book 1 Tape 1)	0:14:03	0:15:30
301	Steps (Repertoire)	<i>French Children's Song</i> (Tone)	Vicky (Book 1 Tape 4)	0:14:08	0:18:10
302	Steps (Repertoire)	<i>Twinkle B</i> (Rhythm)	David (Book 1 Tape 1)	0:08:33	0:10:34
303	Steps (Repertoire)	<i>Twinkle B</i> (Rhythm)	David (Book 1 Tape 4)	0:15:04	0:16:53
304	Stop-Prepare	<i>Christmas Day Secrets</i> (Dynamics)	David (Book 1 Tape 5)	0:24:20	0:27:16
305	Stuffed Animal (Technique)	Hand Position	David (Book 1 Tape 2)	0:00:26	0:00:53
306	Stuffed Animal (Repertoire)	<i>London Bridge</i> (Rolls)	Vicky (Book 1 Tape 4)	0:18:10	0:19:32

Ann. #	Description		Source Video	Time	
	General	Specific		Start	End
307	Stuffed Animal (Technique)	Tonalization	David (Book 1 Tape 2)	0:06:27	0:08:00
308	Stuffed Animal (Technique)	Tonalization	Vicky (Book 1 Tape 2)	0:03:24	0:05:32
309	Stuffed Animal (Technique)	Tonalization	Vicky (Book 1 Tape 2)	0:05:32	0:09:18
311	Stuffed Animal (Technique)	Tonalization	David (Book 1 Tape 3)	0:16:35	0:17:31
312	Stuffed Animal (Technique)	Tonalization	David (Book 1 Tape 4)	0:05:21	0:07:30
313	Stuffed Animal (Repertoire)	<i>Twinkle A</i> (Tone)	Vicky (Book 1 Tape 2)	0:23:50	0:24:35
314	Stuffed Animal (Technique)	Tonalization	David (Book 1 Tape 1)	0:18:03	0:19:35
315	Tapping Rhythm (Technique)	Combining Gestures	David (Book 1 Tape 1)	0:05:58	0:08:33
316	Tapping Rhythm (Technique)	Combining Gestures	David (Book 1 Tape 3)	0:07:38	0:10:54

Appendix E DVL Home Page

QuickTime 7 is required

Best performance with Firefox (Windows)

Welcome to the Digital Video Library of Piano Teaching

Select the video size

Small | Medium | Large

Project Description

This project surrounds the evaluation of a digital video library for the ongoing teacher training of piano teachers. The premise surrounds the need to create ongoing professional development opportunities piano teachers, who often work independently, and may not easily find appropriate programs. To do this an online digital video library of piano teaching has been created and catalogued to be viewed by piano teachers in their home to serve as an extension of a short-term piano teacher training course.

Research Partners

The Piano Pedagogy Research Laboratory in the Department of Music at the University of Ottawa

The National Research Council of Canada - Institute for Information Technology

Researchers

Julia Brook, Graduate Student, Music, University of Ottawa

Bruno Emond

Broadband visual communication research program, Institute for Information Technology, National Research Council of Canada & Department of Education, Université du Québec en Outaouais

Martin Brooks

Broadband visual communication research program, Institute for Information Technology, National Research Council of Canada

Gilles Comeau Music, University of Ottawa

For more information please contact: piano@uottawa.ca, julia.brook@gmail.com

Appendix F
Initial questionnaire

SECTION I: Personal Information

1. In what province/state do you live? _____

2. Age:

- 1) 25 or below
- 2) 26-35
- 3) 36-45
- 4) 46-55
- 5) 56-64
- 6) 65 or above

3. Sex:

- 1) Female
- 2) Male

SECTION II: Teaching Information

1.) Where do you teach piano? (Circle/highlight all that apply):

- 1) Home studio
- 2) Conservatory
- 3) Music school
- 4) At students' homes
- 5) College
- 6) University
- 7) Other (Please specify) _____

2.) Do you teach (Circle/highlight all that apply):

- 1) Private traditional lessons?
- 2) Group traditional lessons?
- 3) Private Suzuki lessons?
- 4) Group Suzuki lessons?
- 5) Other (please specify) _____

3.) How many years have you been teaching piano? _____

- 4.) How many students do you teach? _____
- 5.) Currently, approximately, how many hours do you teach in one week? _____
- 6.) Approximately, how many hours do you teach individual Suzuki piano lessons (excluding group class time)? _____
- 7.) Approximately, how many hours do you teach group Suzuki piano lessons?

- 8.) How many hours do you teach individual traditional piano lessons (excluding group class time)? _____
- 9.) How many hours do you teach group traditional piano lessons? _____
- 10.) How many hours do you teach instruments or subjects other than piano (Please specify subject(s) and number of hours)?

- 11.) How many students do you teach that are playing repertoire in Suzuki Book One?

- 9.) How many students do you teach that are:
- 1) Under 6 years old? _____
 - 2) Between 7-11 years old? _____
 - 3) Between 12-17 years old? _____
 - 4) Adults? _____
 - 5) Learning disabled? _____
 - 6) Physically disabled? _____

SECTION III: Teacher Training

1.) What is your highest completed degree? _____

2.) What was your major? _____

3.) What other degrees have you completed? _____

3.) What is your primary instrument? _____

4.) What other instruments do you play? _____

5.) Have you studied under a conservatory system? If so, which one?

6.) What was your highest level achieved in this system? _____

7.) Did you begin teaching piano prior to receiving Suzuki teacher training?

1.) Yes

2.) No

8.) If yes, for approximately how many years did you teach piano before receiving Suzuki teacher training? _____

9.) Initially, did you learn to teach piano by (Circle all that apply):

1) Emulating your own teacher(s)?

2) Observing another teacher (s)?

3) Speaking with other teachers?

4) Experience/trial and error?

5) Studying available materials on teaching (ex. texts, articles, videos)?

6) Studying piano method books and materials?

7) Attending workshops, clinics and conferences on teaching?

8) Taking conservatory course (ex. Royal Conservatory of Music,
Conservatory Canada)?

9) Taking university pedagogy courses?

10) Taking a teacher training course (ex. Suzuki, Music for Young Children)?

