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Student to student: reciprocal peer mentoring in a post-secondary piano lab

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BOSTON UNIVERSITY
COLLEGE OF FINE ARTS

Dissertation

**STUDENT TO STUDENT:
RECIPROCAL PEER MENTORING IN A POST-SECONDARY PIANO LAB**

by

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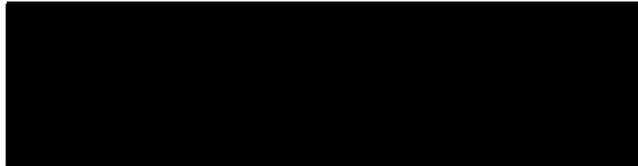
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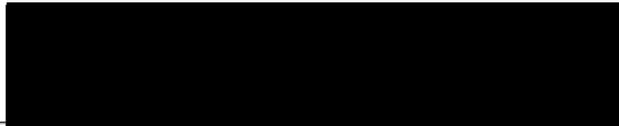
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ABSTRACT

In this study I used ethnographic techniques to examine reciprocal peer mentoring in a post-secondary piano course and to explore the influence of reciprocal peer mentoring on the learning environment, the sharing of knowledge and skills, and the perspective of the participants regarding the process of peer mentoring and social interaction. Findings included successful outcomes for learners in terms of understandings, skills, and dispositions in association with student affinity for the process.

Participants preferred interactive learning, experienced an enhanced level of comfort as a result of the ongoing social interaction and peer validation, and found both dispositional and educational value in learning as part of a supportive community of learners. Themes included the effectiveness of peer communication; the value of exposure to multiple perspectives; the enhanced level of comprehension acquired through constructing knowledge with others; and the motivational and self-management benefits of monitoring personal learning through peer interaction. Reciprocal peer mentoring was observed to be efficient and effective; participants held a negative view of both traditional instruction and group learning that lacked shared authority and ongoing

dialogue among knowledgeable peers.

Participants expressed congruent perceptions regarding the effect of peer mentoring on social interaction. Themes included interdependent relationships and social bonding, enhanced efficacy, successful mentoring without training, and personal satisfaction in helping others. The positive academic, technical, and social results for students in this study speak to the self-actualizing power of constructivist and holistic ideals and may contradict two of the prevailing paradigms in the literature on peer mentoring in music education settings: teacher determination of a fixed role for each student for the duration of the process and the necessity of extensive mentor training.

The results may have implications for the practice of music educators both in terms of the hierarchical power structure of traditional music instruction and the holistic development of student potential. These findings encourage the use of reciprocal peer mentoring within the discipline of music education, conceivably extending the observed benefits of this learning paradigm to a greater number of student musicians and contributing to the holistic development of student potential within the field.

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CHAPTER 1: RECIPROCAL PEER MENTORING

Prominent philosophers and critical thinkers in the field of education have asserted the importance of grounding educational practice in democratic and constructivist principles. Dewey (1938) suggested that democratic social arrangements promote a better quality of human experience than non-democratic forms. Apple (2000) advocated democratizing the educational process whenever possible to allow student participation into the creation and/or recreation of meanings and values. Elliott (1995) argued that students reap long-term benefits from interacting in a democratic and constructivist learning environment because they have opportunities to think critically, interdependently, and creatively. Reciprocal peer mentoring can have particular value as a pedagogical tool because it is a learning paradigm that is consistent with democratic and constructivist principles.

Dewey (1938) envisioned education as a social process reliant on the development of experience that comes about through interaction. Dewey suggested that classrooms should function as interactive and cooperative communities in which students are granted “freedom of intelligence,” the teacher serves as a leader of group activities, and students engage in successful observation, discussion, and arbitration—seeking knowledge and exercising judgment in intrinsically worthwhile experiences (p. 61). Dewey’s educational ideal aligns closely with the process of learning through reciprocal peer mentoring.

Definition of Peer Mentoring

The term mentoring encompasses a wide variety of definitions. Haggard, Dougherty, Turban, and Wilbanks (2011) reviewed literature dating back to 1980 to determine how researchers have investigated and defined mentoring. They discovered over 40 definitions of the term mentoring and thus ascertained that no specific, comprehensive definition of mentoring exists. The authors suggested, however, that three core attributes distinguish mentoring from other kinds of interpersonal relationships: reciprocity (mutuality of social exchange as opposed to a one-way relationship); lasting benefits as a result of a learning partnership; and regular/consistent interaction over some period of time.

Although numerous definitions of mentoring exist, three types of mentoring are particularly relevant to student participation in the learning environment. These include peer assisted learning, peer tutoring, and peer mentoring. Johnson (2013) defined peer assisted learning as an instructional arrangement where peers help each other gain knowledge and skill through active help and support. Johnson's definition of peer assisted learning includes both mentoring and tutoring, two terms that are often viewed as interchangeable. Jones and King (2009), however, argued that the terms tutoring and mentoring have different connotations. According to Jones and King, tutoring has a "focus towards academic learning; its mode is one person to several" whereas mentoring "focuses more on life skills; generally its mode is one-to-one" (p. 56).

Gaunt, Creech, Long, and Hallam (2012) affirmed that mentoring goes beyond the sharing of knowledge and skill. In their view, mentoring "recognizes the

interdependence of personal and professional development” and “takes into account the whole person rather than just focusing narrowly on transmitting a specific professional skill needed to meet an immediate challenge” (p. 28). In some cases, peer-assisted learning structured as tutoring may evolve into mentoring as students develop relationships and concern for one another beyond academics (e.g., Ehly & Larsen, 1976; Kelehear & Heid, 2002; Madsen, Smith, & Feeman, Jr., 1988; Webb, 2012).

Student-to-student mentoring is sometimes described as peer mentoring even when the mentor and mentee are not on the same level in terms of age or standing (e.g., Kelehear & Heid, 2002; Webb, 2012). When student mentoring pairs do not share equal status (e.g., cross-age tutoring or mentoring), mentoring roles are typically fixed rather than reciprocal with an older or more knowledgeable student serving as mentor to a younger or less knowledgeable mentee. Bruffee (1999), however, emphasized that the word peer is clearly defined as “an equal, not a superior,” so it is important that students involved in peer (rather than cross-age) mentoring believe “they are unequivocally institutional status-equals” (p. 95). According to Bruffee, the effect of peer mentoring depends on the degree to which students “believe that they both bring an important measure of ability, expertise, and information to the encounter” (p. 95).

Kehoe (2007) defined the work of a peer mentor in an educational setting: “The mentor is responsible for supporting, facilitating, and learning with the learner” (p. 6). Kehoe’s suggestion that the mentor is learning with the mentee implies some degree of mutual benefit in fixed-role mentoring. Reciprocal mentoring, where peers interact as both mentor and mentee, allows peers to maintain equal status (Bruffee, 1999).

Reciprocal peer mentoring, then, may expand the benefit to both members of the mentoring pair (Foster, 2009).

For the purpose of this study, reciprocal peer mentoring is defined as students guiding students in one-to-one relationships in which peers maintain equal status and contribute to the learning experience of one another. With reciprocal peer mentoring, students participate in activities where they are actively involved in learning through exploration and discovery as they engage in social interaction and verbal exchange to construct knowledge and develop technical mastery. Students connect in helping relationships in which they support one another as they work to achieve understanding and mastery goals.

In this study, peers interacted as equals, and both members of the mentoring pair contributed to the learning that occurred during reciprocal mentoring activities. Mentor pairings were not pre-determined or fixed; pairings varied throughout the course of the study. Students provided personalized attention to one another, served as models, and shared academic, technical, social, and emotional support as they engaged in interactive problem-solving tasks.

Purpose of the Study and Research Questions

The purpose of this study was: (a) to examine reciprocal peer mentoring in a post-secondary piano class for general studies students; (b) to explore the perceptions of both the participants and instructor regarding the impact of reciprocal peer mentoring on knowledge, skills, and dispositions; and (c) to examine the social dimensions of cognitive

and technical learning in a collaborative class environment that includes reciprocal peer mentoring. The following questions served to guide this study:

1. How does the inclusion of reciprocal peer mentoring in the pedagogical process contribute to the learning environment in a post-secondary introductory piano course?
2. How does reciprocal peer mentoring contribute to the sharing of knowledge and skills in a post-secondary introductory piano course?
3. What are the perspectives of the students with regard to the process of reciprocal peer mentoring and social interaction?

I chose to study peer mentoring in an applied music setting because researchers who investigate peer mentoring have reported positive results for students in multiple domains: knowledge, skills, and dispositions. Peer mentoring (same-age and cross-age) has been found to be successful in boosting academic (conceptual and symbolic understanding), technical (application), and social development (social and emotional maturity in relating to others) for both mentor and mentee (e.g., Alexander & Dorow, 1983; Darrow, Gibbs, & Bonner, 2005; Ehly & Larsen, 1976; Goodrich, 2007; Kelehear & Heid, 2002; Madsen, Smith, & Feeman, Jr., 1988; Sheldon, 2001; Weissberg & O'Brien, 2004). This may be due to symbiotic factors that include: interactive student involvement in the learning process; the creation of a supportive learning environment that leads to student achievement; the unique properties of peer communication; students' propensity to learn through teaching others; improved self-management skills; interdependent relationships and social affiliation; enhanced efficacy (a belief in one's

ability to produce valued outcomes); and satisfaction derived from helping others (Foster, 2009).

Discovering Peer Mentoring

My interest in peer mentoring grew from my own experience as a music student, a music educator, and a fine arts supervisor with professional responsibilities extending from pre-kindergarten to post-secondary levels. The learning environment in which I encountered music in each of these roles was consistently teacher or conductor centered. Despite the inherent satisfaction, fulfillment, and enjoyment to be had in making, experiencing, and learning about music, I have observed and empathized with the frustration related to feelings of individual devaluation and emotional constraint expressed by student musicians at every level.

As an emerging educator, I, like many novice teachers, modeled classroom methods on those of admired music educators—adopting a teacher or conductor-centered learning paradigm predicated on the assumption that my musical expertise and developing skills as an educator would operate in synergy with the intrinsic motivation of engaging in music and yield optimum results for students. Despite official commendations from both music and pedagogical professionals, I began to question my methods as I engaged with the ideas of philosophers and critical thinkers from varied perspectives who argued the importance of holistic education based on democratic and constructivist principles. Further, I became better versed in cognitive process motivation theory, coming to understand that motivation lies in the intrinsic value, self-respect, and self-satisfaction that come from solving problems and gaining understanding (McInerney,

2005). Inspired by these ideas, I sought to change my approach. I began integrating peer mentoring into the pedagogical process in several introductory-level piano lab courses that I teach in my instructional position at a small private university.

Peer mentoring became an even more embedded part of my teaching profile when, as part of a graduate course requirement, I undertook a small case study research project to explore the effects of peer mentoring on student knowledge, skills, and dispositions in a piano lab setting. Although I did not provide mentor training prior to the study for the students who participated in the research, both the participants' and my own perceptions were uniformly positive. The participants displayed a natural affinity for the process (perhaps because it is most similar to the learning paradigm found outside the classroom where peers interact in self-directed activities and are actively involved in both learning and assessment), and they were both eager and able to share knowledge during peer mentoring without extensive training. They found value in the mentoring relationship as a reciprocal connection based on trust and authenticity; the sympathetic culture fostered a sense of community that resonated beyond the classroom in terms of outside social relationships and a willingness to help one another in other areas. Collective efficacy, the group's shared belief in its ability to produce valued outcomes, was heightened because the group ethos was supportive, and participants welcomed the more democratic classroom atmosphere, relishing the chance to make choices of value (Miller, 2002; Foster, 2009).

Differing skill levels and personalities were seen as positives in reciprocal mentoring and, in some cases, peers were viewed as more effective than adult instructors

in fostering cognitive and technical development, perhaps because the classmates were so keenly aware of the strengths and weaknesses of their peers. Mentors and mentees learned from each other by communicating, negotiating, and cooperating—an observation consistent with the common assertion that an excellent way to learn something is by teaching it or showing it to someone else (Darrow, Gibbs, & Bonner, 2005). Consistent with Piaget's (1926) hypothesis that individuals gain understanding from having to coordinate their thinking with that of their peers, participants benefitted from the cognitive assimilation and accommodation that is a part of interpersonal learning (Crook, 1995). Such compelling evidence of both cognitive and technical growth, affirmative social influence in terms of caring relationships, a positive learning environment, and increased efficacy motivated me to continue my research on peer mentoring in the post-secondary piano lab.

Group Piano Instruction

Group piano instruction is increasingly offered by colleges and universities in the United States (Lindsay, 2006). Group piano classes are commonly taught in a piano lab at an introductory level; courses are usually one to two semesters in length and may be offered in a sequence. Enrollment is limited on average to between seven and twelve students (Chin, 2002; Lindsay, 2006).

Valued by music educators and educational administrators as both effective in promoting fundamental keyboard skills and practical for its efficient use of instructor time, group piano instruction is a widespread means of developing functional keyboard skills for both music majors and nonmusic majors at the post-secondary level (Amoriello,

2010; Chin, 2002; Tsai, 2007). Group piano often fulfills a requirement for music majors who are not studying piano as their primary instrument. Accredited universities typically require music majors to pass a cumulative piano proficiency exam demonstrating competency in a variety of keyboard skills such as sight reading, transposing, improvising, harmonizing, playing scales and arpeggios, and performing repertoire in alignment with National Association of Schools of Music standards and guidelines (Amoriello, 2010; Fisher, 2006; Young, 2010). Group piano typically serves as a fine arts elective for nonmusic majors.

Content and Assessment

Group piano instructors generally incorporate the “piano skills outlined in various national music organization documents and the piano skills valued by music educators into the group piano curricula” (Young, 2010, p. 38). Course content commonly includes sight-reading, harmonization, critical listening, chord progressions, technical exercises, theory, repertoire study, style concepts, improvisation, ensemble playing, transposition, and ear training with an emphasis on functional skills (Amoriello, 2010; Chin, 2002; Fisher, 2006). Student composition may also be incorporated.

A wide variety of textbooks is available to the group piano instructor (Young, 2010). Textbooks are typically organized in a series of sequential units and often include a selection of repertoire with optional teacher accompaniment. Textbooks may include an accompaniment disc to support student practice.

Although students enrolled in group piano enter the class with diverse skill levels and career goals, expected outcomes are similar, regardless of prior experience with the

piano (Amoriello, 2010). Course objectives typically focus on keyboard technique, sight-reading, harmonization, improvisation, performance of repertoire, musical interpretation, and a general understanding of the fundamentals of music theory (Chin, 2002; Fisher, 2006). The curriculum is often structured to facilitate a connection between students' understanding of music theory and the repertoire and technique explored in piano class (Amoriello, 2010).

Learning is commonly assessed using benchmarks that include both written assessment of music fundamentals and performance assessment. Ongoing formative assessment by the teacher typically is supplemented by formal summative evaluation that may incorporate the use of a rubric in order to provide specific feedback to support further student development. Evaluation and feedback commonly address accuracy of notes and rhythm, technique (e.g., fingering, posture, hand position and shape), musicality (e.g., tempo, dynamics, flow, expressiveness), and articulation and phrasing (Young, 2010).

Learning Environment

While the physical set-up and structure of a group piano course are necessarily dependent on the resources and goals of each sponsoring institution, a piano lab is generally equipped with electronic keyboards (often with less than the 88 keys typical of acoustic instruments) fitted with individual headphones. Auditory input may be adjusted using a control console, which enables the teacher to monitor individual students, small groups, or the class as a whole, or to pair groups of students in flexible ways. The

physical environment is usually based on the hierarchical ensemble model with the teacher piano and control console at the front or center of the room.

Hiemstra (1991) reasoned that educational environment cannot be defined solely by the physical surroundings in which learning takes place. The psychological or emotional conditions and social or cultural conditions affecting the growth and development of an individual engaged in an educational enterprise also function as part of the learning environment. Amoriello (2010) suggested that whether teachers are conscious of it or not, “power dynamics directly affect the instructional environment” in the piano lab (p. 32).

The psychological and social learning environment in piano classes conducted by expert group piano teachers is highly consistent (Young, 2010). Learning is predominantly operationalized through a three-step process: the teacher presents academic information, gives a direction, or models a technique; students respond; and the teacher assesses and provides positive and/or negative feedback (Lindsay, 2006). Students often play an exercise in unison or practice individually using headphones while the teacher gives mini-lessons to individual students. Group piano teachers rarely use small group activities (Young, 2010), and instructional strategies that involve peer interaction in a group learning environment are used most infrequently (Chin, 2002). Teacher-centered instruction is the norm with a focus on teacher delivery and authority. Daily and long-term objectives are determined by the teacher; repertoire choice is limited by the teacher; and the teacher provides all or most critiques and solutions (Scruggs, 2009). Given these circumstances, the piano lab is an ideal setting for an investigation of

reciprocal peer mentoring. I will discuss the piano lab used in this study in Chapter 3.

Educational Theory and Context

In the 1970s, social scientists began to promote the essential role of peer interaction and relationships in socialization and learning (Johnson & Johnson, 2009). Educators began to implement cooperative learning practices in response. Cooperative learning practices differed from the competitive and individualistic instructional practices that dominated education from the 1940s through the 1970s; in cooperative learning students were asked to work with their peers to accomplish a common goal (Johnson & Johnson, 2009).

Cooperative learning practices are based on social interdependence theory (Johnson & Johnson, 2009). Social interdependence theory evolved from the Gestalt idea that “there are properties of the group which are not simply properties of its members” (Deutsch & Krauss, 1965, p. 214). Lewin (1948) characterized groups as “sociological wholes” defined by interdependence among members (p. 73). According to Johnson and Johnson (1989), interdependence exists “when the outcomes of individuals are affected by their own and others' actions” (p. 23). Deutsch (1949) conceptualized social interdependence as either facilitative (positive) or hindering (negative). When social interdependence is positive, “the actions of individuals promote the achievement of joint goals” and when social interdependence is negative, “the actions of individuals obstruct the achievement of each other's goals” (Johnson & Johnson, 2009, p. 366). Johnson and Johnson (2009) asserted that the effectiveness of social cooperation in cooperative learning depends on five variables: positive interdependence (the result of common

goals); individual accountability (feelings of responsibility for completing one's share of the work and facilitating the work of other group members that are posited to result from positive interdependence); promotive interaction (action by individuals to encourage and facilitate each other's efforts to accomplish the group's goals); the appropriate use of social skills (skilled teamwork as a result of interpersonal and small group skills); and group processing "to clarify and improve the effectiveness" of the process (p. 369).

Three instructional techniques are commonly associated with social interdependence: cooperative learning; collaborative learning; and peer mentoring. Each of these practices emphasizes active student participation, social cooperation rather than individual competition, and social learning, but they are not identical.

According to Slavin (2011), "Cooperative learning refers to instructional methods in which teachers organize students into small groups, which then work together to help one another learn academic content" (p. 344). In cooperative learning, group sizes may vary from "two to several; group members may have individual roles or tasks, or they may all have the same task" (Slavin, 2011, p. 344). Evaluation or rewards may be based on group performance or the average of individual performances, or students may "simply be asked to work together" (Slavin, 2011, p. 344).

Cooperative learning practices may be formally structured with instructional methods and activities, frequency and duration of lessons, and composition of student groups determined by an authority (Kagan, 1989; Siegel, 2005). Important goals of cooperative learning include interdependent rather than competitive relationships and equitable student input (Bruffee, 1995). Students engaged in cooperative learning are

held accountable for collective learning, so teachers maintain the locus of authority (Bruffee, 1995).

Collaborative learning involves students in conceptual learning and the construction of shared meanings (Johnson, 2013). Collaborative practices encourage individual choice and responsibility, group collaboration to enact shared goals, and reflective thought (Scruggs, 2009). In collaborative learning, the “traditional classroom social structure [is replaced] with another structure: negotiated relationships among students and a negotiated relationship between those student communities and the teacher,” effectively shifting classroom authority from the teacher to student groups (Bruffee, 1995, p. 17). According to Bruffee (1999), collaborative learning encompasses three basic principles: (a) knowledge is socially constructed as a consensus among the members of a community of knowledgeable peers; (b) the authority of knowledge is shared among the members of the community; and (c) interdependent personal relationships shape a community of knowledgeable peers. Reciprocal peer mentoring, then, may be understood as a form of collaborative learning, for in reciprocal peer mentoring knowledge is socially constructed and shared and interdependent personal relationships are formed. Reciprocal peer mentoring involves one-to-one interactive learning, the most personalized, intensive, and direct educational paradigm (Heward, Heron, & Cooke, 1982).

While peer mentoring shares commonality with cooperative learning and collaborative learning in terms of coordinated cognitive activity and collective understanding, both collaborative and cooperative learning are associated with group

work in which each member must attribute individual success to the success of the group (Summers, Beretvas, Svinicki, & Gorin, 2005). In reciprocal peer mentoring, peers are involved in one another's intellectual and social development and the authority of knowledge is shared among the students and between the teacher and the students without inextricably linking individual success to that of a group.

A substantial body of literature indicates that students of varying abilities benefit from the active, purposeful, empowered student engagement in learning that is engendered by peer mentoring. Despite decades of corroborating research and considerable endorsement of this learning paradigm in educational and psychological literature, traditional hierarchical, teacher-focused instruction remains the dominant model in music education (Jaffurs, 2004; Lamb, 1996; Scruggs, 2009).

Music educators appear to be strongly influenced by tradition, modeling much of their methodology on their own experience as students and on emulation of the practices of admired music educators. Music pedagogy overwhelmingly continues to focus on the teacher as the center of learning and ensemble participation often revolves around a conductor who is an all-knowing authority figure with an ability to command (Froehlich, 2007; Jaffurs, 2004; Lamb, 1996; Scruggs, 2009). Perhaps understandably, music teachers responsible for concerts and other public performances may feel a reluctance to share control when the process may seem less efficient and results less certain.

Music educators may not realize the degree to which the traditional hierarchy of the music classroom creates a less-than-ideal learning environment (Erbes, 1978; Weaver & Qi, 2005). Not only can the hierarchical paradigm hinder student development in one

or more capacities (including decision-making and social functions), the role of authority has political and ethical implications beyond the strictly musical. Although professionally respected (Lamb, 1996; Scruggs, 2009), a strictly authoritarian model relegates students to passive receptacles, squanders hours of potentially productive time, and often results in student frustration and boredom.

Sociological researchers have questioned the ethos of the typical music classroom and musical ensemble, causing reflective educators to reconsider both the hierarchical relationships and the “feelings of alienation between individuals” that may arise in members of a group (Froehlich, 2007, p. 44). The inherent culture of dominance in the traditional formal learning environment may limit education to dispensation and transmission; a learning structure that treats students as a monolithic body rather than a heterogeneous combination of individuals may produce student dissatisfaction, uneven achievement, and ennui as the inevitable results. Students may experience frustration because they are deprived of the feelings of independence and control necessary to intrinsic motivation and positive self-identity. Recognition of the active, purposeful character of human development and respect for the shared understanding (socially distributed knowledge) that enables peers to teach one another (Wiggins, 1999/2000, p. 67) ought to shape the music educator’s role and function—to serve as a guide, facilitator, and source of social support.

A music class in which the teacher finds, solves, and reduces all musical problems is a passive experience for students, who are deprived of the opportunity to engage critically, relate socially, and explore personal expression and individual creativity

(Elliott, 1995). If a holistic goal of music education is to nurture young adults who are independent, musically knowledgeable, and able to continue developing on their own after graduating from school classrooms and ensembles, music teachers need to approach music education from a standpoint of discovery and transfer rather than transmission and recitation. Music educators need to recognize that the most important acquired understandings are not merely factual and perception is not automatically attained through faultless performance. Music students should understand the essential elements of musical language and expression (as distinct from exhibiting the right response when prompted); have opportunities to express, self-assess, and be creative; and learn to communicate and collaborate with others—vital competencies that can be nurtured through the dynamic learning process of reciprocal peer mentoring.

The impetus for this study came from my belief in the importance of an education that maximizes student potential, the necessity of a constructivist learning environment in nurturing such holistic growth, and my confidence in the ability of college-age peers to teach and learn from one another without extensive training. The spontaneous teaching and learning that occur as a normal part of student social interaction would seem to support this confidence.

Rationale for the Study

A relatively small number of researchers have focused on peer mentoring in music education. In much of the existing literature, researchers emphasize a considerable investment of time and effort on the part of the teacher/facilitator in terms of preparation

and preliminary training of the mentors, thereby promoting the idea that peer mentoring is complex and difficult to implement in either the classroom or rehearsal setting.

Alexander and Dorow (1983) described extensive procedures for the selection of mentors and for preliminary instruction in the use of specific verbal responses and modeling techniques (p. 35). In an overview of peer mentoring published in a journal geared to practicing music educators, Sheldon (2001) cautioned music educators not to expect peer mentoring to save time due to the substantial temporal investment that must be made on the part of the teacher to develop and monitor the mentoring program.

Darrow, Gibbs, and Bonner (2005) commented on the surprising amount of time required to prepare materials, train mentors, monitor for instructional quality, and facilitate interaction, and they suggested that the degree of effort required to prepare for mentoring activities may discourage music educators from employing this strategy (p. 21).

Goodrich (2007) found that extensive teacher preparation and organization, careful selection and training of the mentors, and continuous oversight were essential to the success of a mentoring program. There is a notable absence of scholarly inquiry in which researchers have examined students' ability to mentor and be mentored in music education settings without preliminary training.

One of the challenges for music educators who have been steeped in a hierarchical instructional framework is to reexamine professional practice from a holistic viewpoint with the student, rather than the teacher, as the center of control. A deeper understanding of peer mentoring in an applied setting might encourage such professional reflection, inspire reassessment regarding prevailing methodological paradigms in both

classroom and ensemble settings, and offer music educators both a rationale and a motivation for change.

Summary

A preponderance of music educators rely on autocratic pedagogical methods seemingly at odds with the creative, social, and emotional components associated with the experience of music. Given the unique characteristics of the discipline of music, it would seem particularly appropriate for music educators to nurture social learning in connection with student development of musical understanding and technical skills.

Reciprocal peer mentoring is one distributive pedagogical method with the potential to advance student learning in multiple capacities: knowledge, skills, and dispositions. This personalized, interdependent form of learning facilitates the constructive conversation that allows students to assimilate knowledge while developing social maturity. Student learning may be advanced due to factors which include: mentors' propensity to clarify and internalize concepts while reinforcing the skills of the mentee; the creation of a supportive learning environment that leads to student achievement; heightened social awareness; improved self-management skills; enhanced interpersonal relationships; satisfaction derived from helping others; and active student involvement in the learning process.

Despite decades of corroborating research and considerable endorsement of this learning paradigm in educational and psychological literature, traditional hierarchical, teacher-focused instruction remains predominant in music education. Research findings in an applied music setting indicating an inherent student affinity for the process of peer

mentoring in concurrence with student advances in terms of knowledge, skills, and dispositions may encourage the use of peer mentoring within the profession, thereby extending the observed benefits of this learning paradigm to a greater number of student musicians and contributing to the holistic development of student potential within the field.

CHAPTER 2: REVIEW OF LITERATURE

Authors of numerous research studies document the academic, technical, and social learning benefits of peer mentoring (Johnson, 2013). Although researchers have found reciprocal peer mentoring to be a successful means of supporting student learning in a variety of disciplines, there is a limited amount of research in applied music education settings. Within this literature, I was unable to find a study that examined students' ability to mentor without training.

In Chapter 1, reciprocal peer mentoring was framed as a form of collaborative learning that aligns with a constructivist view of knowledge acquisition. In this chapter I critique autocratic and hierarchical teaching practices in order to provide a better understanding through contrast; discuss constructivism, the theoretical lens I used to understand and interpret the results of this study; explore psychological and philosophical principles associated with peer mentoring, and review literature relevant to peer mentoring in both general education and music education settings. The discussion of these issues and review of relevant literature provide support and context for this investigation.

The literature on peer mentoring in this chapter is organized under the following headings: learning through peer mentoring in general education settings; and relevant studies in music education. I have included research studies that use the terms peer mentoring, peer tutoring, and peer assisted learning because in each of these instructional arrangements peers help each other gain knowledge and skill through active help and support.