11) Other (Please Specify) _____

10.) Besides Suzuki teacher training, please state all the teacher training courses that you have taken.

11.) What is the highest level of Suzuki teacher training that you have received?

12.) Have you had other teacher trainers besides Mary Craig Powell? If so, who were they?

13.) In the past year, please indicate all the professional development opportunities that you have engaged in (Circle/highlight all that apply).

- 1) Observing lessons taught by another teacher
- 2) Informal conversations with colleagues
- 3) Taking piano lessons
- 4) Reading teaching textbooks or handbooks
- 5) Reading journal articles
- 6) Reading articles from the Internet
- 7) Attending workshop(s)
- 8) Attending lecture(s)
- 9) Attending conference(s)
- 10) Videotaping your own teaching for review
- 11) Attending a teacher training course (ex. Suzuki)
- 12) Taking a university course(s)
- 13) All of the above
- 14) None of the above
- 15) Other (please specify) _____

15.) How often do you engage in professional development?

- 1) Daily
- 2) Weekly
- 3) Monthly
- 4) Yearly

16.) Which factors contribute to your choice of professional development activities (Circle/highlight all that apply)?

- 1) Travel/ Distance
- 2) Financial/Cost
- 3) Relevance to your teaching
- 4) Time required to participate
- 5) All of the above
- 6) None of the above
- 7) Other (please specify) _____

17.) Which of the above mentioned factors contributes MOST to your choice of professional development activities? _____

Section IV: Computer Skills

1.) How often do you use a computer?

- 1.) Daily
- 2.) 5-6 times a week
- 3.) 2-4 times a week
- 4) Once a week
- 5) Rarely
- 6) Never

2.) How often do you search the Internet?

- 1.) Daily
- 2.) 5-6 times a week
- 3.) 2-4 times a week
- 4) Once a week
- 5) Rarely
- 6) Never

3.) How often do you view video footage over the Internet?

- 1.) Daily
- 2.) 5-6 times a week
- 3.) 2-4 times a week
- 4.) Once a week
- 5.) Rarely
- 6.) Never

4.) How often do you search the Internet for teaching ideas?

- 1.) Daily
- 2.) 5-6 times a week
- 3.) 2-4 times a week
- 4.) Once a week
- 5.) Rarely
- 6.) Never

5.) Do you find it difficult to find appropriate teaching materials on the Internet?

- 1.) Yes
- 2.) No
- 3.) I haven't tried to find teaching materials on the Internet

6.) How would you rate your own computer skills?

- 1.) Excellent
- 2.) Good
- 3.) Fair
- 4.) Below Average
- 5.) Poor

Section V: Expectations and Goals:

1.) What are your professional development interests?

2.) What are you hoping to learn from this experience?

Comments:

Thank you for your time!

Appendix G

Follow-Up Questionnaire

Section One:

Please indicate your response to each of the items that follow by using the following number system which best describes your current views regarding *using* the Digital Video Library (DVL), where **1= Strongly Disagree** and **5= Strongly Agree**.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable
The DVL was user-friendly.	1	2	3	4	5	n/a
It was easy to control the DVL.	1	2	3	4	5	n/a
The information from the DVL was clear and easy to see.	1	2	3	4	5	n/a
The information from the DVL was adequate.	1	2	3	4	5	n/a
I was able to navigate the DVL.	1	2	3	4	5	n/a
The features and functions available in the DVL were easy to use.	1	2	3	4	5	n/a
The clips in the DVL loaded in a reasonable time.	1	2	3	4	5	n/a
The terminology used in the DVL was consistent.	1	2	3	4	5	n/a

The information I got from the DVL was relevant to my teaching practice.	1	2	3	4	5	n/a
--	---	---	---	---	---	-----

Section Two:

Please indicate your response to each of the items that follow by using the following number system which best describes your current views regarding *the contents* of the Digital Video Library (DVL), where **1= Strongly Disagree** and **5= Strongly Agree**.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable
The clips in the <i>Age of Child</i> section were helpful to my professional development.	1	2	3	4	5	n/a
The clips in the <i>Lesson</i> section were helpful for my professional development.	1	2	3	4	5	n/a
The clips in the <i>Parental Interaction</i> section were helpful to my professional development.	1	2	3	4	5	n/a
The clips in the <i>Repertoire</i> section were helpful to my professional development.	1	2	3	4	5	n/a
The clips in the <i>Teaching Strategy</i> section were helpful to my professional development.	1	2	3	4	5	n/a

1. What was the most beneficial aspect of the DVL?

2. What was the biggest drawback of using the DVL?

3. What were the advantages of having the DVL available in your home?

4. What were the disadvantages of having the DVL available in your home?

5. From your point of view, how could the DVL be improved?

6. Would you use the DVL again? If so, how would you use it?

Section Three:

1. Has the DVL enhanced your knowledge learned from your previous teacher training?
If so, how?

2. Has viewing the DVL enhanced your use of *teaching strategies*? If so, how?

3. Has viewing the DVL enhanced your teaching of *piano technique*? If so, how?

4. Has viewing the DVL enhanced your *interactions with parents*? If, so how?

5. Has viewing the DVL enhanced your teaching of *Suzuki Book One repertoire*? If so, how?

6. Did viewing the DVL assist in planning for lessons? If so, how?

Section Four:

1. Do you feel like your *teaching location* (*administration, physical space, where you teach*) allows you the opportunity to apply concepts that you have learned from the DVL? Why or Why not?

2. Do you feel that your *teaching situation* (*who you teach, and parental interaction*) allows you the opportunity to apply concepts that you have learned from the DVL? Why or Why not?

3. Generally, did using the DVL benefit your students? If so, how?

4. Viewing the Digital Video Library (DVL) has been beneficial to my (choose all that apply):

- 1.) Suzuki private students
- 2.) Suzuki group students
- 3.) Traditional private students
- 4.) Traditional group students
- 5.) Other lessons (Please specify) _____
- 5.) All of the above
- 6.) None of the above

5. Viewing the DVL has been beneficial to my students who are (choose all that apply):

- 1.) 6 years and under
- 2.) 7-11 years old
- 3.) 12-17 years old
- 4.) Adults
- 5.) Students with a learning disability
- 6.) Students with a physical disability
- 7.) All of the above
- 8.) None of the above

7. Has viewing the DVL helped you become a better teacher? If so, how?

8. Comments:

Thank you for your time!

Appendix H
Participant Logbook Entry Sheet

Date: _____

Time Started: _____

Time Finished: _____

Part One: Viewing Session

1. What was your goal for this session?

2. Did you find what you were looking for? If not, what would you like to have seen?

3. Which clip(s) were most beneficial and why?

4. Were there any drawbacks using the DVL? If so, what were they?

Part 2: Application to Your Teaching

5. Will you be able to implement any ideas or strategies from this session with DVL in your teaching? Please specify.

6. What was your experience from implementing ideas/strategies from the DVL in your teaching? Please specify.

Comments:

Appendix K

Introduction to the DVL

Username:

Password:

Content of the DVL

- ◆ This digital video library contains 5.5 hours of home studio video footage and 45 minutes of technique examples
- ◆ The video footage is of Mary Craig Powell who is teaching two students currently playing repertoire from Suzuki Book One.
- ◆ The technique footage includes demonstrations of technical gestures, which are demonstrated by Mary Craig Powell.

Organization of the DVL

The DVL has been designed so that the user has the option of watch a lesson in its entirety, or, instead may view specific portions of a lesson. Portions of the lessons have been catalogued according to: Technique, Repertoire, Teaching Strategy, and Parental Interaction.

- ◆ Selecting an entire lesson: There are two categories that contain entire lessons:
Lessons and *Age of Child*

- ◆ Selecting a portion of a lesson

1. *Technique*: Includes technical patterns (ex. five-finger patterns, scales, chords, arpeggios, etc.) as well as hand and finger positions (alignment, curvature of and, wrist level, contact with key, etc.) and various gestures (ex. rolls, drop rolls, repeated notes, slurs, wrist staccato, arm circling, size of gesture, etc.).

2. *Repertoire*: Includes a specific piece. Within this category the piece can be further described according to the goal of the interaction (ex. hands separate, dynamics or phrasing, increasing tempo).

3. *Teaching Strategy*: Includes all the method in which concepts are approached (ex. demonstration, game, imagery, etc.).

4. *Parental Interaction*: Includes all interactions with the parent (ex. practice suggestions, and/or clarification of any goals and/or uses of techniques or concepts).

Appendix L
Data Organization and Analysis Coding Sheets

Table 10

Participant Profile Coding Sheet

Creating a Profile of each Subject	Extent of Inquiry	Location: Logbook/ Questionnaire	Questions	Data analysis technique
Personal Information	Province/state of residence Age gender	Questionnaire 1	Section (S)1-#1-3	Pattern Matching
Teaching Situation	Where they teach, types of lessons, number of contact hours, age and of students	Questionnaire 1	S2	Pattern Matching
Teacher Training	Highest level of academic training, Suzuki training, professional development activities, resources used in teacher training	Questionnaire 1	S3-#1-10	Pattern Matching
Computer Skills	Frequency of computer use, Internet use, types teaching material found on the Internet, use of email	Questionnaire 1	S4-#1-6	Pattern Matching

Table 11
Use of DVL Coding Sheet

Creating a Profile of the Use of the DVL	Extent of Inquiry	Location: Log Book/ Questionnaire/Observation Data	Questions	Data Analysis Technique
Perceptions of (Prior to)	What they will gain from the experience	Questionnaire 1 (Q1)	S5-#2	Pattern Matching
Chronology of clipped viewed per session and over the whole session	What clips are consulted during each session	Observations/Log Book (LB)	Observations LB #3	Chronology analysis
Perceptions of (during use)	What was most beneficial and any drawback	Log Book	#4-5	Pattern Matching
Perceptions of (after use)	The content and the interface	Questionnaire2 (Q2)	S1-#1-11	Pattern Matching
Benefits of DVL	What did they like about the DVL	Log Book/Questionnaire2	LB #4-5 Q2-S3-#3	Pattern Matching
Benefits of having it available in the home	How was it helpful to have it available in the home	Questionnaire 2	Q2-S3-#10	Pattern Matching
Drawbacks	What were the weaknesses of the DVL	Log Book/Questionnaire2	LB # 4 Q2-S3-#4	Pattern Matching

Table 12

Evaluation of Professional Development Coding Sheet

Guskey's Levels of Evaluation (2000)	Extent of inquiry	Location: Logbook/ Questionnaire	Questions	Data Analysis
Participant's Reaction	◆ Content of DVL ◆ Ease of Use	Questionnaire 2	Sections 1-2	Pattern Matching
Participant's Learning	◆ Expectations for experience ◆ Goals for each session ◆ Outcomes from session ◆ Benefits of DVL ◆ Drawbacks DVL	Questionnaire 1 & 2 Log Book	Q1-S5-#1-3 LB#1-5 Q2-S3-#1-6	Pattern Matching
Organization Support and Change	◆ Teaching situation allows for application	Questionnaire 2	Q2-S4-1-2	Pattern Matching
Participants' Use of New Knowledge and Skills	◆ Reliance on DVL to help plan for lessons ◆ Enhancement of various components of the lesson	Questionnaire 2 and Logbook	LB#7 S3-#1-6	Pattern Matching
Student Outcomes	◆ How students have benefited	Log Book and Questionnaire 2	S4-#3-6	Pattern Matching