Critique of Autocratic and Hierarchical Teaching

For the purpose of this study, reciprocal peer mentoring is defined as students guiding students in one-to-one relationships in which peers maintain equal status and contribute to the learning experience of one another. Although the value of this type of active student participation in learning is widely acknowledged by educators, the vast majority of learning environments continue to function hierarchically with limited levels of active student contribution (Weaver & Qi, 2005). In a study of teaching and learning at the post-secondary level that explored classroom structure and authority relations, Weaver and Qi (2005) reported that professors talk almost 80% of the time, only 10 out of 40 students (25%) participate in discussion, and only five students dominate due to a phenomenon classified as consolidation of responsibility. Weaver and Qi suggested that constraints on student participation may be understood in terms of classroom structure and student perception of hierarchy: The more students perceive the teacher as an “authority of knowledge” the less likely it is that they will actively participate in class (p. 586).

Erbes (1978) explored the verbal behaviors and activities of 24 public school music teachers and found music instruction to be even more autocratic and non-supportive than that of other subjects, with over 87% of verbal behaviors initiated by the teacher and only 4.1% by students. Students’ verbal behaviors were generally restricted and controlled by the teacher, often limited to short responses to teacher questions. Erbes suggested that this mode of teaching creates a regimented atmosphere that often acts as a “deterrent to effective and meaningful student learning” (p. 52). According to Erbes, a

domineering teacher produces a negative climate, less positive student attitudes, and irregular behavior patterns.

In research exploring learning context and declining motivation among early adolescent music students, Austin and Vispoel (1998) found that instructional practice in music education becomes increasingly teacher-directed and impersonal in secondary settings despite the fact that adolescents exhibit growing cognitive maturity and desire autonomy and responsibility. Classroom music instruction at this level tends to focus on passive activities (e.g., listening, analyzing, learning facts) rather than dynamic learning. Teachers may feel that such an approach simplifies planning, maximizes efficiency, and minimizes classroom management issues, but these activities may not meet students' interests or needs.

Students who choose to study music at the post-secondary level may anticipate a mechanistic style of information dispensation if they have become accustomed to hierarchical instruction in their primary and secondary school experience. Lamb (1996) explored the role of authority in a post-secondary music education setting and revealed an inflexible culture of teacher education focused on transmission strategies, resistance to ambiguity, and music students who seemed to expect a student-teacher relationship similar to that of professional musician to conductor (generally envisioned as a male authority figure with an ability to command). Lamb classified music education as a patriarchal system and noted that, according to Statham, Richardson, and Cook (1991), although female professors have a greater propensity to share authority and receive student input in the classroom, this practice is criticized in their evaluations as a possible

lack of control, thus reinforcing the status quo (p. 130).

Autocratic and hierarchical traits can be found in some models of peer mentoring. In a study exploring the effects of peer mentoring on instrumental music performance in beginning band classes, Alexander and Dorow (1983) administered pretests to fourth grade band students and designated high scorers as tutors. In this study peer mentoring was more consistent with a hierarchical paradigm than a collaborative one. Pairs were assigned by the researchers, the mentor and mentee did not reverse roles, and mentors were given specific techniques (approval and disapproval) by the researchers to use during mentoring sessions.

Hebert's (2005) ethnography of a Japanese school band found that peer mentoring played a fundamental role in the learning process. Hebert described a middle school band mentor who "clearly [took] command" and individually determined objectives (p. 277). Hebert outlined an institutionalized mentoring relationship in which younger students learned from older students primarily through "imitation and extensive repetition in prolonged conditions of intense effort" (p. 388). In this environment, the mentor assumed the authority of the teacher; peer contribution remained limited and controlled.

In a peer learning exercise designed to help fifth grade students learn key signatures, Darrow, Gibbs, and Bonner (2005) provided extensive preliminary training for mentors that included explanation of tutorial procedures, modeling, demonstration of the delivery of reinforcement and error-correction responses, practice with teacher feedback, and role playing prior to implementation. Further, they furnished mentors with scripted prompts and correct answers to questions. The researchers' focus on preparation

and oversight suggests they assumed some students were incapable of mentoring without comprehensive preliminary training and teacher management of the process.

In an exploration of how music was learned and performed by a successful high school jazz band, Goodrich (2007) noted the director's selective imposition of authority. While the director claimed to "work hard to establish peer mentoring" by identifying and coaching upperclassmen as mentors (Goodrich, 2007, p. 119), peer mentoring was encouraged during rehearsals only to the extent it did not conflict with the director's own intentions. The director established objectives and limited and controlled the flow of authority (Goodrich, 2007).

Baker (2008) investigated the effects of peer teaching on undergraduate music majors' achievement in sight reading at the piano. Baker selected the tutors, determined the pairings, and provided the sight-reading materials for each session. Further, tutors were provided with a teaching packet that included a detailed task analysis for each peer teaching session. In this study, the actions of the peer tutors were carefully scripted and mentoring was not reciprocal.

In a publication geared toward practicing music educators, Sheldon (2001) provided an overview of peer mentoring in school settings and offered guidance on implementing peer mentoring in the music classroom. Sheldon recommended isolating components of music instruction into sequential segments and prescribing teaching strategies for mentors. This approach deprives students of the chance to share understanding or to initiate, articulate, evaluate, revise, or defend musical ideas (Wiggins, 1999/2000).

In autocratic learning environments, a hierarchical stratification is formalized and the power to make decisions of value is centralized with the teacher. Teacher authority is consolidated and student contribution is limited or regulated. Knowledge is perceived as a static property principally acquired through transmission. Constructivist principles, though, suggest an alternative view of instructional practice.

Constructivist Principles

Constructivist theories of learning suggest that students interpret new information in relation to social interactions in their environment and that learning is influenced by the prior knowledge and understanding students bring to the learning situation (Scott, 2012). In this view, students extend their understanding through active engagement in learning in collaborative communities of practice. Rather than dealing with learners as blank slates who passively receive information from instructors, constructivist educators create learning experiences for students that provide opportunities for active learning (e.g. problem solving, student critique, and group collaboration) so as to nurture cognitive, technical, and social learning (Scott, 2012; Scruggs, 2009). Because of the relevance of constructivist perspectives of learning to the process of reciprocal peer mentoring, constructivism served as the theoretical lens for this study, providing a framework through which to understand the experiences and perceptions of the participants.

Constructivist perspectives are consistent with a democratic learning environment. According to Allsup (2003) democratic learning seems to benefit both cognitive and skills-based development. A democratic learning environment also has the

advantage of encouraging humanist values such as fairness and equity, and fostering positive social attitudes and self-esteem (Allsup, 2003). Apple (2000) argued that education, as an act of influence, is profoundly ethical and political in construct. Accordingly, educators should consider the implications of their choices in light of the cultural importance of democratizing the process whenever possible to allow student participation into the creation and/or recreation of meanings and values (Apple, 2000).

Dewey (1938) reasoned that education is a social process reliant on the development of experience that comes about through interaction. Dewey envisioned student learners as a community of cooperative and interactive individuals with mutual interests. Noting the successful discussion and arbitration that are the means of decision making in unsupervised student games, Dewey proposed that teachers ought to “reduce to a minimum the occasions when [they must] exercise authority in a personal way,” and, suggested that when exercising authority is necessary, it “should be done in behalf of the interest of the group, not as an exhibition of personal power” (p. 54).

Dewey (1938) believed that educators should combine their subject matter knowledge with an understanding of the capacities and needs of their students to plan learning activities that would lend themselves to social organization, “an organization in which all individuals have an opportunity to contribute” (p. 56). Rather than function as an “external boss or dictator,” Dewey suggested that the teacher should function as a leader of group activities (p. 59). Dewey stressed the importance of “freedom of intelligence” for students, defined as “freedom of observation and of judgment exercised in behalf of purposes that are intrinsically worth while” (p. 61).

Psychologist Lev Vygotsky, a prominent voice in social constructivist theory, emphasized the social origins of language and thinking. Unlike Piaget, who believed developmental readiness must precede learning, Vygotsky (1978) asserted that from the very first day of life, learning and development are mutually dependent and interactive. Acknowledging the “empirically established fact” that learning should be matched with developmental level, Vygotsky argued the relevance of two levels in relation to student learning capabilities: the actual developmental level—the level at which a student can problem-solve independently—and the potential level at which a student is capable of functioning when guided by a teacher or more able peer (p. 85). The distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers is defined as the “zone of proximal development” (Vygotsky, 1978, p. 86). In Vygotsky’s view, learning oriented toward developmental levels that already have been reached is ineffective at fostering growth; “good learning” should aim to advance development to the next level (Vygotsky, 1978, p. 89). An essential feature of “good learning,” then, is “that it creates the zone of proximal development;” developmental processes are able to operate only when a student is “interacting with people in his environment and in cooperation with his peers” (Vygotsky, 1978, p. 90).

The differences between individual learning (typically occurring in school) and shared collective cognition (the dominant form of learning outside the classroom) point to the artificial and less effectual ethos of the hierarchical classroom environment when

compared to the spontaneous peer teaching and learning that occur characteristically and authentically in students' normal social milieu (Allsup, 2003). Researchers have found students in constructivist learning environments to be "self-directed and efficient and enjoy long periods of concentration" as opposed to those in hierarchical learning environments (Allsup, 2003, p. 28). In a study of composition and improvisation in the elementary music classroom, Wiggins (1999/2000) observed that students in classrooms that tended to have a more hierarchical structure had greater difficulty engaging in creative process, perhaps due to fear.

A mentoring paradigm based on constructivist principles would encourage students to learn by interacting with others to develop and assess musical problems and determine strategies to solve them. Students would engage in discussion and arbitration as equals, coming to understand the distributed nature of knowledge and insight and the benefits of collaborative exploration and discovery. These constructivist principles inform the research questions at the heart of this investigation, the methodology, and my analysis of key issues and concepts and the relationships between them.

Psychological and Philosophical Principles associated with Peer Mentoring

Peer mentoring promotes shared learning through peer interaction. The developmental theories of Piaget and Vygotsky suggest that social interaction plays an important part in learning. Piaget's theory of genetic epistemology posits that learning and development occur through a process of assimilation and accommodation as a result of equilibration when learners interact (Piaget, 1926; Johnson, 2013); learners try to coordinate their thinking with that of their peers (Crook, 1995). Vygotsky's sociocultural

theories suggest learning is a construct of meaning within social interaction that involves appropriating modes of social discourse in the zone of proximal development (Crook, 1995).

Researchers have posited that both Piaget's and Vygotsky's theories are relevant to the effectiveness of peer mentoring. Johnson (2013) found that peer interaction promoted learning whether mentoring pairs were symmetrical (peers of equal status) or asymmetrical (a learner interacting with a more knowledgeable other). Rogoff (1990) suggested that the ideas of Piaget and Vygotsky may intersect during the process of peer mentoring: The resolution of a cognitive conflict may be necessary to achieve a shift in perspective (discarding an existing belief to consider one that is different) and interaction may be "necessary to provide practice in skills and access to information required to become proficient with culturally developed tools for thinking" (p. 141).

Writing from a philosophical perspective, Elliott (1995) argued that student interaction is an essential component of music learning. In Elliott's view, music education should be organized as a reflective practicum in which students participate productively in musical practices and connect realistically with other practitioners as mentors. Elliott argued that the relationships among student apprentices play an important role in the development of musical expertise. Further, as the formal and informal coaching functions assumed by peers provide mutual reinforcement to both the learning and social unit, students come to understand the distributed nature of expertise and insight.

These principles are relevant to peer mentoring because they suggest that peer interaction is important in learning. The collaborative process of reciprocal peer mentoring facilitates peer interaction. As students work together to construct, reorganize, and transform knowledge, cognitive and dispositional processes are activated that promote learning.

Peer Mentoring

In this section I discuss research on peer mentoring in both general education and music education settings that is particularly relevant to my exploration of peer mentoring in a post-secondary piano lab. These studies provide insight on peer mentoring across a number of different approaches, disciplines, and age levels and provide support for this investigation. This section is divided into two parts. In the first part, learning through peer mentoring in general education settings, I review literature in elementary and secondary settings in addition to literature in post-secondary settings. In the second part, I review relevant studies in music education.

Learning through Peer Mentoring in General Education Settings

Researchers offer convincing evidence that peer mentoring is an effective instructional method for a variety of disciplines and ages. Additionally, researchers have reported positive outcomes for both mentors and mentees regarding social learning and dispositions.

Mentoring in elementary and secondary settings. In a review of literature on peer mentoring, Ehly and Larsen (1976) appraised the effectiveness of pupils as teachers, citing a 1970 study by J. L. Thomas in which fifth and sixth grade tutors were as effective as senior post-secondary education students in producing reading gains with second graders. The authors found that from a dispositional standpoint, the peer tutors were more direct than adult teachers—uninhibited by negative expectations regarding learning motivation or aptitude. Additionally, Ehly and Larsen reviewed the academic and social gains for tutors and tutees reported by the Mobilization of Youth program in New York City and concluded that peer mentoring can benefit both mentors and mentees. Positive emotional outcomes included increased confidence and self-esteem for mentors and a more relaxed attitude (less fear) for mentees.

In a study of cross-age mentoring in an elementary school, Madsen, Smith, and Feeman (1988) reported that tutors and tutees formed strong bonds, demonstrated substantial academic gains, and expressed positive feelings about the process. They found both disruptive special education students who served as tutors and kindergarten tutees (who had also been identified as being low in social and academic skills) made gains in basic skills. Notably, in a videotape analysis completed by professionals, the tutors were judged positively in terms of academic level and behavior and the kindergarten tutees were deemed only slightly below grade level and behaviorally appropriate. Further, music as a contingency for the mentors was superseded by the positive tutor/tutee relationship.

Kelehear and Heid (2002) investigated cross-age mentoring in art education in a study in which high school art students mentored first grade students as they collaborated on an art project. Academic and social benefits were realized by both the high school mentors and their first grade mentees. Students moved “from knowing to understanding, both about artmaking and each other” and demonstrated positive attitudes about school and learning (p. 67). Kelehear and Heid observed that artmaking became secondary to the relationships that formed.

Person, Kreuz, Zwaan, and Graesser (1995) reviewed studies of cross-aged peer tutoring in various disciplines including math and reading in grades one through nine. They found that one-on-one tutoring is more effective than traditional classroom instruction, even though tutors typically are not highly trained.

Robinson, Schofield, and Steers-Wentzell (2005) reviewed literature on peer and cross-age tutoring in K-12 mathematics and determined peer and cross-age tutoring to be useful approaches to increasing academic achievement in mathematics for African American as well as White students with a variety of initial levels of achievement. Further, peer and cross-age tutoring were found to foster attitudes and behaviors likely to be conducive to academic persistence and success. Positive academic and dispositional benefits were realized for both mentors and mentees.

Sawyer (2001) explored literacy and social learning in a cross-age mentoring study in which adolescent males of color mentored elementary students. Sawyer found that mentors derived great personal satisfaction in teaching others “what they did not know” and in making “new friends” (p. 47). Not only did the mentors feel that they were

able to make an educational contribution, they developed “strong bonds” with their mentees (p. 50). Mentors universally exhibited “extraordinary dedication and empathy” and a concern for the “emotional well-being” of their mentees (p. 51). Sawyer highlighted the altruistic nature of such motivation.

Karcher (2009) found that cross-age peer mentoring as part of a developmental guidance program at the high school level had academic and social benefits for both mentors and mentees. Mentees demonstrated or reported improvements in attitudes toward school and peers, self-efficacy, grades or academic achievement, social skills, and behavior problems. Mentors reported larger gains in school-related connectedness and self-esteem than did a comparison group of their peers.

Stader (2001) explored the connection between rules and interpersonal relationships in the social context of the high school. Stader determined that a school-wide mentoring program in which high school juniors and seniors mentored freshman according to a relationship building model increased the level of trust and respect between student groups. Peer mentoring had a positive impact on the norms and values of the secondary school culture; peer mentoring was observed to improve school climate, reinforce interpersonal relationships, enhance trust between student groups, and help students learn to support one another.

Mentoring in post-secondary settings. Dennison (2010) examined peer mentoring in a nursing education program at the university level. Mentors benefitted from the opportunity to review knowledge and stay current with skills; further, mentors found helping others to be a rewarding experience. Mentees reported that they gained valuable perspective from a mentor with similar experience and became less intimidated and more comfortable.

In a study investigating the experiences of college music education students who served as reading tutors for elementary students in an afterschool program, Madsen (2011) found that students developed personal connections that were perceived by both tutor and tutee as being meaningful. The tutees appeared to highly value their weekly interactions with their tutors. In some instances, the tutors felt close enough to give comfort and advice to the tutees; they also felt they were able to have an impact on the behavior of the tutees.

Johnson (2013) reviewed six meta-analyses of peer assisted learning published between 1982 and 2007. According to Johnson, this sizeable body of literature provides overwhelming evidence that peer assisted learning has the power to dramatically increase academic and social achievement gains in a wide range of subject areas and for learners of a wide range of age levels, ethnicities, and economic levels.

Researchers have affirmed that peer mentoring is effective in promoting academic and social learning at the elementary, secondary, and post-secondary levels. Further, peer mentoring offers academic, social, and dispositional benefits to both mentors and mentees.

Relevant Studies in Music Education

Researchers have investigated peer mentoring in music instruction for a variety of settings and age levels. Although the following studies are diverse in terms of participants and area of instruction, they provide support and context for this exploration of reciprocal peer mentoring in a post-secondary piano lab because each offers insight into the process of students mentoring students in a context of music learning.

Alexander and Dorow (1983), Gelb (2010), Hebert (2005), and Goodrich (2007) investigated peer mentoring among band students. Alexander and Dorow (1983) explored the effects of peer tutoring on fourth grade beginning band students in a study that compared the performance results of students working in tutoring pairs to the performance results of students receiving group instrumental instruction. The performance results of both tutors and tutees were higher than the results of the students receiving group instrumental instruction. The authors speculated that the relative lack of effectiveness of group approvals for the students receiving group instruction may be due to the fact that students in a teacher-centered class discount the value of collective praise since it is not specific and may or may not be accurate for their particular performance.

In addition, Alexander and Dorow (1983) examined the use of approval and disapproval error correction techniques. Although both approval and disapproval techniques resulted in performance improvement, approval techniques were more effective than disapproval techniques. The authors concluded that tutoring is beneficial whether the tutor uses approval or disapproval error correction techniques, but approval techniques are more beneficial. Alexander and Dorow described extensive procedures

for the selection of mentors and for preliminary instruction in the use of specific verbal responses and modeling techniques.

Gelb (2010) studied the effects of peer tutoring in a beginning band classroom where high school tutors worked with small groups of beginning instrumentalists under the supervision of a band director. Tutees demonstrated increased technical skills and positive dispositions. Tutors refined their understanding of basic technique, improved their communication skills, and took pride in their ability to positively affect the mentees. The supervising band directors provided articles and demonstrations to assist the tutors in working with instrumental technique as well as resources and materials for each tutoring session. The directors also assisted in the development of lesson plans and were available to answer questions during mentoring sessions.

Hebert (2005) found that peer tutoring played a fundamental role in the learning process of a Tokyo middle school band. The mentoring relationship was structured so that younger students learned from older students “primarily through imitation and extensive repetition in prolonged conditions of intense effort” (Hebert, 2005, p. 388). Hebert observed that the mentoring process fostered critical analysis on the part of the mentors as they engaged in the transmission of concepts and practices and in relationship building. Student mentors also conducted sectional rehearsals, developing a variety of effective leadership styles. Approaches included modeling, subdivision into mentoring pairs monitored by the section leader, and listening exercises.

Goodrich (2007) determined that peer mentoring was an important contributor to the success of an advanced high school jazz band. Highlighting the connection of peer

mentoring in the jazz band to the historical tradition of mentoring in this genre, Goodrich observed that peer mentoring enhanced instructional efficiency, promoted musical learning, and fostered positive interpersonal relationships. Peer mentoring in the jazz band framework benefited both the mentors and the mentees by promoting critical reflection, enhancing musical judgment, increasing understanding about the jazz genre, and promoting social growth. Additional observed benefits were enhanced rehearsal efficiency and accelerated musical development. Goodrich noted that the director of the jazz band had to “work hard” to establish peer mentoring in the ensemble (p. 102). The director began working with potential mentors in the spring to establish both musical and nonmusical expectations and goals for the fall. According to Goodrich, the director believed the “time spent coaching” the mentors was necessary in order to ensure the success of the mentoring program (Goodrich, 2007, p. 102).

Scruggs (2009) and Webb (2012) investigated peer mentoring among orchestra students. Webb explored the benefits of peer tutoring for high school orchestra tutors. Tutors enjoyed working with tutees, valued the social bonds that developed with their younger peers, and believed that teaching also served as a valuable learning experience because they had to adapt, reconstruct, and communicate knowledge for the learning benefit of their tutees. Additional benefits for tutors included a sense of individual ownership of the learning processes and heightened empathy, altruism, and self-concept. Webb suggested that tutors require preliminary training and support from more experienced music teachers. Webb noted that the necessity of training peer tutors was a

consistent theme in the literature, professed in both research studies and texts on peer teaching and learning.

Scruggs (2009) compared performance outcomes, musical growth, and learner and teacher dispositions in learner-centered and teacher-centered (traditional) middle school orchestra classrooms. The observed learner-centered methodology, which incorporated peer tutoring and collaboration, was designed by Scruggs in accordance with the democratic principles of Dewey and the constructivist ideas of Vygotsky. Scruggs found increased musical growth and greater musical independence in the learner-centered environment. Teachers also reported an increase in student engagement and leadership skills. Importantly, results indicated no difference in the achievement of performance outcomes, indicating that peer and collaborative learning were as effective as traditional teacher-oriented instruction.

In a study of instrumental music students ages 9–18 who were learning to play either the piano, string, brass, or woodwind instruments, McPherson and McCormick (2000) investigated the effect of self-regulatory and motivational influences on performance. They found that self-efficacy was an important predictor of both current achievement on a performance examination and future success. Students with high self-efficacy outperformed students of the same skill level who had lower personal expectations. Further, higher levels of confidence seemed to engender greater effort and perseverance due to a positive belief in the ability to succeed.

Jaffurs (2004) and Lebler (2008) investigated peer learning in student-centered settings. Jaffurs studied informal learning in a garage band setting and found the learning

process analogous to an apprenticeship where learning occurs on the job. Emergent themes included student separation of formal (school) music instruction and informal music making, a perception of equality within the group, a limited exchange of praise and positive feedback, and the importance of both verbal and non-verbal communication in the transmission of knowledge. Jaffurs suggested this successful democratic learning process, in which peers channeled knowledge easily, fixed mistakes, and helped and encouraged each other (refusing to accept inability to accomplish a task) within a “context of fun,” should encourage the inclusion of more diverse learning practices within the music classroom (p. 199).

Lebler (2008) examined an Australian conservatory program in popular music production structured to mirror the cooperative, interdependent peer learning present in informal music learning. In this conservatory program, product (the acquisition of knowledge and skills) is not emphasized over process (the development of learning abilities, the nurture of creativity, and the learning dispositions of students). The program is structured as a learning community with a particular focus on peer learning and assessment. Peers mentor one another as a matter of course; allowing students to experience assessment “*of, for, and as learning*” (p. 196). Lebler found that students valued the opportunity to learn from and with their peers and, in fact, ranked teacher criticism as less influential than that of peers, audiences, bandmates, friends, or self-appraisal of their own audio recordings.

Lebler (2008) noted that even when popular music is incorporated in the formal music curriculum, it is “likely to be taught in more or less the same way as other more

established content areas . . . with teachers being in control of the process and the curriculum, the feedback, and the assessment;” this contrasts with the way popular music is usually learned, through self-directed activity or interaction with peers (p. 193). Lebler concluded that, due to prior self-initiated learning experience, students are well prepared to engage in peer learning and, further, because reflective thinking capabilities and evaluation skills are particularly valuable in music learning, students should be given the opportunity to practice active assessment and receive assessment from their peers as part of a structured learning environment.

Baker (2008), Jones and King (2009), and Gaunt, Creech, Long, and Hallam (2012) investigated peer mentoring at the post-secondary level. Baker examined the effects of unidirectional peer teaching on undergraduate music majors’ achievement in sight reading at the piano. Students enrolled in a group piano class participated in eight sight-reading sessions in which the designated tutor guided the tutee through sight-reading exercises. Baker found that peer teaching had a positive effect on achievement for both tutors and tutees. Baker selected the tutors, determined the pairings, and provided the sight-reading materials for each session. Further, tutors were provided with a teaching packet that included a detailed task analysis for each peer teaching session.

Jones and King (2009) examined peer tutoring in a university recording studio. In this study, 1 third-year music technology student tutored a group of 3 first-year students. Jones and King found that peer tutoring helped tutees strengthen their understanding of recording studio concepts. Tutors not only gained confidence during the process, but they also suggested tutoring refined their own understanding because they had to think of

different ways of explaining studio practice when the tutees did not initially grasp what they were trying to communicate. Jones and King used a pretest of recording studio knowledge to select tutors and provided one hour of mentor training.

Gaunt, Creech, Long, and Hallam (2012) conducted a qualitative study of the plans, aspirations, and motivations of music students in a conservatory in the United Kingdom. Although the students were not asked directly about mentoring, they volunteered that learning collaboratively with and from peers was an important component in their professional development, either in terms of being able to integrate within a community of practitioners or in building self awareness and reflective skills.

Darrow, Gibbs, and Bonner (2005) examined the effect of peer tutoring on learning key signatures in fifth grade music classrooms. Tutors received extensive training that included explanation of tutorial procedures, modeling, practice with feedback, and role playing prior to implementation. The authors found the process to be effective for both tutor and tutee, although no comparison was made to traditional teacher-directed instruction. They posited that successful classroom implementation of peer tutoring in music may occur more easily with this type of academic exercise than when peers are asked to tutor a performance activity. The authors surmised that successful outcomes in terms of unanimity of purpose, enhanced support skills, and heightened cognitive comprehension for both mentors and mentees may have been due to the unique properties of peer awareness and peer-to-peer communication. Darrow, Gibbs, and Bonner commented on the surprising amount of time required to prepare materials, train tutors, monitor for instructional quality, and facilitate interaction, and

they suggested that the degree of effort required to prepare for mentoring activities may discourage music educators from employing this strategy.

In a synthesis of data from previous research on the beneficial effects of peer tutoring in both classroom and ensemble settings, Sheldon (2001) reported enhanced student achievement, problem-solving ability, independence, self-initiative, social and performance skills, and cognitive development for both elementary and secondary music students as a result of peer or cross-age tutoring either during scheduled instruction or before or after school. Sheldon noted that peer tutoring programs require “much time and attention in development and while in progress” (p. 34).

Summary

In this chapter I reviewed literature on autocratic and hierarchical teaching practices, constructivism—the theoretical lens I used to understand and interpret the results of this study, psychological and philosophical principles associated with peer mentoring, and literature relevant to peer mentoring in both general education and music education settings. The literature on peer mentoring was grouped according to the following topics: learning through peer mentoring in general education settings and relevant studies in music education.

Literature on autocratic and hierarchical teaching practices suggests such practices may limit active student involvement in learning and may not meet students’ needs (e.g., Austin & Vispoel, 1998; Erbes, 1978; Lamb, 1996; Weaver & Qi, 2005). Autocratic and hierarchal traits can be found in some models of peer mentoring (e.g.,

Alexander & Dorow, 1983; Baker, 2008; Darrow, Gibbs, & Bonner, 2005; Goodrich, 2007; Hebert, 2005; Sheldon, 2001).

Constructivist principles suggest that students extend their understanding through active engagement in learning in collaborative communities of practice where peers interact and support one another (e.g., Allsup, 2003; Apple, 2000; Dewey, 1938; Vygotsky, 1978; Wiggins, 1999/2000). Psychological and philosophical principles suggest peer interaction is an important part of learning (e.g., Crook, 1995; Elliott, 1995; Johnson, 2013; Piaget, 1926; Rogoff, 1990; Vygotsky, 1978).

The literature on peer mentoring in general education has revealed positive outcomes for students in a variety of subjects including mathematics, language arts, and art (e.g., Dennison, 2010; Ehly & Larsen, 1976; Johnson, 2013; Karcher, 2009; Kelehear & Heid, 2002; Madsen, 2011; Madsen, Smith, & Feeman, 1988; Person, Kreuz, Zwaan, & Graesser, 1995; Robinson, Schofield, & Steers-Wentzell, 2005; Sawyer, 2001; Stader, 2001). Although less extensive, the literature evaluating the educational influence of peer mentoring in music education is primarily positive, describing desirable outcomes in terms of cognitive, technical, and dispositional development in a variety of settings (e.g., Alexander & Dorow, 1983; Baker, 2008; Darrow, Gibbs, & Bonner, 2005; Gaunt, Creech, Long, & Hallam, 2012; Gelb, 2010; Goodrich, 2007; Hebert, 2005; Jaffurs, 2004; Jones & King, 2009; Lebler, 2008; McPherson & McCormick, 2000; Scruggs, 2009; Sheldon, 2001; Webb, 2012). Heightened student achievement, improved problem-solving ability, independence, self-initiative, enhanced social and performance skills, and cognitive development are consistently demonstrated in diverse studies (Sheldon, 2001).

Cognitive and skills-based development is enhanced while encouraging humanist values, positive social attitudes, and self-esteem (Allsup, 2003). Shared experience is seen to augment the quality of creativity and generate a strong sense of community (Allsup, 2003). Mentoring is found to increase instructional efficiency, promote musical learning, and foster positive interpersonal relationships (Goodrich, 2007).

As I discussed in the rationale for this study in Chapter 1, issues described in the literature that may be perceived negatively by music educators include lengthy and involved preparation requirements and the necessity of ongoing time and effort to train the mentors and initiate and sustain the mentoring process (e.g., Darrow, Gibbs, & Bonner, 2005; Goodrich, 2007; Sheldon, 2001, Webb, 2012).

In spite of research showing successful performance results along with cognitive, social, and emotional benefits, peer mentoring has not been studied extensively and it is not widely used as a pedagogical tool in the music discipline. Music educators may have ongoing concerns regarding performance outcomes or perceive democratic and constructivist learning paradigms as difficult to implement and administer. I hope that both the relative ease of implementation and the successful development of student knowledge, skills, and dispositions evident in the current study will contribute to the professional dialogue regarding this pedagogical method and that my analysis of results will offer insight in terms of developmental psychology (Vygotsky's zone of proximal development, in particular) in an active performance setting. These positive findings can serve to advance professional practice by encouraging music educators to reflect on democratic and constructivist ideals regarding context and content *within the classroom*

or ensemble setting, and the importance and the power of their role in the holistic development of student potential within the discipline of music.

CHAPTER 3: METHODOLOGY

The purpose of this study was: (a) to examine reciprocal peer mentoring in a post-secondary piano class for general studies students; (b) to explore the perceptions of both the participants and instructor regarding the impact of reciprocal peer mentoring on knowledge, skills, and dispositions; and (c) to examine the social dimensions of cognitive and technical learning in a collaborative class environment that includes reciprocal peer mentoring. The following questions served to guide this study:

1. How does the inclusion of reciprocal peer mentoring in the pedagogical process contribute to the learning environment in a post-secondary introductory piano course?
2. How does reciprocal peer mentoring contribute to the sharing of knowledge and skills in a post-secondary introductory piano course?
3. What are the perspectives of the students with regard to the process of reciprocal peer mentoring and social interaction?

Procedures and Background

To facilitate the creation of a collaborative learning environment in the piano lab, I provided opportunities for students to participate in activities that focused on interactive learning, the construction of shared meanings, and mutual goals. My goal was to serve as a leader of group activities. Participants engaged in both collaborative learning, where they worked together in groups to construct knowledge and develop skills, and reciprocal peer mentoring, where peers interacted as equals in a one-to-one relationship in which mentoring activity was shared among partners. I did not use the term reciprocal peer

mentoring with the participants; I asked them to work together or help one another. I encouraged the participants to sit at different pianos during each class session and asked them to engage in reciprocal peer mentoring activities as a routine part of the learning process throughout the semester. Participants were not assigned to roles as either mentor or mentee. Participants mentored one another during each mentoring session and, because pairings changed for each mentoring session, they had an opportunity to interact with all of their classmates throughout the course of the semester. As the students collaborated in reciprocal mentoring pairs, I took field notes and remained available to help as needed.

As described in Chapter 1, I became committed to a constructivist approach to learning after engaging with the ideas of educational philosophers and critical thinkers such as Apple, Dewey, and Elliott. I was also influenced by cognitive process motivation theory: the idea that motivation lies in the intrinsic value, self-respect, and self-satisfaction that come from solving problems and gaining understanding (McInerney, 2005). Additionally, my initial exploration of reciprocal peer mentoring in the piano lab yielded positive outcomes, which encouraged me to explore reciprocal peer mentoring in greater depth.

Overview of Research Design

The methodological approach selected for a particular research study should evolve not only from the purpose of the inquiry and the essence of the issue under investigation, but also from the researcher's philosophical and theoretical stance (Creswell, 2007). I chose a qualitative research inquiry to explore the questions of this

study because I believe reality is subjective and involves multiple perspectives, and that knowledge is constructed through interaction with others. In accordance with my philosophical stance, I judged constructivism to be the appropriate theoretical lens for the study and focused my methodology on context, emergent design, and inductive logic. In order to maximize what could be learned, I sought to explore social and dispositional dimensions, and to address “how” questions; therefore, qualitative inquiry through case study seemed the most apposite methodological approach.

Qualitative Case Study

Yin (2003) suggested the qualitative case study is the most relevant mode of research when the research question requires extensive and in-depth description of a social phenomenon and the goal is to understand how the social phenomenon works. The case study approach allows for the illustration of different perspectives on the issue of interest (Creswell, 2007) and supports in-depth description—the layered interpretations of the people most knowledgeable about the case (Stake, 1995). One of the most distinctive characteristics of this type of research is an emphasis on interpretation, both etic—from the perspective of the researcher—and emic—from the viewpoint of the people being studied (Stake, 1995). The researcher seeks to discover not only “what is,” but also to interpret what these perceptions mean in context, why, and to whom. In the spirit of communal knowledge, this type of inquiry seeks to reveal multiple truths, not about, but from within. This requires a thoughtful blend of “critical detachment” and “empathic connection”—the ability to look beyond explicit contents to implicit meanings and messages (Bresler, 2009, p. 18).

In order to explore the uniqueness of a particular reality in depth, case study researchers commonly employ techniques borrowed from ethnographic research studies to collect and analyze data within bounded systems, purposefully prescribing the timeframe and number of participants in order to maximize both intensity and the number of factors that can be examined. Ethnographic exploration enables probing of the nuances of the social and emotional realms and encourages description and interpretation of attitudes, emotions, and relationships as components of meaning (Glesne, 2006). In accordance with Malinowski's pioneering conception of ethnography, this type of inquiry seeks knowledge that is grounded in human experience, based on observation, and inductively sought (Bresler & Stake, 2006, p. 274).

Stake (1995) described case study research as the study of the particularity and complexity of a case in order to come to an understanding of its activity within important circumstances and contended that each case should be seen as unique as well as common. In this study, the parameters of the case were clearly delineated in order to conform to the principles of specificity and boundedness appropriate in defining a case of interest. This study was bounded by time (one semester) and place (a post-secondary piano lab at a private university) and limited to a single case (the instructor and the student participants engaged in reciprocal peer mentoring in a particular introductory piano course).

I pursued this particular case in order to further an understanding of how reciprocal peer mentoring functions in an applied music setting (piano lab) where students did not receive training in peer mentoring prior to implementation of the process. My intent was to understand the issue of reciprocal peer mentoring in an applied music

setting using the case—reciprocal peer mentoring in a tertiary piano lab for ten students during a single semester—as a specific illustration (Creswell, 2007).

I sought perception, contextualization within a social setting, and understanding, rather than comparison or quantification. This kind of understanding, based on a constructivist epistemology and reliant on words rather than numbers to convey not only information, but also meaning within context, has resonance for me personally due to my own beliefs about the subjective nature of reality, the acquisition of knowledge through interaction, and the power of language to convey understanding that numbers alone cannot. Accordingly, I sought and received Institutional Review Board (IRB) approval to conduct a study of human subjects and followed all procedures outlined by the IRB to ensure the safety and well-being of the participants and to protect the confidentiality of the data.

This research design aligns with the overarching aim of this study: the elicitation of knowledge in terms of description; interpretation; and understanding of the experience of peer mentoring in an applied tertiary piano classroom. The case—this group in context bounded by time, place, and activity—served as the unit of analysis (Baxter & Jack, 2008). During the course of the study, participants alternated in the roles of mentor and mentee and pairings were fluid. The experiences of the individual participants and the researcher served as multiple sources of information and allowed for a rich data set. The research questions, based on relevant literature, provided a framework to guide and focus the data collection and discussion and determined the direction and scope of the study.

I remained aware that as an “inside” researcher who interacted with the participants my own values and language would shape the narrative and the interpretation of results in conjunction with the interpretation of the participants and that my competence, thoroughness, and integrity as a researcher would determine the authority of my findings (Creswell, 2007, p. 17). In order to enhance the accuracy of my representation, I collected data in multiple forms including observation, semi-structured interviews, and relevant artifacts with a view to understanding and interpreting cognitive and technical growth and patterns of social interaction through a constructivist lens. My effectiveness as the instrument of data collection was heightened—both in terms of the quantity and quality of information I could gather—by my ability to function as a participant observer while facilitating the mentoring process (Spradley, 1979). Close collaboration with the participants enabled me to better understand the participants’ actions (Baxter & Jack, 2008).

Dealing with Coercion

While I believe that my relationship with the research participants facilitated trust and a sense of community, I am aware of the ethical issues involved in studying my own students and the risk of coercion in particular. I recognize the moral imperative to consider the consequences of my decisions and actions and to maintain a caring attitude. In order to minimize coercion, I did not grade participant assessments. I obtained the approval of the department chair at the institution where the study occurred to have a knowledgeable and experienced colleague who was not involved in the study grade the participants for the semester. This was done to encourage the participants to interact with

each other and with me without fear of repercussion. Participants were graded on benchmark assessments three times throughout the course of the semester: during week six, week twelve, and week fifteen. Each benchmark included both written and playing components and all assessments were completed in the piano lab. I did not participate in the assessments, but remained in the lab in order to observe and take notes.

In this study I focused on an instructional technique—reciprocal peer mentoring—not the perceptions of whether the students liked the class or the teacher. I was very cognizant of institutional control with regard to peer mentoring in this setting including the course structure and the impact of both the physical constraints and technical limitations of the piano lab, and I made every effort to overcome these limitations so as to share authority with the participants.

Identification of Site and Participants

I was able to gain access and collect data at the site chosen for the study because of my position as a teacher at the university. Creswell (2007) cautioned that studying one's own institution may be convenient, however, in order to address questions about the quality of data collected, “multiple strategies of validation [should] be used to ensure that the account is accurate and insightful” (p. 122). Because of my personal affiliation with the site and the participants, I used multiple strategies of validation to enhance accuracy. Although I teach several sections of group piano at the site chosen for this study, I selected participants enrolled in a particular section of *Introduction to Piano* so as to maximize what could be learned about peer mentoring in the piano lab.

Site Selection

This study was conducted at a small private university with an enrollment of approximately 6,000 students located on the New Jersey shore approximately 60 miles from New York City. Piano courses with enrollment of no more than 10 students per section are taught in a small but functional lab in the music building. The same syllabus is used for all sections of the piano course to ensure students in every cohort are adequately prepared to continue the sequence of piano instruction if they so choose.

One advantage for the use of this site is that I currently teach a variety of piano courses for the department and have established a rapport with both students and staff. The quality of the relationships in a professional setting is critical because it makes an important difference in what participants are willing to share (Phillips, 2008). My position as teacher facilitator within the group, rather than outside observer and researcher, allowed me to function as an embedded participant observer.

Another advantage of this particular site is that as the instructor of the course I could plan and gradually integrate reciprocal peer mentoring (a practice I had begun to use the previous year) throughout the semester. Although reciprocal peer mentoring is technically not a component of the piano lab and other instructors did not make use of this collaborative practice, this environment provided the opportunity for me to implement it. Furthermore, I could study the learning process through the duration of the semester and observe the participants during every class session. Additional advantages included the following: limited course enrollment of no more than 10 students to enable a

comprehensive case study; and course duration of one semester in order to bound the case so I could explore peer mentoring throughout the entire course from beginning to end.

Individual Participants

The participant population included male and female students of varying background and was limited to 10 participants due to the available equipment in the piano lab. Participants were nonmusic majors who had little or no prior experience with the piano. Seven of the participants had no previous instruction in piano. Three of the participants had received instruction in piano for a brief period of time: two when they were very young. One had taken a group piano class in eighth grade. Seven of the ten participants had some experience with peer assisted learning in an educational setting. One participant was currently involved in peer assisted learning in another course. All participants were 18 years of age or older, had chosen the class as an elective without influence by myself as the researcher, and had no prior knowledge of this study.

Data Collection

Data collection occurred over the course of one semester. Data included classroom observation, two semi-structured interviews with each of the participants, informal conversations, and assemblage of artifacts including the course syllabus and examples of student work.

Observations

In order to gain insight that would help me answer the research questions guiding this study, I observed the participants as they interacted in the learning environment and engaged in reciprocal peer mentoring and made careful notes about what I saw and heard.

A sectioned three-ringed binder served as a field log. I hand wrote observations and descriptive information as events unfolded and subsequently recorded my personal reflections in the margins. For example, I described the demeanor of the participants as they entered the piano lab for the first time and later reflected on their lack of interaction and possible level of comfort in the margin of the same page. I subsequently typed and copied my field notes so they could be organized both chronologically and topically.

Interviews

I was able to hear the individual perspectives of study participants and gather rich data relevant to the research questions guiding this study through the ethnographic interview process. For example, when asked about learning as part of a reciprocal mentoring pair, participants spoke of the supportive relationships that formed among peers and the reciprocal learning that occurred as they discussed concepts and modeled for one another. Semi-structured interviews (see Appendices A and B) with individual study participants took place in a neutral office near the piano lab in order to minimize coercion and provide privacy for the participants. The office contained a computer, two chairs, three file cabinets, a storage case, and a bookshelf and, because it was not assigned to a particular professor, it was not personalized in any way. I used semi-structured interviews so that I could initiate discussion on topics relevant to my research questions, and, at the same time, encourage participants to offer their own descriptions and interpretations of peer mentoring in the piano lab. Each participant was interviewed twice, once near the middle of the semester during week seven (see Appendix A) and once near the end of the semester during week fourteen (see Appendix B). Interviews

were recorded on a portable cassette player. I transcribed each interview within 48 hours (replaying portions as necessary) and saved each interview transcript as a Word document.

Interviews were cited using the following system: participant initials followed by the number 1 to indicate the first interview or the number 2 to indicate the second interview; the page number of the transcribed interview; and the date the interview took place (see Appendix F). Observations and informal conversations were cited by date. In the narrative depiction of peer mentoring as it occurred during the course of the semester (Chapter 4), I have suppressed these citations for ease of reading.

Informal Conversations

Informal conversations occurred before and after class and before and after concerts in the music department. These conversations provided additional insight into the perceptions and dispositional attitudes of the participants. I made written notes of informal conversations bearing on the study as soon as possible. These notes were later typed and filed in a three-ringed binder and coded using the system I described previously.

Artifacts

Artifacts including the course syllabus and examples of student work created during peer mentoring were collected and sorted in a three-ringed binder. Examples of student work included note words, rhythm worksheets, test review questions, benchmark evaluations, concert reviews, and student compositions. I was able to gain further insight into the influence of peer mentoring by probing these artifacts for corroborating or

disconfirming evidence. For example, my observations indicated that participants improved their music literacy skills through a peer mentoring exercise in which they created note words. This was confirmed by student performance on a subsequent benchmark. An analysis of student work on a rhythm worksheet, however, indicated that although participants had engaged in a mentoring exercise involving rhythms, many of them still had difficulty understanding the dotted quarter and eighth note combination.

Data Analysis

I aligned my approach to data analysis to the procedures suggested by Stake (1995) and Creswell (2007). In an attempt to enhance understanding, both participant background information and the context of learning in the piano lab were examined. Descriptive coding of the data was initially based on the three questions guiding the study. Coding consisted of two to three letter codes that represented themes. For example, initial themes included the learning environment (LE), sharing knowledge and skills (SKS), and social interaction (SI). Codes were added and modified as themes emerged and deeper concepts and patterns were identified. Information relevant to the learning environment was further sorted with subsets including interactive learning (IA), learning by doing (LBD), comfortable learning environment (CLE), and supportive learning environment (SLE). I coded the data by adding a column to the left side of each typed page of data using Microsoft Word. I typed in the codes and aligned them to the relevant text. As themes emerged, I attempted to relate the findings to the research literature and develop thematic concepts based on both convergent and divergent findings. Initially, participant interaction in other venues (IOV) seemed to emerge as an

important theme, but I later discovered that the participants had limited opportunities to interact outside the piano lab so this theme does not appear in Chapter 4 or Chapter 5.

Alignment between observations, interview statements, informal conversations, and artifacts supported the credibility and dependability of the results. For example, my observations regarding the positive effect of peer mentoring on self-efficacy aligned with the participants' perceptions of self-efficacy as expressed in interviews and informal conversations. As I coded the data, I looked for confirming and disconfirming examples in the data record. For example, the participants' growing willingness to perform aloud after engaging in peer mentoring demonstrated their increased self-confidence and served to confirm the results in the data record. According to one participant's interview response, however, although she "gained confidence" when she mentored a peer, she felt "less comfortable" when she was learning something as a mentee because she "felt vulnerable and not up to speed" (DS1p2 10/20/11).

Once I completed the coding, I merged the codes into categories and subcategories. For example, data relevant to teaching peers was sorted into subcategories that included peer communication, multiple perspectives, and comprehension and skill development through teaching others. I offer a narrative overview of the semester in Chapter 4 in order to provide a vignette that takes the reader into the world of the piano lab and reciprocal peer mentoring. In Chapter 5, I present the findings grouped thematically according to the research questions and in Chapter 6, I address each of the research questions, discuss the themes that emerged in this study, and relate them to the existing literature.

Trustworthiness and Reliability

The qualitative researcher seeks to situate inquiry within a substantive body of literature and connect theoretical understanding and personal knowledge to new discoveries and insights. Qualitative researchers must follow rigorous investigative procedures and meet high standards of dependability (reliant on the investigator who serves as the principal research instrument) and credibility (established through prolonged engagement, triangulation of data, peer review, and external auditing). To enhance the trustworthiness of my final report, I triangulated the data, reported and kept a record of the biases I brought to this study, conducted member checks, and engaged in peer review. My dissertation supervisor conducted external audits.

Triangulation

To augment the credibility of this study, data collection was triangulated to include as many data sources and data types as possible. This allowed me to counteract the threat to credibility associated with a single source and to increase confidence in my research findings (Glesne, 2006). I used the information gleaned from observations, interviews, relevant informal conversations, and artifacts created by the participants to amplify the richness of the data set. My ability to provide a thoughtful and truthful interpretation of peer mentoring in context was heightened by the more encompassing and multifaceted information provided by multiple forms of data.

My own observations and reflections were compared and contrasted with interview data and informal student conversations. For example, the first time the participants engaged in reciprocal peer mentoring, I asked them to help one another

prepare a short musical selection from the text. I did not assign mentors or mentees or pre-designate pairings; pairings were formed by the students based on where they sat. I observed that the participants did not exhibit any uncertainty about how to help each other and reflected that, although I had not instructed them in mentoring techniques, they seemed to have a natural affinity for the process. This aligned with interview responses in which participants stated that mentoring “just came naturally” (JV1p3 10/18/11) and “students have the ability to infer how to do it on their own” (MK1p4 10/24/11).

Artifacts were perused for either corroborating evidence or negative case examples. For example, I compared participants’ written work to my own observations and students’ perceptions to see where they aligned or diverged. I had observed a tendency for the participants to count one-and, two-and, three-and, four, sometimes omitting the second half of the fourth beat. Following a reciprocal mentoring session on the dotted quarter and eighth note rhythm, participants indicated that they now understood the concept. As they worked to create measures in common time, however, the results showed that a number of them continued to omit the second half of the fourth beat.

Reporting of Bias

Ethical researchers must be conscious of the bias, values, and experience they bring to the process of inquiry and aware of how this may affect interpretation and understanding of the system of interest. In order to provide interpretations that are authentic and trustworthy, researchers need to identify their own views and put them aside so they do not exert undue influence.

Because I was involved personally in the research process, I made every attempt at reflexivity regarding my own role and personal biases. Having previously explored research related to peer mentoring in music education, I was favorably disposed before beginning the study. In addition, my own feelings of responsibility for student learning in the piano course, along with my hope that participants would experience a sense of competency and joy in making music that would inspire them to continue developing their piano skills after completion of the course, could have influenced my perspective. I made a concerted effort to look for non-confirming evidence and consider alternate explanations in order to balance this partiality. For example, although I had confidence in the participants' ability to mentor and believed this ability was confirmed by my observations, I learned through the interview process that some of the participants had reservations about the knowledge and aptitude of their peers.

Member Checks

In qualitative inquiry, the researcher commonly provides an opportunity for interview participants to review written transcriptions of their interviews through the process of member checking. Participants are encouraged to evaluate transcriptions for both accuracy and tone as a means of supporting the veridicality of the data.

I conducted a member check for each interview by emailing a transcription of the interview in the form of a Word document to each participant for review. I encouraged participants to add comments or make corrections that would assist me in representing their ideas more accurately. I received an email response from each participant

confirming their satisfaction with the transcripts as written. None of the participants requested any corrections or additions.

Peer Review

In qualitative studies where a single researcher is responsible for both data collection and interpretation, peer review can be a valuable tool for enhancing credibility. By presenting data (both inclusive of and without interpretation) to other knowledgeable researchers for review, the researcher is able to gather input either supporting the interpretations of the researcher or offering alternate explanations (Stake, 1995).

Peer review was conducted through online appraisal (data were transmitted by email) and discussion (by telephone) with colleagues in my doctoral program. In addition, I engaged in ongoing dialogue with a knowledgeable colleague in the music department at the site of the study.

External Audit

Eisner (1998) argued the importance of validation from a competent other regarding description, interpretation, evaluation, and thematics in qualitative research. Verification of the research process and product by an external auditor helps to support the credibility of qualitative research.

My dissertation supervisor conducted an external audit. Data were transmitted by email and real-time discussion facilitated by telephone and the online networking site Skype.

Summary

I chose qualitative inquiry and case study design as the methodological approach for this study and constructivism as the theoretical lens because of the research questions to be addressed and my own philosophical convictions regarding multiple perspectives of reality and the constructed acquisition of knowledge. I sought and received IRB approval to conduct a study with human subjects and followed all protocols to ensure the well-being of the participants. Because of my personal affiliation with the site and the participants, I used multiple strategies of validation to enhance accuracy. Data collection was triangulated to include as many data sources and data types as possible including observation, interviews, informal conversations, and artifacts. Multiple forms of data were compared and contrasted to enhance credibility. In order to minimize coercion, I had a knowledgeable and experienced piano instructor who was not involved in the study grade the participants. To support the credibility and dependability of the results, I reflected on my personal biases, conducted member checks for each interview, and engaged in peer review and an external audit.

CHAPTER 4: THE PIANO LAB

The campus is vibrant with life on this early September day as I walk past Wilson Hall, the former Shadow Lawn mansion built in 1929 by F. W. Woolworth magnate Hubert T. Parson. Although Wilson Hall is now a National Historic Landmark that houses the administrative offices of the University, I remember my first glimpse of the neoclassic mansion as the home of the character Daddy Warbucks in the 1980 film version of *Annie*. Students cross the expansive, well-groomed grounds in front of the building's stately pillars, talking and laughing as they make their way to class.

I pull on the ring handle adorning the great double doors of the former Guggenheim stables, a modest wood structure repurposed to accommodate the Music and Theater Arts Program of the School of Humanities and Social Sciences. As I enter the lobby I am welcomed by newly donated Oriental rugs and an inviting arrangement of comfortable chairs. A cacophony of sound swirls around me as I make my way upstairs to the piano lab. I enter the small 21 by 14 foot room on the second floor of the building and survey the familiar scene. A single acoustic upright piano, ten electronic student instruments, one instructor piano with effects, a control console, and a chalkboard have been wedged into this small room. Space is limited and students must rise to let others pass into each row of two pianos. Due to the age of the building that houses the lab, power sources are makeshift; power strips and extension cords abound, and the teacher and students must work together to make effective use of the small space. I smile fondly as I look at this well-known workspace and arrange my things in anticipation. A new semester of group piano class has begun.

Introduction to Piano is a one-semester group piano course designed for students with little or no previous musical experience. Class is held twice a week on Mondays and Thursdays for an hour and fifteen minutes with the exception of the first week of the semester (one class only). The objective of the course is to develop beginning skills in keyboard technique, music reading, harmonization, and performance of repertoire along with a basic understanding of the fundamentals of music. The most important requirement for the student is a commitment to practicing. Students are responsible for two benchmark assessments and one comprehensive benchmark assessment, regular homework assignments, and attendance at one classical or jazz concert featuring the piano.

This applied course is taught in a small piano lab with ten student pianos. Enrollment is limited to ten students. The hands-on structure of the course allows students to practice the subject matter and make music in a variety of ways as they hone their keyboard skills. Students learn to create, read, and tap out basic rhythms; recognize, notate, and interpret pitches on the staff; identify intervals both visually and aurally; play five-finger patterns, arpeggios, and chromatic and diatonic scales; harmonize melodies using primary chords; use the damper and soft pedals; perform repertoire; and play alone and together to produce satisfying musical outcomes. The culminating experience requires students to use their newly acquired knowledge to create, notate, and perform an original composition.

The students enrolled in this course for the Fall 2011 semester were asked to share in the instructional proceedings and interact with their classmates during the learning

experience through the process of reciprocal peer mentoring. Rather than function as a dispenser of knowledge, my goal as the instructor was to serve as a leader of group activities by arranging opportunities for students to discover and collaborate to construct meaning, develop understanding, and hone musical skills.

September

Week One

On September 8, I met the members of the Fall 2011 *Introduction to Piano* class for the first time. Five females and four males made their way into the lab, quietly keeping their eyes and thoughts to themselves, but showing a little surprise at the small size of the room as they arranged their book bags. Several murmured “excuse me” as they maneuvered around classmates who were already seated. As I began looking at the roster Mary broke the silence to say, “Daria is on her way. She stopped at the bookstore [to purchase the book].” Mary’s reference to the text prompted several of her classmates to quietly place their texts on the piano in front of them. Chas had sent an email to let me know he would not be able to attend the first class; he wanted to assure me that he had not dropped the course.

I distributed the course syllabus and asked students about their interests and abilities. The students appeared nervous and uncertain about what to expect. There was very little interaction. None of the students in the class were majoring in music; all of the enrollees had chosen to take the course to fulfill an elective requirement in the arts. Seven of the ten expressed a specific interest in learning to play the piano. Learning to play the piano was on Katia’s “bucket list,” and she “loved the fact that through the

process of getting [her] bachelor's degree and being forced to take an elective" she was given the opportunity to pursue a "relaxing hobby," one that she would like to continue after graduating. George was pursuing a love of Classical music sparked by hearing the "nice music" featured in movies and video games. Mary had taken a piano class in middle school, but had never learned to play "actual songs." Mark played the trumpet in middle school; as a result he had developed "a passion for music" and "thought piano would be fun." Jelena "really loved music" and had even tried to "teach [herself piano] a little bit" in high school, but "found that [the] academics and sports [she] was involved in had to come first." Jada had "always liked music" and "really wanted to know how to play piano," but had "never really had a chance to play an instrument." During the next class Chas informed me that, "shockingly enough," he had become interested in learning to play the piano after hearing dueling pianos at a piano bar.

Appearances, surnames, and familiarity with the keyboard indicated that the enrollees possessed diverse ethnic backgrounds and varying degrees of musical experience. My initial impressions were confirmed by the students over the next few classes. Jelena, a bilingual Spanish education major of Latin ancestry, and Min, a dual political science and business major of Asian heritage and also a jujitsu expert, were the only two students who had previous experience with piano lessons. In both cases, the lessons occurred for a short period of time when they were quite young—a "long, long time ago" according to Jelena. Jelena thought that at five years old, she had been "too young" to appreciate the piano classes in which her mother had enrolled her. Min's grandfather had been a piano tuner, and Min believed he had inherited his grandfather's

ear for music, though not his “aptitude for rhythm.” Min had taken piano lessons when he was in fourth grade and knew “basic piano” but could not “play with [his] left hand or read base [*sic*] clef.”