Appendix M
Observation Record: Sophia

Table 19

Observation Record: Sophia

Category	General Description	Specific Description	Source Video	Session
Technique	Five-finger Patterns	Eyes Closed	David (Book 1 Tape 1)	1
Technique	Five-finger Patterns	Eyes Closed	David (Book 1 Tape 2)	1
Technique	Five-finger Patterns	Left Hand	Vicky (Book 1 Tape 2)	1
Technique	Five-finger Patterns	Left Hand	Vicky (Book 1 Tape 3)	1
Technique	Five-finger Patterns		Vicky (Book 1 Tape 2)	1
Technique	Five-finger Patterns		Vicky (Book 1 Tape 3)	1
Technique	Five-finger Patterns		David (Book 1 Tape 4)	1
Technique	Five-finger Patterns		Vicky (Book 1 Tape 4)	1
Technique	Legato Repeated Notes		Vicky (Book 1 Tape 1)	1
Technique	Legato Repeated Notes		David (Book 1 Tape 2)	1
Technique	Legato Repeated Notes		David (Book 1 Tape 3)	1
Technique	Finger and Hand Movements	Release From Keys (Imagery)	Vicky (Book 1 Tape 2)	1
Technique	Use of Wrist (Rolls)	2 Note Slur (Explanation)	Mary Craig (Techniques)	1
Technique	Use of Wrist (Rolls)		Mary Craig (Techniques)	1
Teaching Strategy	Adding Lyrics	<i>The Honeybee</i>	Vicky (Book 1 Tape 2)	3

Category	General Description	Specific Description	Source Video	Session
Teaching Strategy	Changing Registers	<i>The Honeybee</i>	Vicky (Book 1 Tape 2)	3
Teaching Strategy	Game (Repertoire)	<i>Lightly Row</i>	Vicky (Book 1 Tape 6)	3
Teaching Strategy	Ghosting	<i>Twinkle C</i> (Increasing Tempo)	David (Book 1 Tape 6)	3
Teaching Strategy	Metronome	<i>Allegro I</i> (Steady Tempo)	David (Book 1 Tape 6)	3
Age of Child	3-6 Years	David	David (Book 1 Tape 6)	4
Lesson	Technique Examples Mary Craig Powell		Mary Craig (Techniques)	4
Parental Interaction	Practice Suggestion (Repertoire)	<i>Twinkle B</i> (Tone)	Vicky (Book 1 Tape 1)	4
Parental Interaction	Concept Explanation	Legato Repeated Notes	Vicky (Book 1 Tape 1)	4
Parental Interaction	Practice Suggestion (Repertoire)	<i>Clair de Lune</i> (Lifts)	David (Book 1 Tape 6)	4
Parental Interaction	Practice Suggestion (Technique)	Hand Position	David (Book 1 Tape 6)	4
Parental Interaction	Practice Suggestion (Technique)	Hand Position	David (Book 1 Tape 6)	4
Parental Interaction	Practice Suggestion (Technique)	Left Hand	Vicky (Book 1 Tape 2)	4
Parental Interaction	Practice Suggestion (Repertoire)	All Twinkles (Left Hand)	Vicky (Book 1 Tape 4)	4
Parental Interaction	Practice Suggestion (Repertoire)	<i>Mary Had A Little Lamb</i>	Vicky (Book 1 Tape 6)	4

Category	General Description	Specific Description	Source Video	Session
Parental Interaction	Practice Suggestion (Repertoire)	<i>Twinkle D</i> (Fingering)	David (Book 1 Tape 2)	4
Parental Interaction	Practice Suggestion (Technique)	Learning New Five-finger Pattern	David (Book 1 Tape 1)	4
Parental Interaction	Practice Suggestion (Technique)	Five-finger Patterns (Practicing)	David (Book 1 Tape 3)	4
Parental Interaction	Practice Suggestion (Technique)	Combining Gestures	David (Book 1 Tape 1)	4
Parental Interaction	Practice Suggestion (Technique)	Combining Gestures	David (Book 1 Tape 3)	4
Parental Interaction	Practice Suggestion (Technique)	Tone Production (Game)	Vicky (Book 1 Tape 1)	4
Parental Interaction	Practice Suggestion (Technique)	Tonalization (Finger Position)	David (Book 1 Tape 2)	4
Parental Interaction	Practice Suggestion (Technique)	Tonalization (Game)	David (Book 1 Tape 3)	4
Parental Interaction	Practice Suggestion (Technique)	Tonalization (Hand Position)	David (Book 1 Tape 2)	4
Parental Interaction	Practice Suggestion (Repertoire)	<i>Twinkle D</i> (Legato Repeated Notes)	Vicky (Book 1 Tape 6)	4
Parental Interaction	Report of Week's Practice		David (Book 1 Tape 2)	4
Parental Interaction	Concept Explanation	Twinkle Graduation (Starting to Read)	David Book 1 Tape 6)	4

Category	General Description	Specific Description	Source Video	Session
Technique	Alignment	Explanation	Mary Craig (Techniques)	4
Lesson	Technique Examples Mary Craig Powell		Mary Craig (Techniques)	6
Technique	Circle Technique	Arpeggio (Left Hand)	Mary Craig (Techniques)	6
Technique	Circle Technique	<i>Sonatina</i> , Op. 36. No. 1, Clementi	Mary Craig (Techniques)	6
Lesson	David	Book One Tape 5	David (Book 1 Tape 5)	8
Lesson	David	Book One Tape 4	David (Book 1 Tape 4)	8
Lesson	David	Book One Tape 1	David (Book 1 Tape 1)	8
Lesson	David	Book One Tape 6	David (Book 1 Tape 6)	8
Lesson	David	Book One Tape 3	David (Book 1 Tape 3)	8
Lesson	David	Book One Tape 2	David (Book 1 Tape 2)	8
Lesson	Technique Examples Mary Craig Powell		Mary Craig (Techniques)	8
Lesson	Vicky	Book One Tape 4	Vicky (Book 1 Tape 4)	8
Lesson	Vicky	Book One Tape 1	Vicky (Book 1 Tape 1)	8
Lesson	Vicky	Book One Tape 2	Vicky (Book 1 Tape 2)	8
Lesson	Vicky	Book One Tape 6	Vicky (Book 1 Tape 6)	8
Lesson	Vicky	Book One Tape 3	Vicky (Book 1 Tape 3)	8