Katia, a registered nurse splitting her working hours between the emergency department of a regional hospital and a correctional facility, had played clarinet in elementary school. Now in her thirties, she was the oldest student in the class and was working on a bachelor’s degree in nursing. George, a computer science major whose family had moved to New Jersey from Queens, New York, when he was in his teens, had “no experience with music except music appreciation.” Silas, also a computer science major, was motivated to learn to play the piano because both of his sisters played the piano and he had “played a few songs.” Silas had recently immigrated to the United States from Zimbabwe with his Zambian mother, Indian father, and siblings. Mary, who had taken “a few music classes in middle school,” had decided to take the class with fellow athlete and Health Studies major Daria, of Puerto Rican and Mexican heritage. Daria had “no musical experience.” Mark, who rode a skateboard to class, had played trumpet in middle school and could play the guitar “a little bit.” Mark was enrolled in a five year Master’s Degree in Criminal Justice program. Even while employed as a work-study student, Mark had made the Dean’s list for the past four semesters—a feat that made his tightly knit Italian/Polish family members “proud.” Chas was an accounting major whose interest in piano had been piqued by an outing to a piano bar. Jada, an English and history major, was from an urban center in the northern part of the state. She “vaguely” remembered playing an instrument as part of the elementary school music

curriculum. She and her sisters and brothers had “always told each other [they] were going to start a band.”

During the initial meeting, the class discussed the syllabus and course requirements, one of which involved attendance at a concert featuring classical or jazz piano music. Katia asked for clarification. “I have a question on the concerts we can attend,” she stated. “Our church choir director is also an accomplished musician and vocalist who plays concerts at our church. She has several concerts coming up. Could this count as one of the concerts you would like us to attend?” I told her that would meet the requirement. At my encouragement, the students gathered around the sole upright piano in the room, peering on tiptoe to see the workings inside as I demonstrated high and low, loud and soft, and the damper and soft pedals. “Cool,” exhaled Mark audibly and his classmates smiled and nodded in agreement.

When the students returned to their seats, we talked about how to use the electronic keyboards and control console in the lab before proceeding to posture, hand position, finger numbers, the concepts of pulse and rhythm, finding notes by name, and basic dynamics. I asked the students to look at the explanations and illustrations of each of these topics in the text and take turns explaining the information to the class. “Do we always count to four?” Katia asked after our discussion of basic note values. “I think so,” offered Jelena. “I think the numbers above the notes indicate the fingers.”

We played aloud together for the culminating activity of the class session—a group performance of their first piece of piano literature, “Two by Three.” This five-note piece is notated using quarter and half notes to indicate rhythm and note placement on the

page (rather than on a staff) to indicate ascending and descending pitch. A conventionally notated teacher accompaniment is printed below. Pleased with the sound as we performed together, Mary smiled broadly. "Can we play it again with the accompaniment?" she asked. "Yes, can we?" echoed several of her classmates.

After class I sent the students an email through the University's e-Campus course management system asking them to practice finding notes by name, saying the alphabet backwards, and playing "Two by Three." I would continue to use the course management system throughout the semester to communicate with students electronically after each class session in order to reinforce learning, offer support, and provide information regarding expectations and practice. Students also used the system to communicate with me between class sessions.

Week Two

When our class met for the second time, some bonding from peer group work during the first class session was already evident. Classmates took the initiative to bring Chas, who had missed the first class, up to date on course requirements and explain how to use the lab technology before class began. "Here," Jelena demonstrated and said, "This goes into this and the headphones go here, but first you need this adaptor." We continued to learn and explore music making as a group and, after participants had an opportunity for individual practice, we reconvened in order to collaborate on each distinct performance project.

Near the end of the class session, I spoke to the students about my doctoral work and provided a written overview of my research study on reciprocal peer mentoring. I

distributed the approved consent forms to each student in attendance and invited them to read the form. I stressed the fact that participation was completely optional; they could continue in the course without participating in the study. All of the students present signed the form. Katia, who was absent due to a sinus infection, and Jada, who had not yet attended class, read and signed the form after the next class session.

Jada had registered for the course during the drop-add period and would attend for the first time on Thursday, September 15 (day three). The class roster remained stable from this point forward.

The following day Silas contacted me for advice on buying a keyboard that would be good for practicing for class and for learning more about the piano in the years to come. Before our next class I spoke to Silas about the possible purchase of a keyboard and walked him down the hall to meet with a colleague who has expertise in that area.

Although I had not yet had a chance to meet Jada, I received a message from her prior to class informing me that she was an EOF student (a student who receives financial aid for books). Due to problems with her financial aid balance, Jada did not currently have the means to purchase the required text for class. Jada apologized for not being prepared, but assured me that she would have the text for the next class and would make up all the work she had missed due to late registration.

Because Jada had alerted me in time, I was able to provide her with a temporary copy of the text and printouts of the supplemental material for the day's learning experiences. Jada did not have any prior experience playing the piano, and I knew it might be difficult for her to catch up after missing so much of the foundational material

discussed in the initial class sessions. As it turned out, she did not seem to be discouraged and, although she was substantially behind, she worked diligently.

Katia came for extra help during office hours prior to class because she had been ill and had missed the previous class. Together we worked through the concepts, exercises, and repertoire the class had explored in her absence. “My left hand does not want to behave,” she laughed as we worked through “Simple Elegance.”

At the start of class, students interacted during a unit summary review with peers by explaining answers to each other. With the aim of encouraging the students to articulate their answers fully, I interjected from time to time with questions such as “Why?” and “How do you know?” “Number thirteen is the repeat sign,” offered George, “because number fifteen only has the double bar without the dots.” “The half rest is the one that looks like a hat,” Mark chimed in. We alternated individual and group work as students played two familiar melodies hands together in octaves, reading note symbols written to indicate direction through higher or lower placement on the page without the use of a staff. A change of the keyboard sound setting from piano to organ really seemed to please the students as we played aloud. They also projected pride in this group accomplishment and seemed to be developing a sense of camaraderie from the interaction and from playing aloud together. “We sound really good,” glowed Silas.

Week Three

For the first time, our initial class activity involved reciprocal peer mentoring rather than collaborative group work. After students had selected a piano station for the day, I distributed splitters/adaptors so that they could hear and mentor one another’s

performance without going through the central control console. I did not assign mentors or mentees or pre-designate pairings; pairings were formed by the students based on where they sat. (Because I had encouraged the students to try the various pianos in the lab, seating and pairings varied during mentoring sessions.) Students seated together in a row (two pianos per row with two exceptions) worked together. Katia, who had arrived late and so was seated at the least desirable station—the single piano facing toward the back wall—worked with Silas who had selected the single piano next to the teacher’s console.

I asked the participants to help one another prepare a short musical selection on the text, “God Is So Good.” When asked to mentor a performance activity for the first time, the participants did not exhibit any uncertainty about how to begin. They asked no questions of me, turned to their partners, and immediately focused on the task at hand. The students in each pairing successfully negotiated the alternating roles of mentor and mentee and seemed to allocate a generally equitable use of time. “Would you like to go first?” Chas asked Jada. “I’ll try,” she replied with a smile. They connected their adaptors and Chas listened intently. When he noticed Jada was struggling with the rhythm, Chas began to tap a steady beat on his leg that was both visible and audible to Jada. She thanked him as she successfully completed “God Is So Good” and said, “Now let me see if I can help you.” They quickly switched places and roles. “Make sure your hands move at the same time,” Jada advised. Chas nodded and concentrated on coordinating the movement in his right and left hands.

Although we had not yet discussed articulation formally, Daria advised Mary to play the melody “more smoothly.” Mary nodded in agreement and changed her technique without further verbal interchange. Daria complimented Mary’s improved sound. “That sounds like ‘Ode to Joy’ now,” Daria affirmed. Min advised Jelena on posture, something we had discussed the first day of class. “Remember to lean forward, like the picture,” he reminded her referring to the silhouette in the text. His comments were overheard by several nearby pairs who immediately corrected their playing posture.

When the students seemed ready to move on, we looked at examples of reading on the staff in the text. In order to stimulate discussion, I asked questions about the number of lines and spaces on the staff and how these are used to indicate motion by step or by skip. We practiced as a group to perform pieces involving the keynotes middle C, F below, and G above and gradually progressed to the complete five-finger pattern for each hand. After students began to grasp the concept of steps and skips, we added crescendos and diminuendos as indicated in the text. The participants seemed to enjoy the dynamics of the sound they created together.

Students worked in reciprocal mentoring pairs for the second time during the next class. Once again, pairings were not pre-designated; they were formed by the students based on where they chose to sit. Because I had previously encouraged the students to sit at different pianos each time, all pairs but one (Mary and Daria) were different from the previous class session.

Silas, who was paired with Min, had been absent on the day when the class discussed reading steps and skips on the staff. He acknowledged that he was not sure he

understood the concept. Min, his partner, stated aloud that “he was a terrible teacher,” but, in fact, as the two worked together discussing the relationship between the visual representation of music and the performance of notes on the keyboard, Silas not only grasped the concept, he was able to perform the exercises with the correct notes and rhythms and a degree of musical sensitivity. Silas turned to me and said, “Min is a great teacher. He is just very modest!” Although several students had expressed uncertainty about their ability to perform the reading exercises, in each case, without intervention on my part, the students were able to play the exercises correctly following the peer mentoring interchange.

Week Four

The weather was an inescapable part of the learning environment for teacher and student alike. It was unseasonably hot and humid, feeling more like July than late September. For some unknown reason, the air conditioning in Woods Theater had been “shut off for the season” by Facilities Management. The piano lab was stifling and there was not a breath of moving air to bring relief through the windows the students had opened. Jelena asked for a rubber band so that she could pull her thick curly hair off her neck. (She thoughtfully returned a rubber band to me with a “thank you” before our next class.) The students commiserated with each other, but, rather than wilt or whine, they seemed ready to proceed despite the oppressive heat.

As a group, the students played the piece they had prepared for class, repeating it several times so that I could observe technique. Students then collaborated to notate an eight-measure rhythm on the board by blending and adapting rhythms they had created

individually as homework. Together they counted and tapped the rhythms aloud. “Oh, I get it now,” announced George after a discussion with Jelena, “It’s like fractions.” Students took turns facilitating a review of unit four, contributing answers and explaining the reasoning behind their responses to the exercises in the text. “In middle C position, our thumbs share C,” commented Jada, “and in C position finger five is on the C below.” Following a review of C position and the new notes low C, D, E, F, and G (an increase in the range of the groups’ note vocabulary by half), participants worked in reciprocal mentoring pairs to create words on the grand staff using note names to symbolize letters.

Pairs shared ideas regarding possible words that could be formed with the letters of the musical alphabet and offered guidance to one another on notation. The only insertion of authority I made in the process was to encourage the mentoring pairs to take turns recording the notes on the shared sheet of staff paper so that both members of the pair could benefit cognitively and technically from the practice of writing the musical notes on the staff. Each pair seemed to share the task fairly equally even though, in some cases, one of the participants had greater familiarity with reading and writing music. Some pairs referred to the note chart in the text and others worked out words on the keys of the piano, a possible indication of different reasoning and learning styles. Participants engaged each other verbally and seemed pleased to contribute ideas. “Oh, I have one!” rang out from various corners of the room. One pair was solicitous about including time signatures in each measure (one word per measure), even using a $5/4$ measure to notate a five-letter word.

After several minutes, I asked the students to exchange the notated staff paper

with another mentoring pair so that they would have an opportunity to work together to decode one another's work. Students collaborated well both within and between mentoring pairs. In each case, the decoding pair conferred with the pair who had created the words either to question the placement of a particular note or to confirm a correct interpretation. "Is this word C-A-F-E?" Mark asked Daria and Min. "I think you need to make sure the extra line is in the center of the note," he advised referring to the leger line for middle C. When they had finished, the now experienced note word authors and decoders began interacting in a single group, enthusiastically debating not only results, but process. "How many groups wrote C-A-B and F-A-D-E?" asked Daria. "We did," answered Mary and Mark along with Jada and Silas. "How do you create longer words?" asked Mary. "I think you have to use double letters," responded Jelena. "Like B-A-G-G-A-G-E," added Katia.

In order to ameliorate the uncomfortable swelter of the stagnant, humid weather that lingered throughout the week, I brought a small portable fan to the next class and set it on the acoustic piano in the corner of the room with the hope of providing some air circulation in the lab. Although the relief was minimal, several students murmured their appreciation.

Katia arrived a few minutes late for class. She was wearing scrubs and looked tired. Katia explained that she had just come from her job at the hospital. "I'm sorry I'm late," she apologized. "We were short staffed." Katia was a little older than the other students in the class, and when I asked if she was of age to sign the consent form, she laughed and said, "Oh, you are very kind. I am the oldest one in the class. I'm in my

thirties!” Her expected graduation date had been delayed, and she was taking this piano course to complete one of the requirements she was missing for her degree in nursing. Katia’s attitude in class was always positive and interested, if sometimes cautious rather than confident. She slipped into the last piano station as students took turns leading the group in rhythm exercises incorporating quarter notes, dotted quarter notes, eighth notes, and quarter and half rests in 3/4 and 4/4 time signatures. “One-and, two-and, three-and,” George counted off. “Wait!” he smiled, “Too fast. Let me start again.” A willing, if initially tired participant, Katia seemed to gain energy from the enthusiasm of her peers.

Students began to focus on the day’s repertoire, volunteering to play individually as they felt ready. As the students finished performing the repertoire, they worked in reciprocal mentoring pairs to create a measure of rhythm in 4/4 on the board. “Should we try to use rests?” Jada asked Silas. “Okay,” he agreed. “I think we can do it!” Without specifically being requested to do so, each pair wrote the counts under their notes to ensure they had the proper number of beats in the measure. In several cases, one member of the pair took the text to the board for reference. The peer-composed measures were subsequently combined to form a four-bar phrase for the class to decode and tap. Of his own volition, Silas, who was sitting closest to the board, erased the counts underneath. He suggested it would be better for the group to figure out the counting of each rhythm rather than to simply read it and tap it. He seemed to feel comfortable sharing the authority for learning with his teacher and peers in this type of learning environment.

Only one of the peer-created rhythms had a mistake; a measure was missing the second half of the fourth beat. Both the class and the pair who had created the measure

(Katia and Chas) realized it at the same time and the creators immediately offered possible corrections. “We need an eighth note,” Katia exclaimed and her partner, Chas, offered that an eighth rest also could be used. Several students had previously exhibited a tendency to count one-and, two-and, three-and, four—most frequently omitting the *and* on the second half of the fourth beat when they made a counting error. This reciprocal peer exercise in rhythm writing heightened the group’s awareness of this potential mistake and may have helped the students to avoid it in the future.

October

Week Five

At last, the heat had broken and the lab had cooled to a much more comfortable temperature. Nevertheless, the students were not taking any chances and had come prepared for the possibility of extreme heat and humidity. Chas had come to class after a job interview. He wore a pair of suit pants with a tee shirt and explained that he had taken the time to change out of his dress shirt and jacket in case the room was still extremely warm.

Students took turns presenting a review of melodic intervals to the class, discussing and correcting answers as a group. “Include the top and bottom note when you count,” Mark reminded the group. “And remember that thirds and fifths match,” added Jelena. The group played harmonic intervals together and read through pieces using seconds, thirds, fourths, and fifths. I noticed that even those students who characteristically seemed to be somewhat retiring and shy had begun to willingly contribute for the benefit of the group.

I provided the students with a review sheet for Test 1, the first major benchmark of the course, scheduled for October 17 (day twelve). For the assessment, students would be asked to complete a written review focused on their understanding of the musical language and to perform several keyboard exercises and a repertoire piece of their choice. I performed sample repertoire selections on the acoustic piano and encouraged the students to take copies of any of the pieces that interested them. Students were also offered the option of selecting a repertoire piece from an outside source. I wanted to ensure that they had an opportunity to work on a piece they really wanted to learn to play. Although all of the students took a copy of the least difficult repertoire piece, “Allegro in C,” several students chose to take copies of the more difficult selections as well, perhaps because they preferred these pieces musically and were not afraid to be challenged.

I received an email from Katia the next morning telling me that her parents had left her a note to wake them when she returned home from her work at the hospital at 12:30 a.m. Her aunt had died of lung cancer and she would have to miss the next class. Katia asked me to meet her before class on Monday (day ten) to catch up.

During class, Jelena chose the piano station next to Mark, Jada sat next to Chas, Daria sat next to Mary (both had been absent last class), and George sat next to Min. Because there were only nine students in class, I paired with Silas for the reciprocal mentoring exercise. Students had two pieces to prepare: “Interval Study,” designed to reinforce the harmonic intervals explored earlier, and “Dance,” a piece in ternary form incorporating dotted half notes, terrace dynamics, and repeat signs. Both Min and Chas asked their mentoring partners, “Do you want to go first?” George and Jada pleasantly

said, “All right.” Each of the pairings chose to have the less secure pianist serve first in the role of mentee, perhaps intuiting that this person would need more support.

As Daria and Mary had both been absent from the previous class, they were not sure how to begin. They asked me about the correct hand position, but other students overheard and responded. Mark answered that “Interval Study” was in C position and Min offered that “Dance” was in G position. Daria asked, “Is that regular C or middle C?” Min explained and Mary said, “Oh, now I get it!” The students then returned their concentration to their mentoring partners.

As she prepared to play, Jada warned Chas, “Now, you are going to hear some mistakes.” He appeared unfazed. Jada continued, “The hardest part is the fourth.” Chas suggested Jada play it for him hands separately first, “Try doing it like we did in class—hands separately.” Chas also corrected Jada’s fingering, “Try one and three.”

Min stood up and moved closer to George so he had a clearer view of George’s hands. Min declared, “I hate that sound—the two notes so close together [the harmonic second]. I don’t remember that; no, wait [after reaching over and playing the interval with George on George’s piano], I think that’s right. Here you are playing G and D.” Min began to tap the rhythm of “Dance” on his thigh for George and to sing along with him as he played. George’s dimples appeared along with his smile and he successfully completed playing the piece.

Mary sneezed, “Achoo!” and, not only her partner, but all the students around her exclaimed “Bless you!” Mary encouraged Daria, “That sounds good. Now let me try.” “This is hard!” Daria advised, “This is the same as that, but you are playing a different

note here. That's G. Don't hold that note that long." Daria and Mary called me over to ask a question regarding the final measure of "Interval Study." "Why is there only one beat in this measure?" they wondered. Because both had been absent when we discussed the concept of pick-up notes (anacruses), they did not immediately understand and were not able to help each other make sense of this new concept. Through questioning, I enabled them to decipher this particular musical construct.

Mark was working with Jelena, "You've got that one," he encouraged. Mark had forgotten his book so Jelena was sharing hers with him.

Chas and Jada were discussing a possible tie or slur in measure four of "Interval Study." They were not sure how to interpret the written indication because the curved line was carried over from one system to the next. They talked it over for a few minutes and referred to the text (which did not illustrate the tie in that particular way), but were still uncertain and asked me for clarification. Daria overheard and offered, "You don't play that again," indicating an awareness of not only what was going on in her own pairing, but in the discussion of at least one of the other groups. I asked several questions to clarify the students' understanding of the difference between a tie and a slur.

Jada continued to confer with Chas, "I had the first part down, but I play faster than I read!" Chas advised, "See how this is going down and this back up, so, just in the left hand, you know this is going down." Chas modeled the correct pattern for Jada, pointing to illustrate his explanation and adding, "Just hold this. Don't play it again." Jada nodded, "I see. But here I have to go from D to F."

When the students traded roles, the process went much more swiftly. This could

be due to the fact that by mutual agreement among the pairs, the stronger player served first in the role of mentor in each case. It might also indicate that in serving as mentors first, these students were able to internalize the concepts addressed in the pieces and perform them satisfactorily much more quickly than the first group.

After Jelena and Mark and Mary and Daria had traded mentoring roles and helped each other to make the improvements they judged necessary, they separated and began to practice individually while other pairs continued to work together. Although the time frame differed in each case, the mentoring pairs seemed to mutually agree on the length of time needed to complete their session.

When all the pairs had completed their work together, the class played each of the selections aloud as a group. This gave me a chance to observe technique and musicality. I was particularly impressed with the group's ability to articulate the phrases and dynamics in "Dance." The phrasing in this piece is rather complex with varied groupings of three, four, and five notes and several different rhythmic patterns within the phrases. Not only did each student play well, the students were musically sensitive to dynamics and phrasing as they played aloud together, indicating cohesion and awareness within the larger group. Subsequently, with the text as a reference, students took turns presenting explanations for the concepts of half steps, whole steps, and the chromatic scale as we worked collaboratively on the examples provided.

Week Six

I met with Katia before class to go over the material she had missed. Unfortunately, she had cut her finger so badly it required stitches. The Band-Aid put in

place to cover the wound hampered her playing. Although she understood and was able to count and execute the correct rhythm of the written pick-up notes that began “Interval Study,” she expressed confusion regarding slurs and ties. As she had missed the peer discussion of these symbols in the previous class, we worked through the piece together, hands separately and then together, and found other examples in the book. Katia questioned whether the difference between slurs and ties was denoted by the placement of the curved arc in the music—over or under the group of notes. “If the line goes over the notes is it always a slur?” she asked. We sorted this out as a group during class so that Katia’s peers could benefit from the discussion as well. Both Chas and Mark were absent, with the first benchmark assessment only one week away.

At the beginning of class, I led a collaborative exercise on ear training in which students were asked to distinguish between intervals of a second and a fourth or a third and a fifth. There was a great deal of discussion among the participants in order to reach consensus. “The second is easy,” offered Min, “but the third and the fifth sound similar.” We talked about some auditory hints that could guide them in this kind of exercise.

I asked the class to play the chromatic scale together so that I could monitor technique. Then I asked the participants to form reciprocal mentoring pairs to compare and discuss their written work on a series of three note whole step patterns. Unfortunately, Min had forgotten to complete the assignment, but his partner, Silas, waited patiently without interfering as Min quickly worked through the patterns. Silas then reported with a smile, “We got all the same thing!”

Building upon their knowledge of three note whole step patterns, I asked students

to continue to work in reciprocal mentoring pairs to create five-finger patterns beginning on each white note using a whole step, whole step, half step, whole step pattern (the first five notes of the scale). Students worked together to determine the patterns and label note names on a grid representing the black and white keys of the piano.

Katia told Jada, “I wasn’t here [last class], so I had to guess [the correct notes in the three note whole step patterns].” Jada nodded and calmly continued to consider, “Would it be A^b or G[#]? No, it has to follow the alphabet.” They successfully completed the patterns. Mary told Daria, “I think it’s supposed to be D natural, but everything else we have is the same.” They put on their headphones to check which note sounded correct. Jelena and George had some disparity in their answers and they worked to come to consensus. Jelena noted that, “E to F is only a half step, so we will have to raise it.” George nodded in agreement. George asked, “Do we always go up?” We talked about the word ascending in the instructions. Jelena wondered if they could use E# or F natural interchangeably. George replied, “Positively!” but, perhaps, because he noticed I looked up at his statement, he blurted out, “I was just kidding!”

To reinforce the five-finger concept cognitively and aurally, the class played through each of the five-finger patterns together, noting which patterns were similar and why. “Is it always based on fifths?” Katia asked. “E and B have one note different,” Jelena responded. “And F has the only flat,” added Mary. This allowed the students to amend their answers if necessary, enabling them to practice correctly for the upcoming assessment.

We began the next class by reviewing the playing exercises that would be

included on Monday's assessment: the chromatic scale and five-finger patterns on white keys. Recognizing that Chas had been absent the preceding class, Jada, who was sitting at the piano station next to his, was very solicitous regarding his needs. She quietly explained what he had missed, demonstrated fingerings without sound, and offered, "Here is a pencil if you would like to fill the patterns in" (the written grid in the textbook). Jada had missed the first two classes of the semester, only adding the course the final day of add/drop week. She had no previous experience playing the piano and had been withdrawn and quiet when she first joined the class, overwhelmed and trying to catch up to the students who had been in attendance from the beginning. This was the first time I had seen her exhibit such confidence. Chas seemed surprised and pleased by the degree of her generosity.

Following the group review, students formed reciprocal mentoring pairs to practice for the assessment by playing mock performances for each other. I gave each student a copy of the rubric that would be used by Professor Dubonnet to evaluate their playing on the assessment. They seemed happy to have this opportunity to prepare and eager to begin working.

Jelena and Mark began with the chromatic scale. Mark played first, perhaps, because he had been absent during the last class and, consistent with prior observations, the pair chose to mentor the weaker player first. Jelena made gentle corrections, "We're using the first finger here, and then these [fingers] are already here in place." After Mark had successfully executed the scale Jelena asked, "Do you want to play your scale again? That was good. Maybe I should play my scale." Mark agreed and they switched pianos

and roles. Mark then asked Jelena, “Want to try B major [five-finger pattern]?” “Ooh, that’s the hard one,” she responded but cheerfully began. After they had performed the exercises to their satisfaction they began to work on their repertoire. Mark was struggling a bit and Jelena offered, “It is a little bit easier if you practice the hands separately first.” Mark pointed with his finger, “This is nice and loud, and then you’ve got to go down to the *p* [*piano*].”

George, acting as the mentor/evaluator, asked Silas to play several five-finger patterns. Silas stumbled a bit on E major, “Did that sound right?” George shook his head. “That’s a whole step. You need a half step there.” He asked Silas to play G major next and suggested, “I think your finger is supposed to be here because that’s a whole step and the G five-finger pattern doesn’t have any sharps or flats.” They agreed that F major was “tricky” because it was the only pattern with one flat and discussed the playing of the notes in the triad. George pointed out that each triad required the same fingering, with the use of the third finger in the middle for both the left and the right hand and placed his finger in the correct position on Silas’s piano to demonstrate. George stated, “Before I wasn’t sure [about the fingering].” When they reversed roles, George was able to play the patterns correctly. “Sounds goooood,” exhaled Silas. They began to work on repertoire. Although Silas had his hands in the correct position for “Allegro in C,” he and George wanted to make sure and asked me to confirm it.

Mary whispered to Min, “B major is hard! How am I going to remember all this?” “Oh boy,” Min exclaimed when it was his turn to play. “This makes me nervous, like the test!” “You’re good,” Mary reassured as she listened to him play.

Jada was playing for Chas and talking through the process aloud, “Oh, if I start on A, I need a C#.” Chas responded, “All right, so finger three is going to be a black note.” Jada responded, “Okay. Let me try it slower. The problem is getting my left hand and right hand to play at the same time.” After successfully completing the five-finger patterns, Jada and Chas began to work on their repertoire. They asked me to confirm their translation of *D.C. al Fine*, which was correct. Chas rephrased, “It just repeats; that’s all. It’s like in halves; this is nice and loud, then you play it softer. There are no sharps or flats.” Chas noticed some rhythmic disparity in Jada’s playing and encouraged her to count one-and, two-and aloud. “So, these are not slower; they all have the same beat.” As Jada continued to rush her eighth notes Chas observed, “You’re probably used to hearing it faster now. It’s still a little fast.” Chas began to count aloud as Jada played, “One-and, two-and—that’s perfect!”

Mark, who had been absent, also wanted to understand the *D.C. al Fine* notation on the music and asked Jelena, “How do you play this?” Without giving a detailed explanation, Jelena demonstrated, “Play to right there and then go back here.”

Katia prepared to play for Daria. “Wait—I forgot!” she exclaimed as she attempted to locate the correct hand position. Daria responded, “I thought it was supposed to be this way. I’m pretty sure this is the right fingering.” Both students later commented that it was very fortunate that they had mentored each other or Katia would have practiced her repertoire using an incorrect hand position.

When the students indicated that they had had enough time to complete their mentoring sessions, we met again as a group. Prior to class, each student (with the

exception of Mark and Chas, who had been absent and Min who had forgotten) had created three potential assessment questions based on the material we had covered in the course to date. I asked students to collaborate on a group review by exchanging their questions (much giggling ensued) and asking one question of another member of the class. The questions were very much on target and students took the initiative to help each other when there was a question one of them could not answer.

When Min could not explain the meaning of a musical phrase, Katia offered to look up the term “phrase” in the glossary and read the definition aloud for the benefit of all. “It’s on page 37,” offered Chas, lending his support. Mary was unsure about the meaning of the bottom number in a time signature, so Silas took an audible intake of breath to let her know that he could provide the answer. Min nodded to Chas to indicate he was directing a question about the tempo marking *allegro* to him. “What’s my name?” Chas countered, as other students had been addressing each other by their first names. “There are only 10 students in the class. We really should use each other’s names.” Chas asked George about the symbol for repeating measures. As George struggled to describe it he asked Chas, “Do you want me to go to the board? I can draw it.” After glancing at me, Chas said with a smile, “Yes, I think you should go to the board.” George not only wrote the symbol on the board, but differentiated between an open-ended and a book-ended repeat. When Jelena asked Silas about the definition of *ritardando*, Silas appeared to be at a loss for words. Chas whispered loudly, “Gradually slowing.” Mark deftly explained the answer to a question regarding crescendo and decrescendo with a reference to greater than and less than symbols in mathematics.

Although Jada was shrinking down as if to hide, Mark directed a question to her regarding *da capo*. Because she and her partner, Chas, had just worked on it, she was well prepared to answer.

Without instruction to do so or intervention from me, the students made sure to include every member of the group, each one taking care to direct their question to a student who had not yet had a chance to respond in order to make sure that each member of the class got to articulate an answer. The students also provided emotional support for each other, stepping in to ensure that no one was humiliated or embarrassed when they did not have the correct answer.

The First Benchmark

Chas arrived at the piano lab early to get in some extra practice time for the playing portion of the assessment. Because he had been absent, he hadn't remembered that he needed to play the white key five-finger patterns hands together and was struggling a bit with B major. After his classmates had selected piano stations and arranged their personal items, I introduced the colleague who would be administering the assessment to the class. Professor Dubonnet is a highly respected music educator. She worked closely with Kenon D. Renfrow, one of the authors of the course text, in her graduate work at the University of Miami in Florida and co-created the piano preparatory department there. Professor Dubonnet had developed the scope and sequence of piano courses at Monmouth University and created the syllabus for this introductory class. Having taught it for many years, she was familiar with all aspects of the course.

We quickly reviewed procedures for the assessment. I demonstrated the exercises

the students would be asked to play and asked if there were any questions. Students asked about the use of headphones, but had no questions regarding the assessment material.

Katia volunteered to play first. Although both Katia and Professor Dubonnet were wearing headphones and Katia's playing could not be heard, Professor Dubonnet's positive, encouraging, comments were audible to the rest of the class. "Beautiful!" "Very nice!" "Let's move on to the five-finger patterns." Professor Dubonnet offered both technical and musical feedback: "Be sure to lift before playing the block chord." "I hear one thing in your playing—the rhythm is getting a little bit jazzy. I hear two different speeds. Be sure to keep it even." Commenting on the repertoire: "You did an excellent job of recovering. One of the hardest things to do is keep going when you have made a mistake." Professor Dubonnet also gave Katia goals to work on for the next assessment: even rhythm throughout and independent articulation of the left hand and right hand.

As the second student, Silas, settled in to perform, Professor Dubonnet said, "That is good. It is good to make yourself comfortable. Sometimes we don't take the time to do that before we play." She also praised his preparation and encouraged him to work on being even more expressive in future performances.

As each student took their turn to perform, Professor Dubonnet made sure they were comfortable: "Maybe you should put your hand on the outside of that cord." "Try G major again. We are not in a hurry here, at all." She continued to give specific praise: "Your rhythm is perfect, actually." "That is the best use of contrasting dynamics I've

heard all day.” “You have a beautiful sense of phrasing.” She also communicated one or two goals for each student to work toward to improve performance: “Once you pick a tempo, stick with it.” “Don’t speed up. It doesn’t sound professional.” “I could hear that you were thinking about it, but I would like to hear more contrast.” “Make sure you let go of the old note before playing the new note; you want to keep the beautiful sense of legato that you have, but you don’t want overlap.” “You are just learning to play the piano so it is understandable, but work toward independence of hands; don’t let go with your right hand because you are articulating the left hand. See if you can keep the melody connected.” “Listen more to the quality of the sound you are producing.” “Work on a sense of flow and legato.”

Professor Dubonnet also demonstrated on the keyboard to reinforce her words. She passed a pencil to George to illustrate the use of legato. “Perfect. You took the pencil and I let it go. If I hang on too long [George is unable to take pencil], or let go too early [pencil drops to the floor], it doesn’t work.” When students made errors, she gently encouraged them to try again: “I’ll let you try that again. Don’t let this note get stuck; we want to hear all three notes in the triad.” “I am guessing you know those notes and it was nerves that caused the error, but, remember, the more you practice the less nerves will affect you.” Her tone was soothing and warm.

Min was struggling with his repertoire, “Minuet in G,” which was more difficult than the “Allegro in C” chosen by most of the class. Professor Dubonnet asked him if he had selected that particular piece because he really loved it and wanted to learn to play it. Min responded that it was given to him. (I was surprised to hear this, as I thought all of

the students understood that they had a choice regarding the repertoire and wondered if Min was so used to the imposition of authority that he did not really believe he had free choice without repercussion such as a lower grade.) Professor Dubonnet suggested performing the piece at half tempo and alternated playing the right and left hand with Min while he performed the other hand. She encouraged Min to practice slowly. "It's like dealing with a small child when you are teaching the ABCs. Slow down so you are physically able to play the next note. The fastest way to improve is to slow down. Your wrist in your left hand is also very low. That will slow your progress. Work to keep your wrist up." Min later told me that he had almost broken his wrist and that it was very weak. He added self-consciously, "I'm sorry about the repertoire." He seemed to fear he had not met expectations.

Professor Dubonnet asked Jada if she was right handed and suggested practicing the left hand more, "This is the weakest hand and these are the weakest fingers." "I'm so tense," replied Jada. "You have the most beautiful tone I've heard all day," Professor Dubonnet encouraged her. "It's your rhythm. You are not connected to the heartbeat of music. You can walk, right? If you can walk, you have rhythm." Professor Dubonnet suggested Jada try Michiko Yurko's rhythm technique using the words blue (for a quarter note) and Jell-O (for eighth notes) while walking in order to reinforce the rhythmic relationship between the quarter and eighth note.

Professor Dubonnet and I debriefed after the assessment. She believed this class was much more disciplined than others she had observed and seemed amazed that not one of the students exhibited disinterest or lack of preparation. "I've been teaching this class

for years and I have never had a class of 10 with a 100% success rate.” Professor Dubonnet commented that the students showed understanding even when they did not play perfectly. “No one came up and tried to guess their way through the five-finger patterns. When they made a mistake, they all methodically used the whole step, whole step, half step, whole step pattern to correct it.” Referencing Michiko Yurko’s *Music Mind Games* and noting the importance of mastering music in the mind before playing it, Professor Dubonnet wondered if the peer interaction and the necessity to explain concepts to others had given the students a “greater command of the analytical process involved.”

Week Seven

We spent the initial part of class going over the first assessment and discussing common weaknesses in playing that we could target for improvement including sensitivity to phrase endings and steadiness of beat. Students reviewed sharp, flat, and natural signs and were particularly interested in understanding the reasoning behind the use of E[#]/F^b and B[#]/C^b. “It’s like musical grammar,” noted Mark. After this exploratory dialogue, we worked as a group to perform a piece using all three of these musical symbols.

Together, we approached new material involving the C five-finger position an octave higher and the left hand crossover, new concepts that, for the first time, required students to change hand positions during the performance of a piece. We also began to focus on the staccato touch needed to play “Short Drive” and “Staccato Dance,” and discussed the concept of duets using a piece from the text as an example. Students were

asked to prepare these pieces for the next class.

Week Eight

After playing “Short Drive” and “Staccato Dance” as a group, I asked the class to form reciprocal mentoring pairs to work on these selections. Because Jada had not yet arrived and there was an odd number of students, Mark worked briefly on his own. After Chas had worked with George, he and Mark worked together so that everyone could be included in the process.

George sought advice on the correct hand position, “Is this piece in C position?” “Yes. This is in C position,” Chas confirmed. Silas, who was working with Katia overheard and contributed, “Both pieces are in C position.” “Thank you,” replied both George and Chas. Chas continued to explain, “Here you move up one octave. Use your thumb as a guide.” George simply nodded his head in understanding and proceeded to play that section in the correct octave. Chas asked, “Do you want to try just working to get to the top here—one note at a time?”

Later George worked on “Lyric Piece” alone and Mark attempted to play “Short Drive.” He inquired of Chas, “You’ve got to move up once, right? It’s important to get yourself comfortable first.” (Perhaps he had taken Professor Dubonnet’s words to heart.) As Mark began to master the technique, he enthused audibly, “Yeah, that is good. Okay!” Chas responded, “Sounds good to me!” Mark interjected, “But the flats are killing me!” and Chas empathized, “Yeah, the flats. I was the same way.” As he continued to perform for Chas, Mark self-analyzed, “It’s not as staccato as it should be.” Chas encouraged, “That’s pretty good, though. You just need the decrescendo and all.”

When Chas and Mark reversed roles, Chas also analyzed aloud, “Ah, there’s a skip in there.” Mark responded, “Yes, you have to go to F.” Mark succinctly explained the *D.C. al Fine* to Chas, “You know it repeats in the beginning [pointing to the repeat sign at the end of the first eight measures] and right here you go back to the beginning and play until here.” Mark turned to me, “The flats are hard. It throws off your whole hand position.” We discussed how to move each finger from a white to a black note and back without turning the hand or wrist.

Katia complimented Silas, “That was good. Listening to you helps me. Thank you!” They began a dialogue regarding phrasing and interpretation and, unsure about the placement of a slur, they asked me. Because this was the first instance in which a phrase began mid-measure and it required a greater level of musical sophistication to hear and execute, they seemed to want confirmation and reassurance.

Students continued to work diligently in pairs while displaying an awareness of what was occurring in other groups. Daria encouraged Mary to fully articulate the staccato and cautioned, “Staccato is not just going faster.” Mary began to move her body to the rhythm of “Short Drive.” “You’re not supposed to dance,” Daria teasingly chided her. “Well, it has a cool melody,” Mary responded.

Now in the role of mentor, Silas pointed to the music and asked Katia, “Are you there? It should be like this.” Silas demonstrated as Katia listened. Jelena offered a suggestion to Min, “I think you are going a little bit too slow. It comes in a little faster—like here.” She pointed to the music. Min nodded and made a second attempt. “Did that sound right?” “Yes,” Jelena replied. “I can hear it. I just can’t play it. Let me try it—

slowly at first. Is that it?" Min laughed. "I think so or else I'm playing it wrong!"

Jelena began to analyze the intervals in the piece. "Is this a fifth?" "Yes. That's it," Min affirmed.

Mary was muttering under her breath as she played and I suggested she might have to pay a 25¢ fine to our (imaginary) swear jar. Katia, who was working with Silas, overheard. She laughed and suggested to Mary, "You can make up words instead." Mary's mentoring partner, Daria, tattled, "She's been muttering this whole time!" Katia laughed and addressed the group, "We can save the fines in a jar and have a pizza party!" The students, who were obviously enjoying themselves, displayed a wonderful sense of camaraderie, interacting freely both among and between groups.

As a class we explored melodic and harmonic intervals in the key of C major and transposed the exercise to the key of G major, saying note names and listening to the unique sound of each interval. Rather than administer the ear training listening exercise designed to follow this activity to the students myself, I asked the students to work with each other in reciprocal mentoring pairs to practice matching written intervals in both melodic and harmonic form with their sound as played by a partner.

I expected some hesitation on the part of the students. Not only was this a new type of mentoring activity requiring a much greater degree of instructional decision making, the aural identification of intervals had proven to be a moderately difficult task for a number of the students when I had administered the exercise in a prior class session (day ten). I was pleasantly surprised when the students dove right in. "Tell me if I'm playing a second or a fourth," Jelena queried Min. "That was a fourth," he replied. She

continued, “Number two is a choice of a third or a fifth.” Silas advised Katia, “Number one can be either a second or a fourth,” and, when the interval had successfully been identified he continued; “Now you’re going to hear thirds and fifths.” Silas confessed, “I get thirds and fifths mixed up.” Katia smiled, “Okay, what is a fifth?” They continued to discuss concepts and work through the examples.

In his first attempt in the role of mentor for this exercise, Chas turned to George and said, “Okay, if I play the bottom one—oops!” George laughed, “I think I’ll get a 100% on that one!” Mary was paired with Jada. “Can you play it again?” Jada asked, listening intently. Mary encouraged her, “You did well on all but that one. You got all the rest.”

The students seemed intent on honing the targeted skill. They did not attempt to circumvent the auditory task by looking at the fingers of the peer who was playing the intervals in order to use visual recognition to ensure accuracy of response—something that might be expected if the teacher was administering or grading the exercise. The students appeared to be comfortable taking risks and not afraid to fail. They seemed to view failure as a stepping stone to success—a means of identifying their weaknesses in order to work collaboratively with their peers to improve their ability.

Because the group seemed to be struggling with the staccato touch and use of flats demanded to correctly perform “Staccato Dance,” we began the next class by reviewing the piece as a group with students offering suggestions in terms of tempo (*Allegretto*), dynamics, and hand placement and fingering. After the students had gained a measure of confidence from group practice using individual headphones, we played aloud with each

student performing four measures in turn and the group playing the final four measures together. Jelena set an excellent precedent and the motion of the other students' heads indicated they were keeping time carefully, intent on entering fluidly so that there would be no break in the melody. They did so with one exception; Silas seemed a bit flustered on his first attempt, but, advised and encouraged by his classmates, he was able to execute the passage correctly on his second attempt. "You've got this," Jada said supportively.

We played the piece a second time in the same manner except that this time, at the students' request, I added the accompaniment. The mixture of solo and group performance seemed to be particularly fulfilling for the class, possibly due to the blend of individual and group achievement in tandem with the intrinsic reinforcement of the sound of the music itself. This sort of mixed solo and ensemble performance may be highly motivational and satisfying to students.

The class period culminated in the selection of repertoire for the second assessment, an activity the students appeared to like simply for the sheer enjoyment of hearing piano music performed live. Once again, I played through a number of piano pieces in a variety of styles for the class. Students chose one or more examples to prepare for the second assessment according to their individual interests and desires with the understanding that they had the option of selecting a repertoire piece from an outside source.

Week Nine

Because one of the course requirements is attendance at a concert featuring classical or jazz piano, we discussed an upcoming opportunity—a concert that would be presented in the Woods Theater building later in the day. Professor Dubonnet, who had administered the students' first assessment, was playing a short concert with Professor Moore, a highly-skilled violinist who, when he is not teaching, plays in such acclaimed New York City ensembles as the Mostly Mozart Festival Orchestra at Lincoln Center, the Little Orchestra Society, and the Radio City Music Hall Orchestra. The students seemed to feel a connection to Professor Dubonnet after their interaction with her during the first assessment and several expressed an interest in attending the concert.

As I looked around the audience at the recital venue prior to the concert, I noticed Chas, Jelena, and Silas waiting expectantly. At the conclusion of the concert, which was warmly received by the primarily student audience, I spoke with Silas on the way out. He expressed awe at the performance and indicated that, although he liked the piano, he was now really taken with the violin. I explained that he could take private violin lessons with Professor Moore and told him how to go about signing up for them in the upcoming semester. We also talked about how studying the piano first had given him the ability to read music in both clefs and to understand basic intervals and harmony. Silas expressed satisfaction with his developing skills and an interest in continuing to study music.

During the next class session, Chas and Silas both remarked on the male student (a former group piano student) who had turned the pages for Professor Dubonnet during the concert. "I was so impressed by him!" enthused Chas. "How was he keeping up with

her?” asked Silas. They marveled at the page turner’s ability to follow the complex piano accompaniment to Beethoven’s *Spring Sonata*, several Kreisler miniatures, and other selections.

The students had completed a rhythm worksheet prior to class that required them to create a four measure rhythm using the notes and rests they had learned up to this point. I asked the students to exchange their written rhythms with each other, which they did readily, making sure that they each had someone else’s work. Students began to speak to each other regarding the rhythms. Katia gently said to Jada, “I think you need an eighth note after your dotted quarter note.” Jada worked quickly to make the correction. Min and Mary silently tapped through the other’s rhythm with their fingertips and seemed to find no mistakes. Daria conferred with both Chas and Mark as they had engaged in a three-way trade. “Should this [notehead] be filled in?” asked Mark. “Yes, please,” responded Daria, and Chas obligingly made the correction for her. As several students had made this particular error, the class benefitted from overhearing their discussion.

Students took turns counting and performing one of their classmate’s rhythms aloud for the class. Silas did not notice a missing half beat in George’s rhythm until he began to perform it for the group. The group offered multiple suggestions for correcting the measure.

The students did not seem to be very enthusiastic about this exercise or to interact with each other to the degree seen on previous occasions, possibly because this exercise did not involve collaborating to reach a goal. The rhythms had been created individually

prior to class and were performed individually. The activity, while shared, offered limited opportunity to collaborate with a peer—something several of them had expressed negative feelings about during their interviews.

November

Students in the class had chosen several different repertoire pieces to prepare for the second assessment: Jon George's "The Queen's Harpsichord," a simplified version of Beethoven's "Für Elise," and an adaptation of the *Largo* theme from Dvorak's Symphony "From the New World." Students preparing the same repertoire piece practiced with me in distinct groups, working through headphones so that they could compare their own playing with my modeling of notes and rhythms. Immediately afterward, students worked in reciprocal mentoring pairs to refine their interpretations.

Students consistently provided strong emotional support for each other before offering suggestions for improvement. "That's solid. You can tell you have been practicing," Chas encouraged Silas as he practiced "The Queen's Harpsichord." "I think that [pointing] should be smooth. Do you want to try it again?" Successful execution by Silas was rewarded with applause from Chas. As they switched roles and Chas began to play, he confided to Silas, "I was just practicing the right hand. I like to do the right hand first so I can hear the melody."

Jada asked George, "Do you mind if I listen to you first?" George demurred as he had missed the last class and thought he might be behind. "I missed a day and that messed me up." Together they worked on the piece in small sections, sharing the keyboard. Despite his prior absence, George noticed that, although Jada had correctly

identified the hand position, she was playing one section in the wrong octave. George also pointed to the B flat in the key signature and demonstrated, “The flat is the second note.” A light seemed to go off for Jada, “Oh, now I see!” Jada encouraged George to play the right hand alone “because that would allow [him] to concentrate” on a single line.

Mary applauded Daria, “That was good! You’re getting it.” “I get it in little spurts,” Daria giggled self-deprecatingly. After conferring on the correct fingering and consequent movement of the left hand, they decided to mark the music, sharing a single pencil. They laughed and continued to listen to and advise each other on the complexities of “Für Elise.”

Mark encouraged Katia to play “The Queen’s Harpsichord” hands separately, making certain that she experienced success. After they had worked together, she expressed confidence that she would be able to practice it hands together. “Now I can practice hands together. I haven’t done that yet.” As Mark, now in the role of mentee, began to play the *Largo* adaptation, he provided a running commentary, “That’s not right. Let me try it this way.” Katia enthused, “That was your best one yet. Now you just have to add the dynamics.” A few minutes later Katia proudly told me, “Now he just needs help with the phrasing.”

Jelena was also working on the *Largo* adaptation and, rather than simply attempting to play through the piece, she sought to understand how the fingering in the left hand changed the hand position. She made notations on the piece while working through each sequence. Although Min had chosen to prepare a different piece, he faced a

similar challenge in the movement of the left hand of “Für Elise.” Jelena and Min were able to help each other progress because they understood that the technical difficulty was similar.

The students determined the time frame necessary for reciprocal peer mentoring of their playing, and then we came together as a group to tackle new concepts including tetrachord scales, pedaling, and tonic and dominant chords. The caring atmosphere evident during reciprocal mentoring seemed to carry over, with students helping each other with a quickly whispered explanation or a demonstration of correct hand position when they sensed a classmate was unsure or puzzled.

Week Ten

We began class with a group warm-up of the C and G scales in contrary motion and white key scales in tetrachord form. The purpose was twofold: to help the students prepare for the playing portion of the second assessment and to reinforce the relationship between the whole and half step pattern common to each diatonic scale and the resultant sharps or flats in the corresponding key signature. Students formed reciprocal mentoring pairs to hone the tetrachord scales and repertoire on which Professor Dubonnet would evaluate them as part of the second benchmark. Before they began working, we debated how and why the human mind seems to have a tendency to remember the beginnings and endings of things most clearly. Many of the students were familiar with an email repeatedly making the rounds of the Internet that demonstrates our ability to read a whole paragraph of misspelled words in context as long as the first and last letters of the word are correct. I requested that they ask their partner to play any four measures of their

repertoire without starting at the beginning of the piece.

The students plugged in the dual adaptors and smiled as though they enjoyed this particular challenge. The pairs began to mentor right away without spending time negotiating who would mentor first. In all cases, the student who was sitting at the piano with the adaptor played first, demonstrating a communal interest in using time efficiently. In their interviews, a number of students had correlated efficiency with the process of learning through peer mentoring.

Silas quickly asked Min to play the E major scale and George made the same request of Katia. Katia teased, “Oh, you’re just not nice!” George grinned broadly. George next asked Katia to begin her repertoire piece at measure seven. “Right in the middle of a tie?” she wailed facetiously. “It may sound horrible!” They both giggled. When she had completed four measures, George said admiringly, “That was good—better than mine.” They laughed again and switched roles.

“Do C,” Katia requested. “Okay, that’s easy!” George grinned. “Do you want to try one more or go to the repertoire? How about A?” Katia asked. “Oh, *now* a hard one,” George responded with a smile. “Well, you gave me a couple of hard ones,” laughed Katia. “Okay. What is it?” George thought aloud, “Whole, whole, half, whole, whole, whole, half.” Katia nodded. “Now it’s right. I’m going to start over,” George said. “It’s hard,” Katia empathized. “Your brain won’t let your hands move in the way that you want!”

Daria was unsure how to begin and asked Mary, “What do I do? It’s so complicated!” Mary replied, “Start on G and follow the pattern.” “Oh, I’ve got this

now,” Daria enthused. “Excellent-tay,” encouraged Mary when Daria had successfully negotiated the scale exercise. Mary and Daria were playing the same repertoire, so both were aware of the musical challenges involved in performing “Für Elise.” They targeted the more complex middle section of the piece during their mentoring session.

Min had played the scales and was ready to perform his repertoire. “Have you practiced the whole thing?” asked Silas. Receiving an affirmative answer, he asked Min to begin on the eighth measure. Before beginning, Min showed Silas the form of his piece and indicated where repeated sections had been written out in full. With this new understanding, Silas asked Min to begin on measure 32 instead. They agreed that Min had the beginning down “nice and even” and needed to work on the middle section.

When they switched roles, Silas sailed through his scales, so they began to work on his repertoire. Min asked him to begin on measure six, but neither of them was satisfied with the execution. After a bit of discussion, Min asked Silas if he would like to start again. Silas looked to Min as he finished. “That sounded good the second time through,” Min confirmed.

Jada was practicing with Jelena. She began to play and stopped abruptly. “Oops! Sorry. My volume was up all the way!” Jelena requested she play the B major scale. As Jada began, Jelena asked in a puzzled tone, “Are you sure you are doing B major?” Jada looked down. “No, I was doing D,” she said. “Whole, whole, half, whole—okay. Now that’s right.”

When they had switched roles, Jelena confided that she wasn’t sure which repertoire piece she wanted to play. Jada responded that she had not heard the *Largo*.

“It’s actually pretty cool,” Jelena responded and begin to play it for Jada using the right hand only. As Jada nodded in approval, seeming to enjoy the beautiful melody, Jelena began the piece again, this time using both hands.

Once again, the students in each group seemed to mutually agree on the time frame necessary for coaching each other on their playing. When pairs completed their mentoring sessions, they took the initiative to begin working on other material while waiting for other pairs to finish. “What page are the chord patterns on?” Katia asked. Jada overheard and replied, “Page 81.” “She has the book memorized,” Katia laughed. I was happy to see the students attend to their own learning and, at the same time, demonstrate a concern for the learning of their peers.

For the next class the group warmed up by playing the G and C scales in contrary motion. When I suggested we segue into tetrachord scales, several members of the class held up their hands with thumbs tucked in to signal the correct fingering. We played B major and F major in tetrachord form and students voluntarily explained how the notes in the scale related to the key signature.

The students had been asked to practice the primary chords in the key of C major. I asked them to form reciprocal mentoring pairs to work through the chord progressions using overlapping pedal.

Mary guided Mark through the pattern, “Next go to F and then back to C.” Chas had been absent and apologized to Jelena. “I really didn’t practice this because I didn’t understand what to do. These are the chords?” “Yes,” replied Jelena, “but when you play the left hand you put your second finger down here when you play the F chord

[demonstrating] and use the third finger in your right hand.” This concise explanation and demonstration was immediately effective, enabling Chas to play the pattern correctly, if slowly. “I have to practice,” he acknowledged. Appreciative of Jelena’s help he quickly offered, “Do you want me to listen to you?” She nodded and began to play.

Katia judged Silas’s playing to be “awesome,” but confided that her own fingers did not like the F chord. Her fingers did “not want to move that way.”

George perceptively noticed that Jada was not using the suggested fingering. Jada said that she “had tricked herself into thinking the right hand used the second finger, too.” As he listened to her pedaling, George grew concerned. He seemed to want to make sure he was providing Jada with accurate feedback and asked for my input. “I have a question. When you play [the next chord], do you play the chord and then move the pedal?” I assured him that his understanding was correct.

Because there were an odd number of students in class due to Daria’s absence, Silas volunteered to work with Min as well. “What are we doing?” asked Min. “Can you show me first?” Like Jelena, Silas provided a succinct explanation, demonstrating as he spoke. When Min had finished playing Silas smiled at me. “I approve; I give him an A.”

Silas, who had moved to the bench at the teacher console in order to sit next to Min’s piano, remained seated there and cleared his throat. “All right, class. This is what we are going to do. Starting with Jelena we will each play the progression. Ready?” The class laughed, but appeared willing to comply and began playing.

Several students spoke about the difficulty of having to use different fingerings for the left and right hands, which led to a discussion on why the fingerings were

designed as they were. Silas surmised that it was because the second finger of the left hand was stronger. Chas thought it might be because “it would be easier once we [got] the hang of it.” Katia ventured that it would help the “brain think independently about what to do with each hand.” Once involved in discussion, none of the students seemed content to just memorize the fingering. They bounced ideas off one another and tried several alternate fingerings on their pianos. I questioned them about the anatomical design of the hand and the range of movement of the thumb in contrast to the fingers. With these new ideas in mind, they began to work through the problem of fingering the chords once more, working together to construct an essential understanding that could be transferred to other chords and keys.

Week Eleven

Although it was mid November, the weather was beautiful—sunny and warm. Tempted by the bright blue sky, students threw open the classroom windows. Together, we polished technique on a series of warm-up exercises involving scales in different formats and then segued to primary chords. Working in the keys of C and G, the students practiced the I-IV^{6/4}-I-V^{6/5}-I chord pattern with overlapping pedal. I asked them to think about the sound of the chords as well as the notes and fingering. We put our technical grasp of chords and scales to good use by combining them to perform “Morning Classic,” a short C major piece in binary form in which a melody and primary chord accompaniment alternate in the right and left hand parts. After a discussion of chordal accompaniment styles (block chord, broken chord, and waltz bass), we employed two of the styles in an interpretation of “Pedal Study,” a piece featuring the *primary* chords in

the key of G major.

Encouraged by the success of the peer-administered ear training exercise on intervals on day 14, I asked the students to work in reciprocal mentoring pairs on an even more sophisticated listening exercise involving identification of the primary triads of the key in C and G major (the focus of the day's learning experience). I explained that mentors would play a starting chord in either C or G major and identify that chord for the mentees. Mentees would then try to identify that chord and other primary chords in that key as the mentor played them. I tried to make sure the students understood that the purpose of the exercise was twofold: to reinforce their technical ability to play the chords while refining their auditory perception. Mentoring pairs quickly set up their adaptors and began to work.

Despite what I had thought were clear instructions, Min seemed puzzled; a few words of explanation from Silas and he was ready to begin. Silas listened first. "Play it again," he requested. "Was something wrong with that?" Once they had established the correct hand position, both Min and Silas were able to play and identify the chords proficiently.

Mark asked Jelena, "Do I start on the G chord?" "Yes," she nodded, "And I will try to write down what I hear." Mark began to play. "Oops! That was wrong. I'll try again. That should be an F#, right? I don't like the key of G as much. It has that F#. I don't like to move my hand." Jelena nodded sympathetically. "Try your left hand," she encouraged. "Do you want to hear that again?" Mark asked. Jelena responded aloud, "D⁷, C, G." When they reversed roles, Mark identified the chords quickly and easily.

Jelena was impressed. “You got it right the first time,” she said admiringly.

Chas was listening to George. “Something’s not right,” he commented astutely. “You’re right,” George concurred. “I’ll start with G.” This time Chas was able to name the chords in the pattern. George gave him a thumbs up. “That was right? Get out of here!” Chas exclaimed proudly. As they switched roles he conferred with George, “Do I have my hands in the right place?”