Appendix N
Observation Records: Elizabeth

Table 20

Observation Record: Elizabeth

Category	General Description	Specific Description	Source Video	Session
Age of Child	3-6 Years	David	David (Book 1 Tape 6)	1
Age of Child	3-6 Years	David	David (Book 1 Tape 6)	2
Technique	Use of Wrist (Rolls)	Tonalization	Mary Craig (Techniques)	3
Technique	Use of Wrist (Rolls)	<i>Sonatina</i> by Clementi	Mary Craig (Techniques)	3
Technique	Use of Wrist (Rolls)	Long Notes	Mary Craig (Techniques)	3
Technique	Use of Wrist (Rolls)	Long Notes	Mary Craig (Techniques)	3
Technique	Use of Wrist (Rolls)	<i>London Bridge</i>	Mary Craig (Techniques)	3
Technique	Use of Wrist (Rolls)	<i>London Bridge</i>	Mary Craig (Techniques)	3
Technique	Use of Wrist (Rolls)	<i>Lightly Row</i>	Mary Craig (Techniques)	3
Technique	Use of Wrist (Rolls)	<i>Lightly Row</i>	Mary Craig (Techniques)	3
Technique	Use of Wrist (Rolls)	Legato Sound (<i>Lightly Row</i>)	Mary Craig (Techniques)	3
Technique	Use of Wrist (Rolls)	Legato Sound (<i>Lightly Row</i>)	Mary Craig (Techniques)	3
Technique	Use of Wrist (Rolls)	Legato Sound	Mary Craig (Techniques)	3

Category	General Description	Specific Description	Source Video	Session
Technique	Use of Wrist (Rolls)	Legato Repeated Notes	Mary Craig (Techniques)	3
Technique	Use of Wrist (Rolls)	Inserting into Tonalization	Mary Craig (Techniques)	3
Technique	Use of Wrist (Rolls)	Gesture Combination (Bounce-Roll-Bounce)	Vicky (Book 1 Tape 1)	3
Technique	Use of Wrist (Rolls)	Gesture Combination (Bounce-Roll-Bounce)	David (Book 1 Tape 1)	3
Technique	Posture and Hand Position	Right Hand	David (Book 1 Tape 2)	3
Age of Child	3-6 Years	David	David (Book 1 Tape 2)	3
Parental Interaction	Practice Suggestion (Technique)	Tonalization	Vicky (Book 1 Tape 1)	3
Age of Child	3-6 Years	Vicky	Vicky (Book 1 Tape 4)	4
Technique	Use of Wrist (Rolls)	Tonalization	Mary Craig	4
Age of Child	3-6 Years	Vicky	Vicky (Book 1 Tape 3)	4
Teaching Strategy	Adding Lyrics	<i>The Honeybee</i>	Vicky (Book 1 Tape 2)	5
Teaching Strategy	Changing Registers	<i>The Honeybee</i>	Vicky (Book 1 Tape 2)	5
Teaching Strategy	Eyes Closed (Technique)	Five-finger Patterns	Vicky (Book 1 Tape 3)	5

Category	General Description	Specific Description	Source Video	Session
Teaching Strategy	Demonstration (Repertoire)	<i>Allegro I</i> (Chord Progression)	David (Book 1 Tape 6)	5
Teaching Strategy	Demonstration (Repertoire)	<i>Allegro I</i> (Chord Progression)	David (Book 1 Tape 5)	5
Teaching Strategy	Demonstration (Repertoire)	<i>Cuckoo</i> (Changing Dynamics)	Vicky (Book 1 Tape 2)	5
Teaching Strategy	Demonstration (Repertoire)	<i>Cuckoo</i> (Changing Dynamics)	Vicky (Book 1 Tape 4)	6
Teaching Strategy	Demonstration (Repertoire)	<i>Cuckoo</i> (Changing Dynamics)	Vicky (Book 1 Tape 4)	6
Teaching Strategy	Demonstration (Repertoire)	<i>Cuckoo</i> (Lifting Between Phrases)	David (Book 1 Tape 6)	6
Teaching Strategy	Demonstration (Repertoire)	<i>French Children's Song</i>	David (Book 1 Tape 6)	6
Teaching Strategy	Demonstration (Repertoire)	<i>Go Tell Aunt Rhody</i> (Starting to Learn)	Vicky (Book 1 Tape 4)	6
Teaching Strategy	Demonstration (Technique)	Combining Gestures	David (Book 1 Tape 1)	6
Teaching Strategy	Demonstration (Technique)	Five-finger Patterns	Vicky (Book 1 Tape 4)	6
Teaching Strategy	Demonstration (Technique)	Tonalization	Vicky (Book 1 Tape 2)	6

Category	General Description	Specific Description	Source Video	Session
Teaching Strategy	Game (Repertoire)	<i>Goodbye to Winter</i> (Tone)	David (Book 1 Tape 5)	6
Teaching Strategy	Hand Over Hand (Repertoire)	<i>Go Tell Aunt Rhody</i> (Rolls)	Vicky (Book 1 Tape 4)	6
Teaching Strategy	Imagery (Repertoire)	<i>Christmas Day Secrets</i> (Dynamics)	David (Book 1 Tape 5)	6
Teaching Strategy	Imagery (Repertoire)	<i>French Children's Song</i> (Tone)	David (Book 1 Tape 6)	6
Teaching Strategy	Imagery (Repertoire)	<i>The Honeybee</i> (Observation of Rests)	Vicky (Book 1 Tape 2)	6
Lesson	Technique Examples Mary Craig Powell		Mary Craig (Techniques)	6
Teaching Strategy	Stuffed Animal (Technique)	Hand Position	David (Book 1 Tape 2)	6
Teaching Strategy	Physical Markers	Contact With Keys	David (Book 1 Tape 1)	6
Age of Child	3-6 Years	Vicky	Vicky (Book 1 Tape 6)	7
Age of Child	3-6 Years	Vicky	Vicky (Book 1 Tape 2)	7
Lesson	Vicky	Book One Tape 6	Vicky (Book 1 Tape 6)	8
Lesson	David	Book One Tape 6	David (Book 1 Tape 6)	8