Mary rattled off chord identifications as Daria played. “G, D⁷, G, C,” she said without hesitation. Daria whispered, “I don’t understand how to do the pedaling.” Mary quickly demonstrated the proper use of the damper pedal. “You play it like this.” They reversed roles: Mary was now playing the chords. “It’s so difficult with this [left] hand,” she moaned, but persevered. Daria was able to correctly identify each of the chord patterns by sound. “I am Mozart,” she announced proudly. “*I am Mozart!*”

Once again, the students who served first as mentors, although they were not always the more musically experienced, were able to complete the activity more quickly and accurately than the initial group of mentees when the roles were reversed. The dispositional impact of this exercise was also very noticeable. Students expressed pride in their ability to “hear the music” and a growing sense of confidence in their musical abilities.

As the students entered the piano lab later that week they were surprised to see Katia working in the dark. She had come early to make sure she understood how to construct and play the primary chord progressions in C major and G major. Strangely enough, the keyboards in the lab had power, but the overhead lights did not. Katia said

she had been told that someone had driven a car into a transformer.

It was a cold and gloomy day so the room was quite dim, even in mid afternoon. We raised the window shades as high as possible to maximize the available light and began learning. After a group review of scales and primary chords, we played two pieces that combined these concepts. When the students had gained a measure of confidence from group practice using individual headphones, they played aloud with each student performing four measures in turn as we had done on day 15. Although the students were still somewhat nervous about playing solo before the group, they agreed that it was valuable to practice performing under pressure prior to the upcoming second assessment.

Overhearing that Daria was anxious about playing the first four measures of the B section, Jelena offered to trade phrases with her. Jada and Mark also cooperated to ensure that each played the phrase with which they were most comfortable. Together, the students constructed a workable playing order and collaborated on a successful performance. There was perceptible improvement from day 15 in the students' ability to maintain tempo and recover from mistakes.

Students formed collaborative pairs to undertake an exercise designed to reinforce their understanding of the relationship between the six tempo markings we had studied thus far. I gave each pair six ticket-sized slips of paper with a single tempo marking ranging from *vivace* to *adagio* printed on each slip. The pairs worked as a team to put the markings in order. Although the activity was not framed as a timed competition, the students, by some tacit understanding, approached the task this way with a great sense of fun. Negotiation between peers was rapid and tickets were manipulated with alacrity.

Katia whispered urgently to Jelena, “I think this [*vivace*] is the fast one.” “What about these two [*allegro* and *allegretto*]?” Jelena responded with equal speed. Daria slapped her hand down on the piano. “We’re done!” she announced. Not to be outdone, Mark and George finished quickly followed immediately thereafter by Jelena and Katia and Jada and Silas.

When the students discussed the relationship between the tempo indications in a plenary session, there was agreement on the placement of all the markings except *allegro* and *allegretto*. Some groups believed *allegro* was the faster of the two; some *allegretto*. I encouraged the students to use the glossary in their book to help them come to consensus. Katia read aloud for the group, “*Allegro* is quickly and happily; *allegretto* is moderately fast.” The students concluded that *allegro* was the faster tempo and warned each other not to be misled by the “etto” ending.

Week Twelve

The students chose their piano stations quickly. They were quite focused, knowing that today’s class was the final review before the second assessment (scheduled for the following class).

The students warmed up together on the scales and chord patterns they would be asked to perform. To help their classmates review, each student had created three sample test questions based on the material we had covered in the course to date. I asked the students to exchange their questions (as they had on day 11). After silently reading and thinking through the answers to the questions passed to them by one of their peers, I encouraged them to direct a question aloud to another member of the class.

This activity was designed to facilitate student assimilation of knowledge through (a) the cognitive synthesis and judgment required to create questions, (b) the process of thinking through answers silently, and (c) the oral interchange of ideas among classmates. George asked Chas about the notes in the F chord. When Chas hesitated, George encouraged him to figure it out using the keyboard; this allowed Chas to answer correctly. When asked about the notes in the D⁷ chord, Chas pointed to an example in the textbook.

After Daria had successfully answered a question on accompaniment styles, Chas asked Silas about the difference between a slur and a phrase. Silas was initially confused and began to discuss the difference between a tie and slur. Katia noticed his confusion and attempted to come to the rescue. She explained the idea of a phrase as a “musical thought.” The group talked about the slur as a symbol conveying this idea. The verbal exchange among students seemed to clarify this issue for them.

Silas asked Jada about the difference between the major and chromatic scales. We had not played the chromatic scale in class since the first assessment and Jada pondered in silence. Mark signaled that he could help with a wave of his hand; “It’s half steps,” he told her supportively and demonstrated for the class. Other students contributed to the discussion, which culminated in a group recitation of the whole and half step pattern for a major scale: “We were happy when we were here,” the group intoned.

When it was Mark’s turn to ask a question he surveyed his classmates, “Who hasn’t had a turn to answer a question?” Mark asked George about the difference

between transposition and finger substitution. George asked for a “shout out,” a reference to the Discovery Channel’s *Cash Cab* television program. Silas succinctly explained the difference.

Daria said she had a question that needed a graphic and asked me to write the symbol for overlapping pedal on the board. Katia answered a question from Mark on binary form and the group added ternary form to the ensuing discussion. Jelena, noting that much of the material had been covered and she did not want to repeat, asked George to list the six tempo markings we had learned in order from fastest to slowest.

Once again, the students’ questions were very much on target and classmates took the initiative to help each other when there was a question one of them could not answer. Students edited the content of the questions, eliminating duplication so as to maximize both the value of the review and the use of time.

Following this peer-led review, students worked in reciprocal mentoring pairs to help each other with the playing portion of the upcoming assessment. Jelena had surmised that the splitter adaptors would be needed and turned to me to signal that the each station was already properly equipped. She had taken the initiative to monitor their placement while we were finishing the review.

After playing the scales for each other, Mark and George agreed that they were “pretty easy.” Mark was still undecided about which piece to perform for his repertoire. “You can try both if you want,” George said accommodatingly. Mark struggled a bit on the bridge of “Für Elise.” “This is where I don’t get it,” he confessed. “I just have to practice this. I’m not very good at this.” George suggested they work on the middle part

together. When they reversed roles, Mark helped George with the hand position of the D^7 chord, making sure he understood how to reach the $F^\#$ without contorting his arm or wrist.

Jada told Katia she was getting the scales mixed up. “I don’t know why I freak out!” Jada wailed. “I just do the same wrong thing. I don’t know why.” Katia demonstrated the pattern on paper and on the keyboard, making sure Jada understood. Jada’s increased confidence was evident when she mentored Katia. Katia reported that they had “listened to each other and given very good feedback.”

Chas lamented to Jelena that he “forgot to go slower” on the *ritardando*. She encouraged him to try again. Silas asked Min if he could use the harpsichord setting on the keyboard to perform “The Queen’s Harpsichord.” Min agreed with a smile. When they had finished playing both the exercises and their repertoire Silas announced, “We were both brilliant!” The students asked me no additional questions regarding the assessment as they left. They seemed confident in their level of preparation.

The Second Benchmark

When I entered the lab, Chas, Mary, and Daria were already there warming up for the second assessment. Chas was running through tetrachord scale patterns. “Do you think [Professor Dubonnet] will be mean and ask us to play B major?” he joked. As other students arrived, they quickly settled into a piano station and began to rehearse.

Professor Dubonnet arrived at the appointed time and, after a brief discussion of protocol, I distributed the tests. The lab became quiet except for the scratch of pencil on paper. Once again, Katia volunteered to play first. She said it made her nervous to wait.

Although Katia's playing was not audible, Professor Dubonnet's encouraging comments could be overheard by the other students, putting both Katia and her classmates at ease.

As she had during the first assessment, Professor Dubonnet gave specific feedback. She offered definitive praise and suggested musical and technical goals for each student to work toward to improve future performance.

Professor Dubonnet praised Chas's timing, legato articulation, and sense of flow, but pointed out that he needed to minimize the motion of his leg when pedaling. "Pretend you are impatiently waiting for someone; tap your foot," she encouraged. This seemed to resonate with Chas. "Perfect!" Professor Dubonnet enthused. Chas beamed.

Mary, Daria, Min, and Mark had chosen to perform the more difficult "Für Elise." To enhance their successful interpretation of the notes and rhythms, Professor Dubonnet encouraged Mary and Daria to add pedaling. "The sooner you add pedaling, the more beautiful it will be." "It makes me nervous," Daria confided. "You don't have to do it for me," Professor Dubonnet assured her, "but try it on your own."

Min, who had struggled a bit with his repertoire on the first assessment, was able to perform with much more confidence this time, correctly performing the notes and expressively adding overlapping pedal. Professor Dubonnet praised his improved musicality and offered several suggestions for further improvement. "You tend to accent beat one," she demonstrated. "I don't think you hear it that way in your head; you just need a little more control."

Before performing for Professor Dubonnet, Mark conferred with me regarding the *poco moto* tempo indication in "Für Elise." He wanted to make sure he was able to

convey his musical ideas, not just play the notes.

After an unsteady beginning, Silas asked if he could start over. “Of course,” Professor Dubonnet replied. When he had finished performing his repertoire she said approvingly, “You played that like an angel.” “I get that a lot,” Silas teased, showing that he was now quite comfortable.

Professor Dubonnet encouraged George to continue to work on his legato. “Your hand position and fingering are much improved since last time,” she praised.

Jelena was able to perform both the exercises and her repertoire, *Largo*, flawlessly. “A perfect score,” Professor Dubonnet applauded. Jada, who had initially struggled to catch up to her classmates’ level of understanding and playing ability after joining the class late, also played well.

Professor Dubonnet and I spoke at the completion of the assessment:

They have all improved so much. [The improvement] is very consistent—much more so than most classes I have seen—and they all cared in a very positive way. It is obvious the effort the students put into it. They are playing with sensitivity, articulating the ends of phrases—it’s delightful!

Professor Dubonnet posited that the shared energy engendered by peer mentoring was much more powerful than a classroom in which the energy “just flows from one of us [the instructor].”

Week Thirteen

The day was sunny and warm and the students seemed relaxed, having just returned from Thanksgiving break. We spent the initial part of class reviewing the second assessment and discussing the composition assignment that would serve as their repertoire for the final assessment. After playing the primary chords in C major as a

group and working together to figure out the notes in a D major chord in root position using the D major five-finger pattern, the students worked in pairs to perform an accessible version of “Jingle Bells” arranged with a single melody line and chordal accompaniment. One member of each pair played the melody and the other played the chordal accompaniment.

The relationship between the peers was subtly different in this case as, rather than mentor one another on a written or playing exercise, the students collaborated on a joint performance. Students found that they had to share a single piano as the adaptors would not allow them to hear each other when they played separately. Benches were moved or shared and pairs negotiated who would play the melody or accompaniment first. “I’ll try the chords,” Chas offered. “I’ll play the three notes and then you start,” suggested Jelena. “That was good,” Chas nodded. “I think we may go pro. Let’s do it again!” he added, seeming pleased with the sound. “F, F, F, F, F, E, E,” he sang aloud to the tune of “oh, what fun it is to ride.”

Several students suggested playing the melody an octave higher in order to provide more room in the middle of the piano for the peer playing the accompaniment. “Try it up an octave,” proposed Silas to Mark. “How fast do you want me to go?” Mark responded. Silas counted off, “One, two, three, four.” “I think we’re doing pretty well,” Mark assessed. “The only problem was I was playing the chords with my right hand.” “Okay,” Silas responded. “Now do it with your left hand.”

Min and Katia looked at each other and laughed. “We finished at different times!” Katia exclaimed. “Let’s try it again,” Min smiled. “I think we’ll get it this time.

One, two, three, four.” “Yea! We got it!” Katia exulted.

“Is it supposed to be really fast?” Jada asked me. “Not when you are learning,” I assured her. Silas, who had repeatedly expressed a fondness for the sound of the harpsichord since learning to play “The Queen’s Harpsichord” as his second repertoire piece, whispered to her, “Use the harpsichord setting.” Jada complied with a smile.

As the pairs prepared to play for their classmates out loud, banter filled the room. “Maybe we [Chas and Jelena] should go last not to show off,” Chas announced, hoping to avoid performing first. “Oh, no,” Silas teased. “[You] should go first to set the precedent.” Chas and Jelena played flawlessly and Chas bowed to his classmates with a flourish. They laughed and applauded.

As Silas and Mark prepared to play, Chas turned and stared as if to make them nervous. Silas and Mark smiled in amusement. After switching to the electric piano setting, Silas counted off the tempo. Mark nodded his head to the beat. “Wait. I thought we were here,” Silas pointed to the score in confusion as they reached the eighth measure. “Let’s start here,” Mark suggested, attempting a quick recovery. When they had finished, they analyzed the eighth measure to determine what had gone wrong and found that, although the correct notes were written in the bass clef, the chord symbol for G⁷ was missing above the staff. Chas spoke up. “Jelena already realized that and wrote it in,” he said proudly holding up their copy. All of the students made the correction on their copies. During this collaborative activity, the sense of joy and camaraderie was palpable.

The sense of solidarity continued as students worked collaboratively to create

minor five-finger patterns on a grid representing the keys of the piano. “B minor still ends on F[#],” Jelena offered helpfully. “What did you get for F?” Chas asked. Jelena played it aloud so they could hear if it sounded correct. “I have to hear it,” Min concurred looking up from his work with Katia. Katia suggested Min should get extra credit for his playing of the patterns. “He’s using flourish!” she laughed. Not only did the students work as a team to achieve cognitive understanding and technical mastery, they seemed to truly enjoy working together.

December

The students warmed up by playing the minor five-finger patterns they had constructed and notated together during the previous class. Building on their newly acquired knowledge of minor chords, the group proceeded to practice hand-over-hand arpeggios using both major and minor qualities. Jelena remarked that she was really drawn to the tone quality of the minor arpeggios and vowed to write her composition in a minor key.

After a group review of intervals, hand positions, and note values, students formed reciprocal mentoring pairs to work on rhythm identification. Mentors were asked to tap out one of a set of two rhythm examples in the text using the various notes values the students had learned up to this point. The mentee’s goal was to identify the correct written pattern. There were eight sets in all with the longest examples consisting of four measures.

The students were aware of the higher level of skill involved in this mentoring activity as the instructions in the text clearly specified that the teacher should clap the

rhythms and the students should attempt to identify them. Nevertheless, the pairs were undaunted and proceeded promptly, negotiating initial roles with very little dialogue.

Mary carefully counted one-and, two-and, three-and, four-and and began to tap a rhythm as Daria listened intently. Despite the cacophony of sound in the room as competing patterns echoed from all corners, Daria was able to identify the written pattern correctly.

George, like Mary, counted off carefully, but his partner Mark noticed a problem. “This [set] is in $\frac{3}{4}$ time,” he reminded George, “so you should only count one-and, two-and, three-and.” “Oh, right!” exclaimed George. “I forgot I only had three beats,” he acknowledged as he successfully began anew. “The flag is critical,” Mark emphasized as he pointed to an eighth note.

Jelena and Silas quickly navigated both mentor and mentee roles, successfully tapping and identifying the first four sets of examples. As they looked at the longer four measure sets in the second half of the exercise, Jelena suggested, “Let’s just tap it and say it together.” Silas concurred and they worked their way through the remaining exercises.

A heavy object had fallen on Chas’s right hand while he was at work and fingers two and three were taped together with adhesive tape. Despite this handicap, he seemed eager to participate fully. “I messed the second part up,” he told Katia. “I’ll do it again.” After completing the exercise he turned to me. “She got them all right. Now she is going to play her composition for me.” I noticed that without being asked, several of the other mentoring pairs had also taken the initiative to begin sharing their compositions with each other when they had completed the rhythm activity—a positive indication that the

students felt responsible for and in control of their own learning.

Week Fourteen

Together classmates practiced playing the exercises they would be asked to perform as part of the final benchmark for the class: minor five-finger patterns; hand over hand arpeggios in major and minor keys; and the triads of the key in C major using overlapping pedal. Classmates took turns selecting major and minor keys to facilitate the review.

Once again, each student had created three review questions to share with their peers to aid in preparation for the written part of the test. Peers worked together to review two specific concepts: the five Cs (high, treble, middle, bass, and low) and melodic and harmonic intervals up to an octave. Students took turns at the board notating the five Cs in their various positions on the staff as their peers reviewed. Mark chose to notate bass C but mistakenly labeled it low C. He realized it after a few moments and quickly corrected his error. Min successfully notated and labeled treble C. Katia struggled with low C. She was unsure about the leger lines. “Come on,” Jada encouraged her, “You’ve got this.” Katia’s classmates seemed to be concentrating with her. Katia realized that she needed two leger lines, but wrote the note on the top leger line with the second line below it. With the help of her peers, she corrected the notation. This seemed to clarify the notation for both Katia and her classmates. Jada was left with the task of writing high C. “If I get it wrong will I be scourged?” she asked. “I’m an English major,” she explained playfully, “That’s why I use words like that.” Once again, her peers guided her until she was able to notate and label the note correctly.

The mentors who had been seated now took a turn at the board. Their peers asked them to write a note and an interval above or below it. Katia asked Jelena to write a D. “Which clef?” asked Jelena. “Bass, please,” responded Katia. Jelena correctly noted a fourth above using whole notes. Mark asked Silas to write an A in treble clef. Silas carefully drew a note on the staff and filled it in but did not add a stem. “Uh oh,” hinted Mary, “I’m definitely using whole notes so I don’t make a mistake.” Silas quickly added a stem and correctly notated a third below.

The students next worked in pairs to review the written copy of their original compositions. They took turns discussing their musical ideas and performing their compositions for each other. The room became very animated. “Yours is really good!” Silas praised Mark, “How did you do that?” “I used repetition with variation,” Mark replied. “Can we hear, too?” asked Mary and Jada. Soon students were sharing across groups and expressing delight in the work of their peers.

The Final Benchmark

Many of the students arrived early to warm up for the evaluation. They ran through the benchmark performance exercises, but their primary focus seemed to be on the original composition they would play for their peers on the acoustic piano. The students radiated excitement and anticipation mingled with a touch of nervousness that seemed to spring from a desire to perform well.

Chas had recently fallen and dislocated his shoulder. His right arm was encased in a sling. Cleverly, he had created his composition, “One Hand Man,” for the left hand. Chas volunteered to perform for the group first. After explaining his title and tempo,

Chas settled himself at the piano and began playing with his left hand, doing a creditable job of executing the rhythm, notes, and dynamics of the piece he had composed incorporating some of the chords and patterns learned in the course. His peers seemed to both empathize with his plight and appreciate the quality of his composition. When Chas concluded, they clapped enthusiastically. Mark followed with “Minor Tune,” a more complex work in D minor. As he finished Chas exhaled, “I’m glad I didn’t have to follow that!” Each student explained their musical ideas and performed in turn. All the compositions were warmly received by the audience of peers.

The students began to work on the written portion of the test while taking turns playing the evaluation exercises for Professor Dubonnet using headphones. As the room grew quiet, Chas once again volunteered to play first. Professor Dubonnet was able to adapt the performance benchmarks to allow Chas to demonstrate his progress despite his temporary disability.

As each student performed in turn, Professor Dubonnet’s encouraging comments could be heard by the students who were working on the written assessment: “Really nicely done; your rhythm was excellent; very creative!” As she had during the two previous benchmarks, Professor Dubonnet gave specific feedback to each student regarding playing technique, accuracy, and musicality. She provided targeted praise and suggestions on recovering from mistakes to the students. She also encouraged them to “really listen to [their] sound” so that they could continue to progress in their playing. Professor Dubonnet reviewed each composition with the student who had created it and offered suggestions to improve notation and clarity.

At the conclusion of the evaluation Professor Dubonnet expressed delight with the students' work:

They were all meticulous when they came up to play. The students clearly understood the concepts they have worked on together in class and used them to determine the correct pattern for each playing example before beginning to perform. I was especially impressed by their performance of the triads of the key with pedal. No one was at all flustered by the pedal.

A lot of care and effort went into the creation of the students' original compositions. There was consistency across the board. Everyone was invested in their work without exception, which is wonderful! I have almost never had a class with a 100% success rate. There have always been one or two students that we could not reach. No matter how we taught them, they took it less seriously and didn't put in as much effort. Each of these students took pride in their work—even if they were less advanced than some of their peers. Rather than just completing a college class, these students have participated in a meaningful life experience.

Summary

The students enrolled in *Introduction to Piano* for the fall 2011 semester came from diverse backgrounds and had little or no previous instruction in playing the piano. Students' demeanor during the initial sessions of the course indicated that they expected to acquire knowledge through a process of transmission involving lecture and demonstration in a teacher-centered environment.

As the collaborative process of reciprocal peer mentoring was integrated into the learning process throughout the course of the semester, the learning environment became increasingly comfortable as students made connections and provided support for one another. Students acquired musical understanding and technical mastery through interaction with peers. Further, peer interaction facilitated the formation of caring relationships between classmates, and the participants became increasingly confident, self-directed, and considerate of their peers.

CHAPTER 5: RECIPROCAL PEER MENTORING IN THE PIANO LAB

In a constructivist learning environment, the learner is an active maker of meanings. The participants in this study worked together to construct knowledge of the musical language (notation, dynamics, scale patterns, musical interpretation) and applied technique (keyboard skills) in a variety of ways throughout the course of the semester.

During the course of this study the following themes emerged: the learning environment; sharing knowledge and skills; and social interaction. Subcategories related to the learning environment included: interactive learning; learning by doing; a sense of comfort; and a supportive learning environment. Subcategories related to the sharing of knowledge and skills included: communicating, relating, learning, and understanding; multiple teachers in the piano lab; comprehension and skill development through teaching others; regulating learning through comparison with peers; and collaborative learning. Subcategories related to social interaction included: interdependent relationships and social affiliation; efficacy; mentoring without training; and satisfaction in helping others.

The Learning Environment

In order to understand the experience of reciprocal peer mentoring in the piano lab for this group of participants, it is necessary to consider the learning environment in which reciprocal mentoring took place. Hiemstra (1991) defined the learning environment as all of the physical surroundings, psychological or emotional conditions, and social or cultural influences affecting the growth and development of a learner engaged in an educational experience. Lamb (1996) suggested that students at the post-

secondary level have come to expect a teacher-centered physical environment and hierarchical teacher–student relationships focused on transmission strategies that are lacking ambiguity. The participants’ behavior during the first days of class indicated they held such expectations.

Little verbal or visual interaction occurred among peers during the initial class learning sessions. The students appeared nervous and offered limited, muted responses when I asked them questions. They waited for me to speak and to “teach” them, apparently expecting me to lecture them for the entire class period. As I integrated collaborative activities into the learning process over the course of the semester, however, I observed a gradual change in their participation. The students became more confident and self-directed. For example, peer interaction increased and the participants began to engage in the type of verbal banter that appeared to me as indicative of friendship, security, and comfort. Classmates became invested in supporting one another and initiated mentoring without direction when and where they observed a need. Peers took it upon themselves to ensure classmates who had missed a mentoring session understood the material covered in their absence. During the course of this study I observed that the students were solicitous of one another’s feelings, and the students reported in interviews that they made sure that each of their peers felt a sense of inclusion and support during class activities.

The participants in this study benefited from the interactive and participatory character of learning through reciprocal peer mentoring in the piano lab. Although participants had some concerns about the potential for error in the advice of their

classmates and sometimes sought clarification or confirmation from the teacher-facilitator during mentoring, they enjoyed interactive learning. Participants preferred working together in a lab setting because it allowed them to learn by doing. As participants interacted during reciprocal peer mentoring, the learning environment grew more relaxed and students experienced an increased sense of comfort. Participants valued the supportive learning environment engendered by the process of reciprocal peer mentoring.

Interactive Learning

In interactive learning students are involved in exploration and discovery as they engage in social interaction and verbal exchange to construct knowledge and develop technical mastery (Foster, 2009). The participants in this study enjoyed interactive learning and believed the participatory nature of the peer mentoring process made a positive contribution to the learning environment. Daria, a senior health studies major, thought the interactive environment associated with peer mentoring in the piano lab made for a “better learning atmosphere” (DS1p2 10/20/11). Mark, a senior criminal justice major, considered the learning environment in the piano lab to be “interactive” and “involved” in stark contrast to the atmosphere in a three-hour lecture class where “the professor just stands up front and lectures for an hour and a half, gives us a five-minute break, and then goes back and lectures for another hour and a half” (MK1p2 10/20/11). Unlike a lecture class where students “are just sitting there listening to information for an hour,” Daria considered the piano lab to be “more active, more participating,” a sentiment echoed by Min, a sophomore political science major, who characterized the learning in

the piano lab as “more active” (DS1p2 10/20/11) (MH1p2 10/18/11). Daria thought that students were able to “get more out of the class” because “rather than listening to one person talk” peers were “able to do something and learn at the same time” (DS1p2 10/20/11).

According to Min, working with his peers was “more proactive” so there was “not as much tension as there is in a lecture-based class” (MH1p2 10/18/11). Min believed less tension (competitive anxiety among classmates) was the result of being “allowed to talk instead of just being quiet and listening to a lecture” (MH1p2 10/18/11). Katia, a senior nursing major, noticed that peer mentoring made a noticeable difference in student participation in the classroom. Katia enjoyed interactive learning because classmates “are not just sitting there writing things down, taking notes; we have to participate” (KF1p5 10/24/11). For Katia, participation included working with her peers and with myself.

The participants thought interactive learning made a positive contribution to the learning environment. Additionally, participants thought they were able to get more out of the class because they were actively involved in learning.

Learning by Doing

The hands-on structure of the course allowed students to put learning directly into practice. Participants had an opportunity to apply newly acquired knowledge in meaningful scenarios in which they read, created, and performed musical rhythms, melodies, and accompaniments. The participants not only preferred learning by doing to the traditional lecture format, they found it more effective than traditional instruction.

Mark indicated that hands-on learning heightened student attention and remarked:

Here, you do one thing, you're taught one thing, and it's hands on. You keep involved in your learning every second of the class. Once you do that, you move on and you build from that. It's constantly building and building and so it's a very involved class and it definitely requires a lot of attention and determination and commitment to it. (MK1p2-3 10/20/11)

In addition to the "building" nature of the course, which contributed to greater student involvement, Mark said hands-on learning helped him to focus. He commented:

I would much rather be in a hands-on class because it just keeps you focused longer. I can't just sit in class for an hour and a half and listen to one person talk in a monotonous tone over and over. Even if [the teacher is] using PowerPoint, it's just lecture. I like to be involved in things. I like to take things in and do it myself, too. (MK1p3 10/20/11)

Silas, a sophomore majoring in computer science, thought learning by doing produced dispositional benefits because it was "easier to pay attention in class and stay alert" when "actively doing something" (SS1p1 10/21/11). Silas considered learning experiences in which students are given an opportunity to put learning "into practice and see it work out" to be more "exciting" and found it regrettable that students "don't get that" opportunity in conventional lecture classes (SS1p1 10/21/11).

Min believed the hands-on structure of the course was particularly helpful for students who learn best by doing. Katia stated that learning by doing aligned with her personal aptitude. She considered herself a "doer" who could learn best "by physically doing something" and thought that "physically touching the keys" helped her to understand (KF1p5 10/24/11).

Jada, a senior English and history major, preferred the active learning environment of the piano lab and compared the experience to interactive learning through

discussion in other disciplines. According to Jada, even with the visual stimulation of PowerPoint, she could “only listen for so long,” and she could understand what she was learning more deeply when she was “talking about or performing whatever [the class] was learning” (JV1p3 10/18/11). Jada remarked that if she “wasn’t playing in [piano] class, if the teacher was just talking about what things should sound like, [she] just wouldn’t get it as well; it would be harder for [her] to grasp it” (JV1p3 10/18/11).

George, a junior computer science major, believed that most students profit from hands-on learning because “it’s easier to see how something is supposed to be done rather than think that it’s supposed to be that way and not be sure if it’s right or wrong” (GJ1p3 10/20/11). Mary, a senior health studies major and self-proclaimed visual learner, remarked that “playing right away” in the piano lab made learning “so much easier” and enabled her to “remember it more” (MgK1p2 10/24/11). Because Mary had the opportunity to apply newly acquired musical knowledge in the piano lab and hear the results of her efforts, she was able to conceptualize and remember the sound of the repertoire piece she was learning. This allowed her to prepare for the first test by “saying the notes in my head, not even looking at a piano or anything. I was just playing it in my head” (MgK1p2 10/24/11).

Chas, a senior accounting major, perceived a distinct benefit to learning by doing in the piano lab: immediate auditory feedback during the learning experience. Chas said:

We can hear it now, which is, obviously, very important in piano. If we missed one of the keys we heard it. We just knew. Rather than just seeing it on the chalkboard or you drawing it on the staff for us, now we can actually hear it, too.

Chas preferred active participatory learning to merely sitting in a class *with the teacher*

lecturing. Chas commented:

I'd rather have the equipment in front of me. I've never been a big fan of just being lectured. I think a lecture is just kind of reiterating something that you could read on your own. Something that you're supposed to read on your own. It's kind of a waste of time. You should be prepared for what you're going to be learning, and then you perform it, and then you can be criticized or instructed. (CH1p2 10/20/11)

The participants found learning by doing to be more effective than traditional instruction. They considered hands-on learning to be beneficial in terms of skill development, particularly for students who preferred this learning style.

A Sense of Comfort

Over the course of the semester, nervous tension prevalent among the students during the initial class sessions eased as they engaged in reciprocal peer mentoring. For example, these students, who were all nonmusic majors with little or no experience playing the piano, initially felt inadequate or somewhat apprehensive when asked to play aloud. As the semester progressed, they became increasingly comfortable in the more relaxed learning environment brought about by peer mentoring.

George, Jelena, and Jada found that initial nervousness gave way to a growing sense of comfort. George credited peer mentoring with facilitating a change “from nervous energy” in the classroom to a “more positive” atmosphere of comfort (GJ1p2 10/20/11). George remembered his own nervousness on the first day of class—triggered, in part, because he “didn’t know what to expect” (GJ1p2 10/20/11). According to George, “as time went by, everybody got more comfortable with each other” and this enabled them to “joke and laugh” together in the classroom (GJ1p2 10/20/11). He believed this communal sense of comfort stemmed from peer interaction and remarked:

Once you help people and talk to them, during that time there might be jokes said like, oh, I had a hard time and this and that and [peer mentoring] just made everything, made the room lighter. Made everything nicer. (GJ1p4-5 10/20/11)

Jada initially “got really nervous when someone was listening” and did not “feel comfortable” with reciprocal peer mentoring, but found that “after a while” she became “a lot more comfortable” (JV1p4 10/18/11). As she listened to her peers and found that no one “was so far above” her level, she was no longer intimidated and began to feel “comfortable playing” for her peers (JV1p4 10/18/11). Jada believed her peers also had “more confidence” and became “more comfortable” after reciprocal peer mentoring because classmates supported each other, creating an environment in which no one “felt stupid or inadequate when they [got] something wrong” (JV1p4 10/18/11). Jada thought peer support made classmates “more comfortable with seeking help without feeling judged” (JV1p4 10/18/11). Although Jada believed peer mentoring increased the comfort level for the participants in this study, she was not certain that would be true in every circumstance. She remarked, “It really depends on how a class reacts to it. If the students aren’t comfortable with critiquing each other, they might feel uncomfortable with the class and with having class with that professor” (JV1p2 10/18/11).

Like George and Jada, Jelena, a junior majoring in Spanish and education, was initially “nervous to play out loud” but thought that reciprocal peer mentoring reduced tension. According to Jelena, peer mentoring eased accessibility to the material; the opportunity to practice playing with just one other person before playing out loud made “the learning environment a little bit more comfortable for us” (JM1p3 10/18/11). She described it as “kind of like baby steps into something that was making me more

anxious” (JM1p2 10/18/11). Jelena believed peer mentoring fostered friendships by “changing the relationships” among peers in the classroom because it allowed their affiliation to become “more personal” (JM1p2 10/18/11). Accordingly, Jelena said that “classmates were developing actual friendships and [were] not just people in class sitting next to each other learning piano” (JM1p2 10/18/11).

Like his classmates, Min recognized that peer mentoring brought about a change in the relationships between classmates that led to a growing sense of comfort. He believed this helped to eliminate the student isolation present in some of his other courses. He asserted, “There are some classes where people stay quiet and isolated and I don’t think that exists here. People may be quiet, but I don’t feel like they are isolated” (MH1p2 10/18/11).

Daria believed the social interchange among classmates that occurred during peer mentoring created a learning climate in which students were comfortable asking for help from their peers. Daria thought this more “sociable” learning environment in which “everyone was talking to each other” encouraged peers to “feel more comfortable speaking to each other about what they [didn’t] understand or what they [couldn’t] play” and definitely helped, “especially shy people, to be able to get help when in any other kind of environment they don’t feel like they could” (DS1p2 10/20/11).

Katia thought the collaborative environment fostered by peer mentoring resulted in a more relaxed classroom environment that had a positive effect on both functional (reciprocal teaching and learning) and personal relationships among peers. She remarked that “everybody is comfortable talking to each other” and that “there is definitely just a

calming atmosphere. No one has had a problem working with different people” (KF1p4 10/24/11). Katia elaborated:

It’s a good class where no one has a problem working with anybody else. There’s no stereotyping. There are no problems, anything like that. It’s just a comfortable class and everybody seems to work well with each other. Where sometimes you just sit in a class, and . . . if it’s just a big class where there’s a lecture hall, sometimes people are just so used to sitting in the same seat, listening to the lecture, getting up and leaving. You might not even know the person’s name next to you. But that’s not our case. We’re constantly up moving around and listening to each other, having discussions with each other, talking to each other. (KF1p4 10/24/11)

Chas thought increased peer communication contributed to the more relaxed learning environment and helped to reduce his fear of playing the piano in front of others. According to Chas, “when the class first started, some people were a little held back” (CH2p1 12/12/11). As classmates became more comfortable, Chas thought “people [started] to speak a little more, maybe not as afraid if they got something wrong when playing out loud” (CH1p2 10/20/11). Chas believed his classmates may have been heartened by the realization that “none of us really played piano before, so it’s a learning experience for everybody. We’re all going through the same ups and downs” (CH1p2 10/20/11). Chas, however, was not sure this evolution could take place in a large class. He thought that “if it was a large class, between 20 or 30 people, it might have been a little bit more difficult and some people might not have been as open about playing in front of the class” (CH2p1 12/19/11).

Mary thought the more relaxed atmosphere engendered by peer mentoring allowed peers to feel comfortable taking risks and acknowledging weaknesses. Mary remarked, “Everyone [became] comfortable with one another just [by] listening to each

other and helping each other” (MgK1p3 10/24/11). She believed this eliminated feelings of embarrassment and stated, “If we were all playing out loud together and one person messed up, I don’t think anybody would be embarrassed to say, oh, that was me” (MgK1p2 10/24/11).

Mark thought it was more comfortable for peers to play for each other despite the fact that there might always be a bit of tension in performing for someone else and remarked:

Sometimes it might feel more comfortable just to play next to one of your peers. You are comfortable in front of your peers. But, always, playing in front of somebody is never as easy as it seems; even though it’s family, like doing magic tricks when you are younger. It’s, like, okay, I did it in front of the mirror a bunch of times. Even though it’s only family, still, doing it in front of somebody else isn’t as easy as it is when you are there and you are doing it by yourself. You’re confident. You know it. But it’s always the idea that somebody else is hearing what you’re doing. The nerves set in. (MK1p3 10/20/11)

Mark remembered that, during the first benchmark, Professor Dubonnet had advised him that the more time he spent practicing the less he would be affected by nerves. He thought that was “true,” but believed that “just idea of somebody else being there” could “affect your ability to play” (MK1p3 10/20/11). According to Mark, playing for a peer, however, “someone at the same skill set, judgment free, it does help” (MK1p3 10/20/11).

As participants interacted during reciprocal peer mentoring, friendships formed. As a result, nervous tension eased and a more comfortable classroom atmosphere was created. Students were involved in nonjudgmental, helping relationships, so they were not afraid to take risks. Participants came to view mistakes as a means to learning.

A Supportive Learning Environment

In a supportive learning environment, peers trust and care about each other and are invested in one another's success. The ongoing collaborative and peer-to-peer interaction among the participants in this study allowed classmates to develop caring relationships and created a supportive learning environment in the piano lab.

As relationships developed, students took the initiative to help one another and became invested in one another's success. Mark viewed the climate as supportive because peers were "all there to help each other learn" (MK2p1 12/13/11). George "felt a sense of support every time" students played for each other because "nobody was trying to put you down or trying to show that they were better than you" (GJ1p2 10/20/11). He was pleased that he was "not being judged or anything like that. Just receiving help and that's it" (GJ2p1 12/15/11). George believed he benefitted emotionally from the support of his classmates:

I thought this class was going to be extremely hard when I was on my own. The fact that I wasn't getting something and the fact that I wasn't making out the right notes or I couldn't read certain things, it was making it extremely tough on me and I was kind of getting down on myself. So [once] I understood that there were actually other people who also needed help and there were people who were being real helpful to other people, it made the class, to me, better. It made me take off some of the weight on myself and made me realize everybody is just trying to learn. (GJ1p4 10/20/11)

Conversely, George believed that peer mentoring would have a negative effect if mentors "acted with superiority" over their peers in an "I know more so you should listen to me" manner (GJ1p5 10/20/11). George thought this would "create a negative environment and you would just want the peer mentoring to hurry and be over so you could just do your own thing again or try to learn you own self" (GJ1p5 10/20/11).

Jada believed there was a great deal of positive energy generated by peer support in the learning environment. She enjoyed the fact that her classmates would “all reach out to help each other if anyone [had] a problem” and deemed that “a good thing” because “everyone [was] willing to learn and willing to teach at the same time” (JV1p2 10/18/11). Jada believed this communal sense of support allowed peers to be “open to being better and to helping each other and pretty much open with sharing where they lacked, as well” (JV1p2 10/18/11).

Silas likened the peer relationships in the class to that of “a small, little family” in which he could “talk to anyone, ask for help from anyone, and help anyone” (SS1p1 10/21/11). Silas enjoyed the experience and said:

It’s fun. We each kind of take a little bit of something from someone else and share it. If you are struggling, someone helps you. If someone else is struggling, you help them. It’s kind of like a give-and-take thing. We kind of just rub off on each other and help each other. It’s cool because we’re all learning, so there is no one who is “ooh, I’m all above you because I am a super genius Beethoven guy.” (SS1p1 10/21/11)

Chas thought his classmates had a “lively” rather than “negative” attitude due to the sense of affinity that developed among peers. Chas said, “We all understand that it’s a beginner class and we’re all learning” (CH1p3 10/20/11). For Chas, peer support included both reinforcement and guidance:

Whenever you would play, people would applaud or if you might have slipped on a note they would tell you, not in a bad way, but they would explain to you what key you hit wrong and how to correct it or just working with different fingerings and stuff like that. (CH2p1 12/12/11)

Chas added that if he “was getting discouraged, it would [have been] tough to come to class” and he was pleased that he “never felt [discouraged] at all” because he “was never

worried about making a mistake” (CH2p1 12/12/11).

Katia considered the attitudes of her peers to be “bright, chipper, and happy” and believed none of her classmates had a negative attitude about working with any one of their peers (KF1p8 10/24/11). For Katia, the lack of “negative comments or sighs or *aach* or anything like that” when students began to work together confirmed the positive group ethos (KF1p8 10/24/11). Katia believed a communal understanding existed among peers. She said, “Everybody is trying. Everybody is learning. When [classmates] crack a joke, it’s funny. Nothing is demeaning. It’s a good time, but it’s also a learning experience” (KF1p3 10/24/11).

Despite this, Katia, a non-traditional student who was older than her classmates, had reservations about the maturity level and life experience of her peers. Katia thought supportive mentoring was a skill that improved with age and experience. She remarked, “They’re still in their 18, 19, 20s, so they’re still all about them. They haven’t learned about cooperation and teamwork because they haven’t gone out there in the real world yet, so they still haven’t gotten that idea yet” (KF1p2 10/24/11). For example, Katia noted that students in her Master’s level nursing classes exchanged phone numbers and formed study groups as a matter of course but these undergraduate piano students did not.

Min remarked that the collaborative rather than competitive relationships that developed among his peers through “the sharing of ideas” removed “barriers” to learning, and he considered this “another advantage” of peer mentoring (MH1p1 10/18/11). He believed peer mentoring helped to “eliminate the hindering facets of competition” because classmates were “learning with [their] peers instead of against [their] peers”

(MH1p2 10/18/11). Min deplored the fact that students are often pitted against one another competitively, particularly when a “class is graded on a bell curve for some reason, which directly forces you to compete against your classmates” (MH1p2 10/18/11).

Nevertheless, Min stated that some competition is necessary as “an incentive to make people do better” (MH1p1 10/18/11). Using athletics as an example, Min asserted that “because a person training for a competition has a set goal, he is going to progress faster than the person not training for a competition” (MH1p1 10/18/11). Min did not believe peer mentoring removed all competition in the piano lab. He remarked, “I think there is competition in everything, even piano class; not a lot of competition, but just enough to keep the improvement going. It’s more like a motivation factor. It creates motivation” (MH1p1 10/18/11).

Daria thought her classmates viewed themselves as collaborators rather than competitors because they were “all trying to get to the same goal of playing a piece or learning notes” and wanted each member of the group to experience success (DS1p3 10/20/11). As a result of becoming “a little bit closer since [they were] all learning something completely new together,” she believed classmates were “making a new bond” (DS1p1 10/20/11). Daria remarked that “everyone wants to see each other do well, so everyone is willing to help each other” in order to “achieve the goal quicker [*sic*] or more efficiently and move together” (DS1p3 10/20/11).

Mary thought peer support extended equally to all members of the class. According to Mary, “It wouldn’t matter who I was sitting next to in class if we had to

listen with the adaptor, it wouldn't matter who anybody was sitting next to because I think that anybody would be able to work together" (MgK1p2 10/24/11).

The inclusion of peer mentoring in the pedagogical process had a positive effect on the learning environment in the piano lab. As classmates shared knowledge in pursuit of a common goal, this loosely connected group of students coalesced into a supportive community of learners based on caring relationships. The participants preferred interactive, participatory learning and learning by doing, experienced an increased level of comfort in the learning environment as a result of peer relationships developed through ongoing social interaction, and found both dispositional and educational value in learning in a supportive environment.

Sharing Knowledge and Skills

Several themes emerged regarding the influence of reciprocal peer mentoring on the sharing of knowledge and skills: the effectiveness of peer-to-peer communication; the educational value of exposure to multiple perspectives; the thorough level of comprehension acquired through the process of teaching others; the motivational and management benefits of monitoring personal learning through comparison with peers; and the benefits of collaborative learning.

Participants found peer-to-peer communication to be effective in advancing their knowledge of how to play the piano. While they admired the erudition of teachers, they thought they could better relate to their peers and, in some cases, believed they acquired understanding in the course of peer-to-peer communication that they could not glean from the explanations of experts.

The participants found educational value in the exposure to multiple perspectives concomitant with the process of reciprocal peer mentoring and gained a higher level of personal comprehension through the process of mentoring others. They shared a keen interest in comparing their own progress to that of their peers and used this comparison as a tool for both self-motivation and management of personal learning.

Communicating, Relating, Learning, and Understanding

Participants valued the communication and mutual understanding possible between peers. George believed it was easier for students to relate to each other in the piano lab because they were generally “having the same issues” and could explain how they approached a problem (GJ1p1 10/20/11). He said that advice from a student was “different because the teacher already knows everything that there is about it” (GJ1p1 10/20/11). According to George, “Although things might seem a blur, when [students] come together, it puts a little more clarity on things. You can actually understand a little bit more because you have two different styles telling you how something is done” (GJ1p3 10/20/11). George, who had “not been exposed” to musical concepts before, believed he benefited from the knowledge of his peers, especially classmates with some prior musical training, because those students “were able to grasp the concept a little more if it was a new lesson taught that day, so when I paired up with them, it helped me to know just as much as they would know” (GJ2p2 12/15/11).

Daria suggested it was sometimes easier to understand concepts when working with a peer:

I think student interaction helps you learn on different levels other than the teacher just teaching you. You get more information from students, because it's

not like an authority figure, so I feel like that helps. With another student, they're on your level so they are teaching you in a way that you can understand better than maybe a teacher who is saying [something] that you might not comprehend right away. (DS1p1 10/20/11)

Jelena believed that peers had a possible advantage in explaining concepts to a classmate who experienced difficulty with the subject matter even when the teacher was very knowledgeable because "sometimes it's a little bit easier to understand something from someone who has the same perspective as you do" (JM1p1 10/18/11). Jelena believed subject matter knowledge did not always translate into clear explanation during instruction. She remarked, "Teachers are very well-versed and they know a lot about their subject and their field; they may not know how to explain to a student who may be having difficulty with the subject or some of the work" (JM1p1 10/18/11).

Chas believed distinct benefits existed in peer communication precisely because it was "different from the teacher's standpoint" (CH1p1 10/20/11). Chas viewed teachers as "professionals" and thought that a peer, "someone who is learning just like you" and "going through the same process," might be "able to put [concepts] into more simple [*sic*] terms" (CH1p1-2 10/20/11).

Silas thought that peer interaction assisted students in learning concepts and skills. He believed peer mentoring "made it easier to learn just because you could relate to your peers" (SS1p2 10/21/11). According to Silas, "it's easy to relate with people your age and, in that sense, just having someone your age tell you how they do it is more helpful" (SS1p2 10/21/11). Like his peers, Silas thought that in some cases students could "hear something from the professor and not quite get it and then someone in class [would explain it] and *ahh!*" (SS1p2 10/21/11). He said his peers translated information "into

language how I would understand it and how I would explain it, too” (SS1p2 10/21/11). Silas found it “easy to put what [his] peers suggested into practice because [they were] on the same level” (SS1p2 10/21/11). He explained, “Someone at a high level might say, ‘Oh, just do this. It is real easy.’ No it’s not, so, in that sense, it’s easier to relate with your classmates” (SS1p2 10/21/11).

Mark thought that peer interaction helped to bridge the communication gap sometimes present in traditional teacher to student instruction. Although he considered his professors to be very knowledgeable, he found he could not comprehend their explanations in some instances. Mark said:

Peer mentoring, it’s a different style of teaching. The professor, obviously, this is their job. They are getting paid to do this because they’re really good at it. But I mean, sometimes, for instance, science classes, I know whenever my science teacher [is] saying something to me it’s like, “Yeah, you might be really smart, but you are not meant to be a teacher.” In science, I have no idea what my teacher is talking about. Yeah, he’s really good at it, but none of us [know] what he [is] talking about. [Peer mentoring] can help make it in common terms. It might help bridge that gap in communication. (MK1p3 10/20/11)

Mark thought peer-to-peer communication was effective because his peers were better able to “break [material] down” and put it “in real terms” that he could understand.

According to Mark, “students might have this way of explaining [something] where it just clicks. The professor just teaching it one way, a student might not understand it where a student might explain and it would be, ‘Oh, that makes sense now’” (MK2p2 12/13/11).

Katia thought having to “break down” a concept in order to communicate it to others was a valuable exercise in learning for both the mentor and the mentee. (KF1p7 10/24/11). According to Katia, when peers are “forced to think, ‘okay, how do I break

this down for somebody? How am I going to make this person learn to do this better?

How do I do my piece?’ the learning actually is reciprocal” (KF1p7 10/24/11).

Alternately, Katia believed peer communication in the piano lab could be less effective than expert feedback due to student lack of knowledge and experience. She stated, “If there is a weakness in peer mentoring it’s not the interaction, it’s that you need to know the material better because you’re just beginning to learn about the piano” (KF1p4 10/24/11). Katia explained:

I’ll listen to somebody and, I mean, it’s my first time in music, it’s an introduction to music. The only thing I can really tell them is if it sounds like they might have missed a note or if they’re going too slow or too fast or if it sounds rhythmically good to me. I don’t have a plethora of advice to offer, because it is an introduction to music, so I don’t have advanced advice to offer where, if I was experienced, I could definitely give them much more feedback. (KF1p2 10/24/11)

Daria expressed the same concern. She remarked, “I would feel more at ease if someone who had played the piano before was helping me rather than someone like Mary who has never played the piano before in her life, so skill level definitely makes a difference” (DS1p3 10/20/11).

The participants found peer communication to be effective both in clarifying concepts for the mentee and crystallizing understanding for the mentor. Despite the possible knowledge limitations of student mentors, participants thought that peer communication fostered understanding and enhanced the learning experience.

Multiple Teachers in the Piano Lab

The participants found educational value in the exchange of ideas and exposure to multiple perspectives facilitated by the process of peer mentoring. Min remarked that

students learned better “with other perspectives in the mix” (MH2p1 12/14/11). Mark found interaction with multiple teachers to be beneficial because “when you’re on your own, your judgment may be clouded” (MK1p3 10/20/11). Mark added, “You might be boxed in to one view or one sound, whereas somebody comes in with this whole different set and you’re like, ‘Oh, wow, I never even looked at it from that perspective’” (MK1p3 10/20/11). Mark offered the following scenario of peers involved in this learning experience:

[Peer mentoring] opened things up. It gave new perspectives rather than the teacher just pounding one way of learning into our heads. Maybe we know the fingers are 1, 2, 3, 4, and 5. Maybe we’re trying to play something and my partner comes up with this crazy way to remember what fingers [should] play what note, maybe comes up with an acronym and he’s like, ‘Hey, use this. It will really help you remember which finger to play at this part.’ It definitely opens up new perspectives and new ideas. (MK1p4 10/20/11)

Jada appreciated the exposure to other points of view facilitated by reciprocal mentoring among her peers in the piano lab. She believed it “worked a lot better” for students to “show each other how to play something” than for each of them to practice an exercise or a piece demonstrated by the teacher on their own, because “if [classmates] play something and show each other, maybe if there is something I missed, my peer didn’t miss it, so that helps” (JV1p3 10/18/11). Jada remembered a number of occasions where she had practiced alone and learned “the wrong thing” (JV1p3 10/18/11). According to Jada, “Every time or most of the time I figured out what I was doing wrong it was from a peer—where they told me or I just learned from watching them and listening to them” (JV1p3 10/18/11).

Jelena indicated that peer mentoring enhanced the learning experience by adding another dimension to teaching and learning, potentially addressing the needs of diverse learners. She said:

I believe that in a classroom there is a place for lecture; that in certain instances it is appropriate to have lecture. Just for me personally, I can't have that be the entire class or the only method of teaching. I am not against it or saying it should never be used, but I don't think it should be the only method of teaching in a classroom, again, to try to appeal to different learners. I don't want to get too into teaching or into philosophies of teaching, but there are students who learn better by audio or by visual. Some students can't really do rote memorization or the kind of things that are stationary. Some need to move around, get a different break in their lessons. I think if you only do lecture, if that is the only way that you teach, you are not reaching the strengths of other students. (JM1p2 10/18/11)

Jelena cautioned that peer mentoring should not be overused, however. She warned, "I can see how someone would feel a little bit more distanced from a teacher if they were constantly doing peer work and never really being able to communicate with the teacher" (JM1p2 10/18/11).

Min did not think students could benefit from exposure to multiple perspectives during peer mentoring without "a cooperation factor" (MH1p3 10/18/11). Min asserted, "The student has to be open to what they're being taught. If they're not, then it's almost futile. It shouldn't even be done. There has to be a mutual cooperation, student to teacher and student to student" (MH1p3 10/18/11). In order for reciprocal peer mentoring to be successful, Min believed peers had to be willing to "acknowledge the other view. Even if you are not good at it, you have to acknowledge it. You might not use it all the time but you have to know that it is there" (MH1p3 10/18/11).

Participants benefitted from exposure to multiple points of view and recognized the potential for multiple teaching styles to meet the needs of diverse learners.

Participants pointed out that peers must be open to other points of view for mentoring to be successful and suggested that peer mentoring should not preclude interaction with the teacher in the classroom.

Comprehension and Skill Development through Teaching Others

Through reciprocal peer mentoring, participants gained access to additional ways of thinking about musical concepts and approaching technical processes. Because participants shared ideas and perspectives, they were able to expand their skill set beyond the limitations of their own resources and to acquire greater understanding.

Participants discovered that demonstrating skills and explaining concepts to others increased their own level of competence and comprehension. Daria believed the “more she explained [a concept] to other people, the better [she] understood it” (DS2p1 12/13/11). For example, when Daria explained to Mary why the A major five-finger pattern should have a D natural instead of a D sharp, she solidified her own understanding of the steps in the pattern and was then able to transfer that knowledge to other keys.

George believed it was “easier for [him] to recall something because of the fact that [he] was able to teach it” (GJ2p1 12/15/11). For example, during one reciprocal mentoring session George discussed how to count rhythm examples with Jelena. Subsequently, he was able to notate and identify rhythm values on a benchmark evaluation.

Silas, too, considered teaching to be a means of learning. Silas commented:

When you are showing someone else how to play something, it kind of reinforces what you already know about it. And sometimes when you are showing people,

you actually make mistakes and they say, “Wasn’t that supposed to be that” and you’re like, “Oops” and then you learn. They catch your mistakes and you learn again. (SS2p1 12/12/11)

Mary thought “teaching someone else” was beneficial because “seeing [the material] again and listening to other people play” could also help the mentor (MgK1p2 10/24/11). Mary recalled that “listening to someone really good” had helped her to “see exactly how the music was supposed to sound” (MgK1p2 10/24/11). Mary thought she also learned from “listening to somebody who [was] not so good” because she could “see where their flaws” were so she knew “not to mess up there,” and then she was able to “help them improve as well” (MgK1p2 10/24/11).

Like Silas and Mary, Jada recognized that reciprocal learning occurred during the interactive mentoring process. Jada thought she could “understand more” while learning as part of a reciprocal mentoring pair (JV1p3 10/18/11). According to Jada, “Although the professor may have may have said how to do it right or played it herself, it was more revealed when we did it together and helped each other out” (JV1p3 10/18/11). In order to explain concepts to her peers or clarify something they did not understand, Jada generally chose to demonstrate. She discovered that “showing [a classmate] finger substitution or what doing something meant helped [her] remember it by doing it” (JV2p1 12/13/11). Jada thought this occurred because she was a kinesthetic learner who had “to do things in order to remember anything; [she could not] just hear or just see someone doing it” (JV2p1 12/13/11). According to Jada, “Being able to show someone something and seeing someone do it helps both of us” (JV2p1 12/13/11). She explained, “If I am playing on a test or trying to figure out how to play [an exercise], I can picture

what I showed someone else or what someone else showed me” (JV2p1 12/13/11). Jada believed her classmates “learned a lot from each other” (JV2p2 12/13/11).

Chas, Mark, and Min linked teaching with mastery. Chas asserted that “you know you are understanding [something] when you’re confident enough to help another student out” (CH1p1 10/20/11). Mark agreed that “knowing is one thing, but then being able to know enough to correct and critique and teach somebody—that proves that you fully understand it” (MK1p3 10/20/11). Min considered teaching to be “the best way to make sure you’ve mastered something” (MH2p1 12/14/11). Min remarked, “When you explain something, that means you know it. You shouldn’t explain something that you don’t know well enough yourself. So, to teach someone something you know is a very strong indicator that you’ve mastered it” (MH1p3 10/18/11).

Jelena believed the process of mentoring aided both understanding and mastery and said:

When you mentor someone or you are helping someone else, it helps you understand the subject better. You have to know what you are speaking about in order to correctly teach someone else about it. It kind of better your knowledge of the subject. It makes it more permanent in your head. It isn’t just kind of fleeting information. You know it better. (JM1p1 10/18/11)

Jelena provided an example:

There was one point where Chas couldn’t get the fingering on the chords. I don’t remember which chord it was; I think he wasn’t getting G⁷. He wasn’t falling down enough, and I found that not only was I able to show it to him, but I was able to say it to him. I was surprised. I wasn’t just like, “Okay, this is what you play.” I was able to verbally say it to him; “You can put your fingers on these keys.” Hopefully, that means that my learning has gotten better, that my knowledge has increased about that. You have to know something to be able to teach it to someone. (JM2p1 12/13/11)

Katia, however, expressed doubt about reciprocal mentoring. She remarked, “The only thing I would say about the peer mentoring is it might be difficult because, when you think of peer mentoring, I think of somebody who is more experienced working with someone who is not as experienced” (KF1p5 10/24/11). For Katia, it was important for the teacher to be involved in the process. She was glad that the teacher remained available to “every group just like when we’re practicing all together and just like when we’re practicing individually” (KF1p5 10/24/11).

Participants were able to understand concepts more deeply and permanently through the process of teaching others. Both articulating and demonstrating concepts reinforced comprehension for the mentor. One participant suggested teacher oversight was important because reciprocal peer mentoring might be more difficult than unidirectional mentoring due to mentors’ possible lack of knowledge.