Appendix O
Observational Record: Sarah

Table 21

Observation Record: Sarah

Category	General Description	Specific Description	Source Video	Session
Repertoire	<i>Sonatina Op. 36. No. 1, Clementi</i>		Mary Craig (Techniques)	1
Repertoire	Twinkle Graduation		Vicky (Book 1 Tape 3)	1
Repertoire	Twinkle Graduation	Preparation	David (Book 1 Tape 4)	1
Technique	Finger Staccato	<i>The Wild Rider</i>	Mary Craig (Techniques)	1
Technique	Finger Staccato	<i>The Wild Rider</i> (Close Up)	Mary Craig (Techniques)	1
Technique	Five-finger Patterns		Vicky (Book 1 Tape 2)	1
Technique	Five-finger Patterns		Vicky (Book 1 Tape 4)	1
Technique	Five-finger Patterns		David (Book 1 Tape 4)	1
Technique	Five-finger Patterns		Vicky (Book 1 Tape 3)	1
Technique	Five-finger Patterns		David (Book 1 Tape 3)	1
Technique	Five-finger Patterns		Vicky (Book 1 Tape 2)	1
Technique	Five-finger Patterns		David (Book 1 Tape 2)	1

Category	General Description	Specific Description	Source Video	Session
Technique	Finger Staccato	Explanation	Mary Craig (Techniques)	1
Technique	Finger Staccato	Finger Staccato (Movement)	Mary Craig (Techniques)	1
Repertoire	<i>Sonatina , Op. 36. No. 1, Clementi</i>		Mary Craig (Techniques)	3
Repertoire	<i>French Children's Song</i>		Vicky (Book 1 Tape 4)	3
Repertoire	<i>French Children's Song</i>		Vicky (Book 1 Tape 6)	3
Repertoire	<i>French Children's Song</i>		David (Book 1 Tape 6)	3
Repertoire	<i>London Bridge</i>		Vicky (Book 1 Tape 6)	3
Repertoire	<i>London Bridge</i>		David (Book 1 Tape 6)	3
Repertoire	<i>London Bridge</i>		Vicky (Book 1 Tape 4)	3
Repertoire	<i>Long, Long Ago</i>		David (Book 1 Tape 6)	4
Repertoire	<i>Chant Arabe</i>	Fuller Sound (Drop Roll)	David (Book 1 Tape 5)	4

Category	General Description	Specific Description	Source Video	Session
Repertoire	<i>Christmas Day Secrets</i>		David (Book 1 Tape 5)	4
Repertoire	<i>Allegro I</i>		David (Book 1 Tape 6)	4
Repertoire	<i>Chant Arabe</i>		David (Book 1 Tape 5)	4
Repertoire	<i>Allegro I</i>	Left Hand	David (Book 1 Tape 5)	4
Repertoire	<i>Claire de Lune</i>		Vicky (Book 1 Tape 6)	5
Repertoire	<i>Claire de Lune</i>		David (Book 1 Tape 5)	5
Repertoire	<i>Cuckoo</i>		David (Book 1 Tape 6)	5
Repertoire	<i>Cuckoo</i>		Vicky (Book 1 Tape 4)	5
Repertoire	<i>Goodbye to Winter</i>	Tone (Game)	David (Book 1 Tape 5)	6
Repertoire	<i>Allegro I</i>	Left Hand	David (Book 1 Tape 5)	6
Repertoire	<i>Go Tell Aunt Rhody</i>		David (Book 1 Tape 6)	6
Repertoire	<i>Go Tell Aunt Rhody</i>		Vicky (Book 1 Tape 6)	6
Repertoire	<i>Go Tell Aunt Rhody</i>	Starting to Learn	Vicky (Book 1 Tape 4)	6
Repertoire	<i>Goodbye to Winter</i>		David (Book 1 Tape 5)	6

Appendix P
Observational Record: Sheila

Table 22

Observation Record: Sheila

Category	General Description	Specific Description	Source Video	Session
Teaching Strategy	Game (Repertoire)	<i>Goodbye to Winter</i> (Tone)	David (Book 1 Tape 5)	4
Teaching Strategy	Adding Lyrics	<i>The Honeybee</i>	Vicky (Book 1 Tape 2)	4
Technique	Finger Staccato	<i>The Wild Rider</i>	Mary Craig (Techniques)	4
Technique	Alignment	Chord	Mary Craig (Techniques)	4
Parental Interaction	Report of Week's Practice		David (Book 1 Tape 2)	4
Teaching Strategy	Metronome	<i>Allegro I</i> (Steady Tempo)	David (Book 1 Tape 6)	4
Technique	Finger Staccato	Finger Staccato (Movement)	Mary Craig (Techniques)	4
Teaching Strategy	Metronome	<i>Clair de Lune</i> (Increasing Tempo)	David (Book 1 Tape 5)	4
Lesson	David	Book One Tape 1	David (Book 1 Tape 1)	4
Lesson	David	Book One Tape 2	David (Book 1 Tape 2)	4
Technique	Posture and Hand Position	Left Hand	Vicky (Book 1 Tape 2)	4

Category	General Description	Specific Description	Source Video	Session
Technique	Dynamics	Changing Dynamics (Five-finger Patterns)	David (Book 1 Tape 2)	4
Parental Interaction	Practice Suggestion (Repertoire)	<i>Christmas Day Secrets</i>	David (Book 1 Tape 5)	4
Teaching Strategy	Adding Lyrics	<i>The Honeybee</i>	Vicky (Book 1 Tape 2)	4
Technique	Alignment	Chord	Mary Craig (Techniques)	4
Teaching Strategy	Adding Lyrics	<i>Twinkle B</i>	Vicky (Book 1 Tape 1)	4
Technique	Circle Technique	<i>Sonatina Op.36. No. 1</i> , Clementi	Mary Craig (Techniques)	4
Technique	Alignment	Scale (Close Up)	Mary Craig (Techniques)	4
Technique	Circle Technique	<i>Allegretto I</i>	Mary Craig (Techniques)	4
Technique	Alignment	Entire Segment	Mary Craig (Techniques)	4
Category	General Description	Specific Description	Source Video	5
Parental Interaction	Report of Week's Practice		David (Book 1 Tape 2)	5
Parental Interaction	Practice Suggestion (Repertoire)	<i>Twinkle B</i> (Tone)	Vicky (Book 1 Tape 1)	5
Parental Interaction	Practice Suggestion (Repertoire)	<i>Twinkle D</i> (Fingering)	David (Book 1 Tape 2)	5
Parental Interaction	Practice Suggestion (Repertoire)	<i>Twinkle A</i>	David (Book 1 Tape 1)	5

Category	General Description	Specific Description	Source Video	Session
Parental Interaction	Practice Suggestion (Repertoire)	<i>Twinkle A</i> (Left Hand)	Vicky (Book 1 Tape 3)	5
Parental Interaction	Practice Suggestion (Repertoire)	<i>Twinkle B</i>	David (Book 1 Tape 4)	5
Parental Interaction	Practice Suggestion (Repertoire)	<i>Twinkle D</i> (Increase Flow)	David (Book 1 Tape 2)	5
Parental Interaction	Practice Suggestion (Repertoire)	<i>Twinkle D</i> (Thumb)	David (Book 1 Tape 4)	5

Appendix Q
Observational Record: Jessica

Table 23

Observation Record: Jessica

Category	General Description	Specific Description	Source Video	Session
Repertoire	<i>Sonatina Op. 36. No. 1</i> , Clementi		Mary Craig (Techniques)	1
Lesson	Technique Examples Mary Craig Powell		Mary Craig (Techniques)	1
Teaching Strategy	Game (Repertoire)	<i>Goodbye to Winter</i> (Tone)	David (Book 1 Tape 5)	2
Lesson	Technique Examples Mary Craig Powell		Mary Craig (Techniques)	2
Lesson	David	Book One Tape 5	David (Book 1 Tape 5)	2
Parental Interaction	Concept Explanation	Twinkle Graduation (Starting to Read)	David (Book 1 Tape 6)	3
Teaching Strategy	Demonstration (Repertoire)	<i>Allegro I</i> (Chord Progression)	David (Book 1 Tape 6)	3
Teaching Strategy	Demonstration (Repertoire)	<i>Allegro I</i> (Chord Progression)	David (Book 1 Tape 5)	3
Teaching Strategy	Demonstration (Repertoire)	<i>Cuckoo</i> (Changing Dynamics)	Vicky (Book 1 Tape 2)	3
Teaching Strategy	Demonstration (Repertoire)	<i>French Children's Song</i>	David (Book 1 Tape 6)	3
Teaching	Demonstration	<i>Twinkle B</i>	Vicky	3

Category	General Description	Specific Description	Source Video	Session
Strategy	(Repertoire)		(Book 1 Tape 3)	
Teaching Strategy	Demonstration (Technique)	Five-finger Patterns	Vicky (Book 1 Tape 2)	3
Teaching Strategy	Demonstration (Technique)	Five-finger Patterns	David (Book 1 Tape 2)	3
Teaching Strategy	Demonstration (Technique)		Vicky (Book 1 Tape 2)	3
Teaching Strategy	Demonstration (Technique)	Five-finger Patterns	David (Book 1 Tape 3)	3
Teaching Strategy	Demonstration (Technique)	Five-finger Patterns	Vicky (Book 1 Tape 3)	3
Teaching Strategy	Demonstration (Technique)	Five-finger Patterns	Vicky (Book 1 Tape 3)	3
Teaching Strategy	Demonstration (Technique)	Use of Wrist (Rolls)	Vicky (Book 1 Tape 1)	3
Teaching Strategy	Eyes Closed (Technique)	Five-finger Patterns	David (Book 1 Tape 3)	3
Age of Child	3-6 Years	David	David (Book 1 Tape 6)	4
Parental Interaction	Concept Explanation	Twinkle Graduation (Starting to Read)	David (Book 1 Tape 6)	4
Parental Interaction	Report of Week's Practice		David (Book 1 Tape 2)	4
Parental Interaction	Concept Explanation	Legato Repeated Notes	Vicky (Book 1 Tape 1)	4
Technique	Legato Repeated Notes		Vicky (Book 1 Tape 1)	4
Parental	Practice		David	

Category	General Description	Specific Description	Source Video	Session
Interaction	Suggestion (Repertoire)	<i>Allegro I</i>	(Book 1 Tape 5)	4
Parental Interaction	Practice Suggestion (Repertoire)	<i>Claire de Lune</i>	David (Book 1 Tape 5)	4
Parental Interaction	Concept Explanation	<i>Lightly Row</i>	Vicky (Book 1 Tape 3)	4
Parental Interaction	Practice Suggestion (Repertoire)	All Twinkles (Left Hand)	Vicky (Book 1 Tape 4)	4
Parental Interaction	Practice Suggestion (Repertoire)	<i>Clair de Lune</i> (Lifts)	David (Book 1 Tape 6)	4
Parental Interaction	Practice Suggestion (Repertoire)	<i>Christmas Day Secrets</i>	David (Book 1 Tape 5)	4
Parental Interaction	Practice Suggestion (Repertoire)	<i>Long, Long Ago</i>	David (Book 1 Tape 6)	4
Repertoire	<i>The Honeybee</i>	Practicing (mm5-8)	Vicky (Book 1 Tape 2)	4
Technique	Legato Repeated Notes		Vicky (Book 1 Tape 1)	5
Technique	Legato Repeated Notes		David (Book 1 Tape 3)	5
Technique	Legato Repeated Notes		David (Book 1 Tape 2)	5
Technique	Alignment	Chord	Mary Craig (Techniques)	5
Technique	Alignment	Explanation	Mary Craig (Techniques)	5

Category	General Description	Specific Description	Source Video	Session
Technique	Alignment	Entire Segment	Mary Craig (Techniques)	5
Technique	Dynamics	Changing Dynamics (Five-finger Patterns)	David (Book 1 Tape 2)	5
Technique	Dynamics	Changing Dynamics (Five-finger Patterns)	Vicky (Book 1 Tape 4)	5
Technique	Dynamics	Changing Dynamics (Five-finger Patterns)	Vicky (Book 1 Tape 3)	5
Technique	Dynamics	Changing Dynamics (Repeated Notes)	Vicky (Book 1 Tape 3)	5
Technique	Dynamics	Changing Dynamics (Repeated Notes)	David (Book 1 Tape 2)	5
Technique	Dynamics	Changing Dynamics (Repeated Notes)	David (Book 1 Tape 3)	5
Technique	Dynamics	Changing Dynamics (Repeated Notes)	Vicky (Book 1 Tape 4)	5
Age of Child	3-6 Years	David	David (Book 1 Tape 1)	6
Technique	Use of Wrist (Rolls)	<i>Sonatina</i> by Clementi	Mary Craig (Techniques)	6
Technique	Use of Wrist (Rolls)	<i>London Bridge</i>	Mary Craig (Techniques)	6

Category	General Description	Specific Description	Source Video	Session
Technique	Slide	Demonstration (Close-Up)	Mary Craig (Techniques)	6
Technique	Slide	Entire Segment	Mary Craig (Techniques)	6
Technique	Slide	Explanation for Repeated Notes	Mary Craig (Techniques)	6
Technique	Finger Staccato	Entire Segment	Mary Craig (Techniques)	6
Technique	Size of Gesture	Entire Segment	Mary Craig (Techniques)	6
Technique	Use of Wrist (Rolls)		Vicky (Book 1 Tape 1)	6
Technique	Use of Wrist (Rolls)		David (Book 1 Tape 1)	6
Technique	Use of Wrist (Rolls)	2 Note Slur (<i>Eccossaise</i> Close Up)	Mary Craig (Techniques)	6
Technique	Use of Wrist (Rolls)	2 Note Slur (<i>Eccossaise</i>)	Mary Craig (Techniques)	6
Technique	Use of Wrist (Rolls)	3 Note Slur (Close Up)	Mary Craig (Techniques)	6
Technique	Use of Wrist (Rolls)	5 Note Slur	Mary Craig (Techniques)	6
Technique	Posture and Hand Position		Vicky (Book 1 Tape 3)	6
Parental Interaction	Practice Suggestion (Repertoire)	<i>Allegro I</i>	David (Book 1 Tape 5)	7
Parental Interaction	Practice Suggestion	<i>Claire de Lune</i>	David (Book 1 Tape 5)	7

Category	General Description	Specific Description	Source Video	Session
	(Repertoire)			
Parental Interaction	Practice Suggestion (Repertoire)	All Twinkles (Left Hand)	Vicky (Book 1 Tape 4)	7
Parental Interaction	Practice Suggestion (Repertoire)	<i>Clair de Lune</i> (Lifts)	David (Book 1 Tape 6)	7
Parental Interaction	Practice Suggestion (Repertoire)	<i>Mary Had A Little Lamb</i>	Vicky (Book 1 Tape 6)	7
Parental Interaction	Practice Suggestion (Repertoire)	<i>Twinkle D</i> (Fingering)	David (Book 1 Tape 2)	7
Parental Interaction	Practice Suggestion (Repertoire)	<i>Christmas Day Secrets</i>	David (Book 1 Tape 5)	7
Parental Interaction	Practice Suggestion (Repertoire)	<i>Goodbye to Winter</i>	David (Book 1 Tape 5)	7
Parental Interaction	Practice Suggestion (Repertoire)	<i>Long, Long Ago</i>	David (Book 1 Tape 6)	7
Parental Interaction	Practice Suggestion (Repertoire)	<i>Musette</i> (Metronome)	Vicky (Book 1 Tape 6)	7
Parental Interaction	Practice Suggestion (Repertoire)	Twinkle Graduation	Vicky (Book 1 Tape 3)	7
Parental Interaction	Practice Suggestion (Repertoire)	<i>London Bridge</i>	David (Book 1 Tape 6)	7
Parental	Practice	<i>Twinkle D</i>	David	7

Category	General Description	Specific Description	Source Video	Session
Interaction	Suggestion (Repertoire)	(Increase Flow)	(Book 1 Tape 2)	
Parental Interaction	Practice Suggestion (Repertoire)	<i>The Honeybee</i>	Vicky (Book 1 Tape 2)	7
Parental Interaction	Practice Suggestion (Repertoire)	<i>The Honeybee</i> (mm 5-8)	Vicky (Book 1 Tape 2)	7
Teaching Strategy	Adding Lyrics	<i>The Honeybee</i>	Vicky (Book 1 Tape 2)	8
Teaching Strategy	Ghosting	<i>Twinkle C</i> (Increasing Tempo)	David (Book 1 Tape 6)	8
Teaching Strategy	Changing Registers	<i>The Honeybee</i>	Vicky (Book 1 Tape 2)	8
Teaching Strategy	Adding Lyrics	<i>Twinkle B</i>	Vicky (Book 1 Tape 1)	8
Teaching Strategy	One Point Focus	<i>Allegro I</i> (Chord Progression)	David (Book 1 Tape 6)	8
Teaching Strategy	Demonstration (Repertoire)	<i>Cuckoo</i> (Changing Dynamics)	Vicky (Book 1 Tape 2)	8
Teaching Strategy	Demonstration (Repertoire)	<i>Cuckoo</i> (Changing Dynamics)	Vicky (Book 1 Tape 4)	8
Teaching Strategy	Demonstration (Repertoire)	<i>French Children's Song</i>	David (Book 1 Tape 6)	8
Teaching Strategy	Demonstration (Repertoire)	<i>Go Tell Aunt Rhody</i> (Starting to Learn)	Vicky (Book 1 Tape 4)	8
Teaching	Demonstration	<i>Cuckoo</i> (Legato)	Vicky	

Category	General Description	Specific Description	Source Video	Session
Strategy	(Repertoire)	Repeated Notes)	(Book 1 Tape 6)	8
Teaching Strategy	Demonstration (Repertoire)	<i>French Children's Song</i> (Changing Dynamics)	Vicky (Book 1 Tape 4)	8
Teaching Strategy	Demonstration (Repertoire)	<i>Go Tell Aunt Rhody</i> (Ritardando)	Vicky (Book 1 Tape 6)	8
Teaching Strategy	Stuffed Animal (Repertoire)	<i>London Bridge</i> (Rolls)	Vicky (Book 1 Tape 4)	8
Teaching Strategy	Stuffed Animal (Repertoire)	<i>Twinkle A</i> (Tone)	Vicky (Book 1 Tape 2)	8