Regulating Learning through Comparison with Peers

Participants benefited from the motivational and self-management aspects of monitoring personal learning through comparison with peers. Participants were glad to have the opportunity to informally assess the progress of their peers for the purpose of comparing it with their own attainment both to ease anxiety about their own abilities and to determine if they needed to exert more effort. Jada asserted that she “definitely liked working peer-to-peer, especially for this class” because it is “nice to hear how everyone else plays and where everyone else lacks or is stronger” (JV1p2 10/18/11). Chas measured his understanding against that of his peers. He said, “When you have two people who are learning and they are able to help each other, you’ll see their struggles

and what they are learning. You see how they are progressing and how you progress” (CH1p1 10/20/11). Chas found it reassuring to “know that [there was] something that didn’t come as easy to them as it did to me; just like there is going to be stuff that is going to come more difficult to me that is easy for them” (CH1p1 10/20/11).

Katia, a non-traditional student in her thirties, did not seem to realize that her classmates had the same anxieties and interest in comparing their progress as she did. She remarked:

Sometimes I’m not sure if I have the rhythm right; if I’m playing too fast or too slow, or am I at the right stage? This way, listening to other people, I know where they are, too, and, most of the time, I’m where they are so I don’t feel so bad. Sometimes I feel like, “Oh God, I’m just not getting this,” or “I should be faster,” or “I should have this by now; I’m lagging behind.” But then when I listen to other people, I’m on the same target where they are so it actually makes me feel better. Not putting them down, but it makes me feel better about myself that of the whole class, I’m in the middle; I’m average; I’m where they are. I think that’s just because I’m the oldest one in the class. (KF1p2 10/24/11)

Both Silas and Daria asserted that peer comparison regulated their learning effort. Daria adjusted her practice time based on an ongoing assessment of her peers’ competency. Daria remarked, “I’ll practice more and play a piece more to be on the same level with another student because I would never want to be on a lower skill level than a peer” (DS1p2 10/20/11).

Silas thought peer comparison was a valuable gauge for regulating and encouraging effort. He said:

I think [peer mentoring] helps with practicing because when you see your friends being good at a piece or being able to do good [*sic*] at something, it kind of rallies everyone to try to do better. You don’t want to be behind in class and, in that sense, the peer mentoring is cool because it just encourages you to practice more. Just the fact that everyone is progressing and doing good [*sic*] makes you want to get better. (SS1p2-3 10/21/11)

Silas believed peer mentoring motivated him to practice more so that he could help his classmates. He explained:

When it came to practicing, I definitely tried to practice a lot more just so [we] could help out each other and stuff. Also with peer mentoring, I feel like when you get to see how far your friend is doing at something, it kind of encourages you like, “Oh, I should keep practicing and I’ll be able to get it, too.” (SS1p2 10/21/11)

Min weighed the “pros and cons” of private instruction and interactive learning through reciprocal peer mentoring (MH1p3 10/18/11). Although he considered private lessons to be “strong in some aspects” because of the “one-on-one” attention available, he judged it “better to compare yourself against peers” (MH1p3 10/18/11). For Min, “that would be the strength of a group lesson” (MH1p3 10/18/11). He believed peer comparison “created motivation” because no one “wanted to be behind in class” (MH1p1-2 10/18/11). This is consistent with Min’s view that some competition is good. Min explained, “It’s like there is a bar set [and students] don’t want to falter behind the group or be below the bar” (MH1p2 10/18/11).

Mark believed that interacting with one another during reciprocal peer mentoring allowed classmates to compare their skills and understanding. This awareness encouraged peers to provide support for one another and regulated the pace of learning to ensure that no classmate was left behind. He said:

If we didn’t have [peer mentoring], then the class might have gone too fast and some kids might have spun out of control. It definitely kept the class progress in pace for where we should be. It allows everybody to get a feel for where somebody is. If somebody is a little bit behind and maybe it’s because they just haven’t practiced enough then it’s, “Okay, you need to go home and practice.” But if somebody really doesn’t thoroughly understand, then it’s, “Okay, we cannot continue to progress with this class because we have someone here who

we cannot leave behind.” It lets you just keep pace with the class for the pace it should be set at [*sic*]. (MK1p5 10/20/11)

During the process of reciprocal peer mentoring, participants informally monitored the skill level of their peers in order to compare it to their own. This heightened their expectancy of success and allowed them to manage their effort accordingly.

Collaborative Learning

The participants in this study engaged in both whole group collaborative learning and reciprocal peer mentoring throughout the course of the semester. Participants benefitted from the conceptual give and take, construction of shared meanings, and interdependent personal relationships that are a part of collaborative learning and reciprocal peer mentoring.

The participants characterized collaborative learning in the piano lab as both more efficient and more effective than the conventional methods of learning they experienced in their other courses. They generally held a negative view of both traditional instruction and group learning that does not involve shared authority in the classroom and ongoing dialogue between peers.

Min thought collaborative learning helped the class progress as a whole and believed the benefits extended to individual learning as well. He said, “The strengths of [collaborative] learning are all there and then there is the strength of the one-on-one with peer mentoring, so you are getting a lot of benefit” (MH1p4 10/18/11). Min concluded that “learning in a small select group of peers is the most effective way to learn” (MH1p1 10/18/11).

Daria deemed peer mentoring to be “a way for the class as a whole to learn the piano more efficiently” (DS1p3 10/20/11). Daria explained, “Peer mentoring helps in correcting mistakes” because someone else is able to “see little details that you might miss like dynamics or just playing wrong notes that you might not catch” (DS1p3 10/20/11).

Mark stated, “You can always learn more when there are two of you. There is feedback. There is discussion. There is critique” (MK1p3 10/20/11). According to Mark, “When you have a peer mentor listening in, that is another set of ears and eyes to watch your hands, so it can definitely help develop your skills” (MK1p3 10/20/11). Mark maintained that peer mentoring allowed for “better, more efficient” practice time. He said:

[One student] might already know, just looking at the clef, okay, that’s this note, where some students might have to go home and study the clef for two or three hours. It just might mean, oh, I saved myself a few hours. (MK1p5 10/20/11)

Silas believed the difference between collaborative learning in the piano lab and group work in other courses lay in peer relationships. He thought that group discussion lacked the element of helpfulness present in peer mentoring. According to Silas, mentoring “helped [classmates] to be more open” and allowed peers to build relationships through the process of helping one another (SS1p3 10/21/11). Silas thought peer relationships influenced students’ attitudes toward collaborative learning. He remarked, “I have other classes that, when it’s time for discussion or doing group work, people aren’t excited about it. They don’t want to talk to people because it’s weird when they haven’t spoken in class before” (SS1p3 10/21/11).

Mary thought peer mentoring produced long term learning benefits and said:

[Peer mentoring] creates a good learning environment and you are going to actually learn. When I took piano in eighth grade, I don't remember anything because we never listened to each other. [The teacher] would give us the music to play and we would just learn it. In this class you're really working together and actually learning the music so that you will be able to remember and be able to play for an extended period of time. (MgK1p4 10/24/11)

Jelena found peer mentoring to be more effective than traditional instruction because she was able to tailor the learning experience to meet her needs. She explained:

During peer mentoring, I try to ask the questions I wouldn't ask in class. When you are working one-on-one or in a smaller group, it is a more personalized experience. You can get someone to directly meet your needs instead of the needs of the whole class. Someone can tailor their answers to you and tell you exactly what you want to know. (JM1p1 10/18/11)

George preferred collaborative learning through peer mentoring to group work in which teachers do not share authority and interdependent relationships do not form. He asserted that a majority of students have a negative view of group work because it "doesn't necessarily change the dynamics of the class" (GJ1p2 10/20/11). George remarked that group work:

Was kind of weird to have sometimes, because you don't want to be in a group with someone who doesn't know anything and you have to do everything and then you also don't want to be in a group where you don't know anything and everybody else knows something because either way you feel bad. (GJ1p2 10/20/11)

George added, "I've had my own experience of classes where there were peer-to-peer kinds of things and instead of it being more fun, it was more, 'Let's try to get a good grade,' and then that would be it" (GJ1p2 10/20/11). According to George, "There was no real kind of cohesion, so it didn't really change any dynamics because once the peer-

to-peer was done, it went right back to regular; right back to the same. There was no [ongoing group relationship]" (GJ1p2 10/20/11).

Although Mary participated in group work in one of her other classes and recognized that the purpose was for students to "help each other learn the material," she believed it was not highly effective in that course because the assignments were not always relevant or compelling (MgK1p1 10/24/11). She explained, "There are no tests in that class. We have papers, but what we're learning in class really doesn't have to do with the papers, so what we are helping each other with, people usually just disregard it" (MgK1p1 10/24/11). Mary elaborated, "You can literally look around the room and see that people are sleeping and not paying attention" (MgK1p2 10/24/11). Mary enjoyed peer mentoring and thought that it was different from group work because peer mentoring "is pointing out the positives and negatives of what our playing is, but in group work you are just working together to answer questions or do a project or whatever, but this you are actually helping the person improve" (MgK1p2 10/24/11). Mary believed peer mentoring had "improved her playing" (MgK1p2 10/24/11).

Mark found particular satisfaction in collaborating with knowledgeable peers who could "appreciate the work [he had] done" (MK2p1 12/13/11). He judged their feedback to be more authentic and said:

It was nice to have somebody with the same amount of education as me listen to [my composition]. I played my composition to my roommates and I don't know if they fully understood what I was doing. To have these classmates listen to it and know what I'm playing, read my music as I'm playing it . . . it's neat to have their support. (MK2p1 12/13/11)

Mark related a variety of successful experiences with collaborative learning. He

remembered that his peers “pushed each other in the right direction to get things done” as they prepared for a group debate in his public speaking class (MK1p1 10/20/11). Mark was currently enrolled in a ballroom dancing course where reciprocal peer mentoring was used with great success. He considered it “a lot of fun” and explained that classmates “learn a lot of steps in one day, so we rotate partners like every thirty seconds and every partner, they’ll pick up something different that you’re doing. You reciprocate the criticism back and forth to help [each other] improve” (MK1p1 10/20/11). For Mark, the peer mentoring he engaged in during piano class was similar to the mentoring that occurred during his years of playing high school football. He said, “Each person in a skilled position, they’re trying to make each other the best player they can be at their position, so the older guys are constantly teaching the younger guys who are being taught by the coaches” (MK1p1 10/20/11).

Mark described peer mentoring as a “big cycle of knowledge going around for people to get better at what they’re doing” and thought that it was both educationally and socially beneficial in terms of “social skill sets—the ability to work with people rather than just one person always thinking they are right—just being able to cooperate with a group or a team” (MK1p1-2 10/20/11). According to Mark, peers “usually don’t have a problem” with critique, “especially if you are friendly with them” (MK1p1 10/20/11). He added, “I know if I’m critiquing my friends on something, I know I can be outright open with them and tell them exactly what I feel” (MK1p1-2 10/20/11).

Both George and Mark stated that they would not say anything about peer mentoring when recommending this course to other students because of the prevailing

negative attitude towards group work among their peers. George remarked that when students hear “group work they may turn off to it” (GJ1p5 10/20/11). Mark explained, “I wouldn’t want people to be turned off that [*sic*] weren’t sure what it had to offer” (MK1p5 10/20/11).

Jelena’s estimation of students’ attitudes toward group work echoed the views of George and Mark. She commented:

I think at first when everybody hears peer mentoring they groan, “Oh, okay.” I don’t know why. Now that I’m starting to observe some classes in high schools when someone says, “Okay, we’re going to break into pairs,” the students are like, “*Ohh*.” But I felt in this environment it helped me personally. I got the opportunity to work on something that I had a personal problem with. (JM1p3 10/18/11)

Daria, Mark, and Min expressed a common concern that might partially explain student reluctance to collaborative work: the potential for error in student collaboration. Daria recalled an occasion when she was given incorrect information by a peer during a mentoring session. Daria explained, “I once had a student tell me the wrong thing, and then I played it and heard that it was wrong so I had to tell her that she wasn’t right. Luckily, we asked you” (DS1p2 10/20/11). Daria concluded, “If someone has a lower skill level and they are trying to help you with the wrong information, then you’re just going backwards, so it’s not helpful” (DS1p2 10/20/11).

Although Mark “enjoyed” peer mentoring and believed it was “a great thing,” he thought “it might also hurt in some aspects” (MK1p2 10/20/11). He worried that he “might be telling [his peers] the wrong things” (MK1p2 10/20/11). Mark illustrated, “If I’m trying to help someone with their homework in math and I actually don’t really know what I’m talking about, then I would just be making it worse for them” (MK1p2

10/20/11). Min agreed and summarized, “As long as you’re teaching the right thing, everyone benefits. If a person thinks what they’re doing is right is wrong, then it’s detrimental” (MH1p3 10/18/11).

For the same reason, participants preferred to have the teacher oversee the presentation of new material. Daria said, “I feel more comfortable if the teacher introduces [material] first before we work in pairs” (DS1p2 10/20/11). According to Daria, “Sometimes it’s easier to understand when working with a peer, but, for the most part, it’s more informative when it’s from someone who actually knows what they’re talking about instead of someone who just thinks they get it” (DS1p2 10/20/11). Although Chas thought “working in pairs [was] good” because “when we use the adaptors and we’re hearing each other and correcting each other, that provides another view,” he agreed that it was “definitely better when you’re hearing [new material] from the teacher” (CH1p2 10/20/11).

Additionally, participants did not support the exclusive use of collaborative learning. Although Daria stated that “student to student mentoring helps with little things like fixing your fingering or getting the right notes,” she thought that in some cases she “could achieve more when practicing on [her] own” (DS1p2 10/20/11). According to Daria, “If I just practice it over and over again, I eventually get it. I would always like to have a chance to practice it first before I worked with a peer” (DS1p2 10/20/11). Mark remarked, “I don’t want to sound selfish, but you achieve more because you have that second set of eyes and ears, but, obviously, every second of practice helps and when you’re working with somebody you’ve got to split that time” (MK1p3 10/20/11).

Nevertheless, Mark believed that “the benefit of working with somebody doesn’t compare to the amount of repetitions that you could do. You can always do repetitions on your own time when the lab is open” (MK1p3 10/20/11).

Reciprocal mentoring helped to facilitate a productive sharing of knowledge and skills among classmates in the piano lab. Peer-to-peer communication was both effective and readily accessible and student learning was accelerated through exposure to multiple perspectives. Participants acquired an increased level of comprehension through the process of teaching others and enjoyed the motivational and management benefits of monitoring personal learning through comparison with peers.

Participants preferred the collaboration of peer mentoring, deeming it both more efficient and more effective than teacher-centered methods; the participants generally held a negative view of both traditional instruction and group learning that does not involve shared authority in the classroom and ongoing dialogue between knowledgeable peers. The participants preferred teacher oversight during the introduction of new material and during mentoring sessions because they were aware of the possibility that peers might dispense erroneous information. The participants did not favor the exclusive use of peer mentoring in the classroom; they believed that sometimes they could achieve more on their own.

Social Interaction

Participants articulated remarkably similar opinions regarding the effect of peer mentoring on social interaction. Themes included: interdependent relationships and

social bonding; enhanced collective and self-efficacy; successful mentoring of others without direct training; and a sense of pride and personal satisfaction in helping others.

The ongoing interaction among classmates that occurred during reciprocal mentoring in the piano lab cultivated a sense of teamwork and strengthened connections among peers based on communication and mutual cooperation to reach a common goal. The participants developed friendships and became invested in the well-being and success of their classmates. Peers shared a sense of camaraderie as they worked together to develop understanding and technical expertise.

Interdependent Relationships and Social Affiliation

The participants in the piano lab collaborated with one another as part of the learning process and began to view themselves as a community. As students worked closely with classmates with whom they had no previous affiliation, social connections were formed and mutually beneficial relationships were established. Jelena believed peer mentoring helped classmates “to develop stronger relationships with each other” (JM1p2 10/18/11). She thought those relationships “continued to evolve” throughout the semester (JM2p2 12/13/11). Jelena said, “With the friendlier atmosphere, you can tell that we just feel a little bit more comfortable around each other when we are playing now, and I think that is a reflection of the relationships that we have developed” (JM2p2 12/13/11). Min described the subtle evolution as “just something that happens inherently [with peer mentoring]; the relationships change. It’s so subtle that you can’t notice it” (MH1p2 10/18/11). Min believed classmates had cultivated a “more friendly relationship” that didn’t exist in some classes. Min asserted that “even in a small class,

there are people who tend to shut themselves out and that can't happen here" (MH1p2 10/18/11).

Chas thought the small class size made it easier to form relationships. Chas said, "Since it's just a small class, I think the relationship is definitely better than any lecture-sized class where you're dealing with around 30 people. I feel like people who might be kind of shy will come out of their shell a little bit in a smaller class and be more open" (CH1p1 10/20/11).

Katia thought the participants appreciated the evolving interdependent relationships. She remarked:

Everybody was always happy to help, smiling and laughing. No one ever turned anybody away. Everybody worked together. I don't think I ever sat with the same person more than twice, and I was always at a different piano. If someone really didn't like [helping] somebody else, they would have picked a seat and stayed in it. That wasn't the case. (KF2p2 12/15/11)

Silas enjoyed forming mutually caring relationships with his peers in the piano lab. He "found it a lot easier to talk to people and make friends because everyone [was] talking to each other" in contrast to other classes where students "just did [their] own thing" (SS1p1 10/21/11). For Silas, peer mentoring was "really cool" because you got "to meet new people and make friends" (SS1p1 10/21/11). Silas asserted that he could "talk to anyone, ask for help from anyone, and help anyone" in the class (SS1p1 10/21/11). He credited peer mentoring for the "good" relationships that developed among peers because during the mentoring process students "[had] to talk to each other and [had] to get to know each other" (SS1p1 10/21/11). Silas believed this encouraged his classmates to "[open] up, [talk] a lot more, and [be] a lot friendlier" (SS1p1

10/21/11). According to Silas, this “made the learning experience a lot better” because classmates were able to “joke around and have a good time” (SS1p1 10/21/11). Silas appreciated the circular nature of the process and remarked, “with peer mentoring, it’s more like we’re all teaching each other, so the professor is teaching us and we’re teaching each other, so it kind of goes around nicely” (SS1p1 10/21/11).

According to Silas, the relationships that developed among classmates during peer mentoring extended outside the piano lab. He said, “When you see each other outside of class, it’s a lot easier to interact. Jada actually joined one of the clubs I’m in. I guess she felt comfortable to join because we knew each other from class” (SS1p2 10/21/11). Silas enthused, “It’s nice because you have friends all over campus” (SS1p2 10/21/11).

Jelena, Daria, Mary, and Mark described instances in which they had exchanged pleasantries with classmates outside of the piano lab. Jelena “felt more comfortable” approaching her classmates outside the piano lab after the introduction of peer mentoring (JM1p3 10/18/11). Daria remarked that when she saw a classmate outside of the piano lab she greeted them and was “friendly” (DS1p3 10/20/11). Mary thought the sense of community was exceptional. She said:

I don’t really see that in a lot of classes, that everyone just can help each other, but [that is] especially [true] in this class. I’ve seen people outside of class and in other classes, I wouldn’t even say hi to people that I saw outside of class, but I saw somebody the other day and I was like, “Oh, they’re in my piano class,” and we said hi to each other. (MgK1p1 10/24/11)

Mark valued the personal relationships he had developed with his peers. He believed peer mentoring “made the relationships of the people in the class closer” (MK1p5 10/20/11). He remarked, “I didn’t know anybody coming into this class, and

already I've developed some relationships with kids in the class that I am happy about. This class gave me the opportunity to meet new people" (MK1p2 10/20/11). Mark explained, "I walked in; I didn't know anybody. Now I know all nine other people in the class, and I'll walk out of class and I'll walk next to two or three of them back on to the main campus" (MK1p2 10/20/11). Mark concluded, "Obviously, friendships have developed out of this class" (MK1p2 10/20/11).

Min, however, described the relationships among classmates as "not very deep, but friendly; like a relationship between acquaintances" (MH1p2 10/18/11). Min thought this was because "you can't really make strong bonds in an hour-and-fifteen-minute class period, but you can just be friendly; be polite and respectful" (MH1p2 10/18/11). Mark characterized the relationships among peers as "more of just a classroom friendship" (MK1p5 10/20/11). Jada agreed that from her "personal experience" the relationships did not extend "past piano" (JV2p2 12/13/11). Both Jelena and Daria remarked that they "felt comfortable" greeting their classmates when they met outside the piano lab, but they "did not seek them out" (JM1p3 10/18/11) (DS1p3 10/20/11). Katia thought she would not ask her classmates "to hang out or anything like that, but if I needed them for something class related, if I couldn't get in touch with you and I missed a class or something to that effect, I would seek them out" (KF1p8 10/24/11).

Katia thought that the social connection among classmates established through peer mentoring could heighten concern for the emotional well-being of peers and possibly hinder mentoring. Katia remarked:

I hope that the person who helped me to understand my mistake felt good about themselves if they realized that they helped me catch the mistake and didn't feel

like, “Oh, God, I hope I didn’t make her feel bad,” because that’s not the truth. You know, thank God they caught it because I needed to find the mistake to make the change. But the thing that I think about—again being the oldest person in the class who’s in their thirties and everybody else is in their teens and their twenties—is, when I was their age, that is how I would have felt. I hope that’s not what they think. (KF1p5 10/24/11)

Jelena noticed that “at first, everyone was a little bit timid because you don’t always want to tell someone when they are doing something wrong or offend them,” but, according to Jelena, “with time, we have gotten more comfortable with each other and it is a little bit easier to help each other and not feel like we are offending each other” (JM1p2 10/18/11).

Although the relationships among peers did not always extend outside the classroom, as students interacted throughout the semester, social connections continued to evolve and to strengthen the supportive, interdependent sense of community in the piano lab. This contributed to student achievement and social affiliation and allowed peers to become comfortable guiding one another.

Efficacy

The participants found they developed an increased personal confidence in their capabilities from the successful sharing of knowledge and skills that occurred during reciprocal mentoring in the piano lab. Classmates shared a belief in their ability to produce valued outcomes both individually and as a group because the ethos in the piano lab was supportive and they experienced collective success.

Min thought reciprocal mentoring helped to free students from the limiting idea of natural talent. He explained, “You don’t need to have natural talent. You can eventually

be good at something. If you teach someone something one way, it doesn't mean they won't get it another way" (MH2p2 12/14/11).

Although somewhat surprised by the difficulty of learning to play the piano, Chas expressed confidence in the progress he had made. He remarked that "it was much more difficult than I thought it would be, but it's good because I honestly didn't think I would have been this far along considering I had never played the piano" (CH1p1 10/20/11). After working with his peers in the piano lab Chas asserted, "Now I feel like I can read a lot of the notes. I'm putting in more effort than I expected to, but it's definitely working" (CH1p1 10/20/11).

Jelena drew confidence from her ability to mentor. She said:

When I was working with Mark, to see that he understood a little bit better what I was trying to show him, that gave me confidence because it showed that I knew a little bit better what I was talking about, enough that he was able to learn from it. (JM1p2 10/18/11)

Jelena believed that what she learned as a mentee would allow her to address her weaknesses and ultimately lead to increased self-confidence. She thought being mentored helped her "to discover where [she] needed help so [she] could increase [her] confidence in those areas" (JM1p2 10/18/11).

Silas gained self-belief from mentoring because it reinforced his own skill set. He said peer mentoring "helps with your confidence when you're teaching someone else because you'll be telling them, 'I do it like this,' and it just helps you be more confident in playing" (SS1p2 10/21/11). Silas thought he also gained confidence from observing a successful peer because it encouraged him to believe he would be able to achieve at the

same level. He said, "It definitely helps just seeing someone else be able to do [things].

It makes it easier for me to be like, 'Oh, I can do it, too'" (SS1p2 10/21/11).

Mary believed reciprocal mentoring helped her personally and also allowed the class to excel as a group. She said:

I definitely could achieve more because of that extra pair of ears listening. You're listening to each other play, and then you are listening to what you did right and wrong and you are listening to what they did right and wrong, and then you can separate and fix based on listening to both yourself and the other person. I felt more confident after listening to both of us. I felt more confident because I had listened to myself and the other person. I like working in different pairs, not fixed, and I like that we start by all playing with the headphones on and just you hearing us and then we can take them off and all play together. I think that we all sound really well together. It sounds so cool when everybody plays together and you play the accompaniment. (MgK1p3-4 10/24/11)

According to Mary, listening to her peers was particularly helpful. She explained:

Min, who I was listening to one day, he was just really good, and just listening to him and listening to how it should be played and what it should sound like and watching him play just helped me. I think listening to anybody would help me. (MgK1p3 10/24/11)

Jada believed her peers developed a collective belief in their ability to produce worthwhile outcomes. She said that peer mentoring "definitely built our confidence as a class. It allowed us to play out loud and allowed us to have everyone play for each other, so I feel like confidence was a major factor" (JV1p4 10/18/11). Jada thought peer mentoring encouraged her to persevere in practicing to overcome technical challenges. She said, "I did find myself at the beginning not wanting to play certain parts. I just wanted to play everything I did really well, but now I do enjoy the challenge. It's a fun challenge that I look forward to" (JV1p4 10/18/11).

Daria believed peer mentoring had an overall positive effect on efficacy. She thought peer mentoring “helped the attitude of the class” because “people feel more positive when you are trying to help instead of someone having a negative attitude because they can’t get a certain piece or they can’t get a certain fingering” (DS1p3 10/20/11). Daria explained, “If someone is helping [a peer], they’re both going to end up being more confident and happy with how they’re playing. Helping each other would, in the end, make everyone have a more positive attitude about playing and mentoring” (DS1p3 10/20/11). According to Daria, learners “feel more confident when [they] have other people or peers supporting [them]” (DS2p1 12/13/11).

Daria thought her personal confidence increased when she mentored a peer. She remarked, “I get more confidence when I am showing someone how to do something. I feel more able to play a piece” (DS1p2 10/20/11). Conversely, Daria’s self-efficacy dropped when she was being mentored. She remarked, “When I am learning something, I feel vulnerable and not up to speed, so I feel less comfortable in what I am doing” (DS1p2 10/20/11). George agreed that confidence could suffer during peer mentoring for “the one being taught” (GJ1p3 10/20/11). He said, “When you don’t know something you kind of feel a little, I guess for lack of a better word, stupid. You feel a little low because you don’t know it and they do and they’re in the same class” (GJ1p3 10/20/11). George continued, “When you do know it and you’re teaching someone else, you feel helpful. You’re in a different position now because now you know something so you can help someone else. I guess it puts you in a different mindset” (GJ1p3 10/20/11).

Despite a possible loss of confidence when assuming the role of mentee, peer mentoring generally increased efficacy for the participants in this study because students were supported by their peers and they could achieve more as part of an interdependent learning group than they could as individuals. Heightened efficacy may have contributed to the participants' confidence in their ability to mentor others without training.

Mentoring without Training

Participants had confidence in their ability to mentor without training. Some participants suggested that it was a simple matter of modeling their approach on what they had observed the teacher do. Mark noted that although mentoring "might have been a little easier for people that are more advanced," everybody could "grasp the concepts" (MK2p2 12/13/11). Mark was confident that peers had "the ability to infer how to do it on their own" in that "you use your mental ability to mentor because you know cold, hard facts: This is what is written. This is what this should be" (MK1p4 10/20/11). Chas suggested that mentoring "is just something that we'll pick up on our own. I don't think we have to be told to help other students" (CH1p2 10/20/11). Mary described her approach to mentoring. She explained:

I would be playing by myself first, so I would know somewhat what it should sound like, and looking at the notes on the paper, you know what keys [the mentee] is playing. So, just watching them, you can tell if they are playing the right key or not, or if you just listen, you can hear if they are playing it right or wrong. (MgK1p3 10/24/11)

Mary believed humans have an innate ability to mentor others. Mary viewed mentoring as helping. She stated:

I think that most people just know how to mentor each other. I guess [training] would have made it a little better, but I don't know. I think that everybody does a

good job of it, of helping each other. I think everybody has some kind of natural instinct for mentoring people. Even if you're not mentoring in a classroom, like younger brothers and sisters, you're helping them with things so you'd be a mentor to them. So I think everybody just kind of has some kind of a natural instinct with helping one another. (MgK1p3 10/24/11)

Katia thought she was able to mentor successfully without training by drawing on her interpersonal skills. According to Katia, she "was able to present things in a positive way, or just be a good overall reinforcement of things that had been pointed out to us before we listened to each other" (KF1p6 10/24/11). Although Katia did not always "give specifics," she was "comfortable going over the basics" and "pointing things out" and took pleasure in her ability to help her peers understand (KF1p6 10/24/11). Katia was relieved that class time was focused on learning to play the piano rather than mentor training. She remarked, "I don't think we have time for that. We have a 15 week class where we only meet for an hour and 15 minutes twice a week and you have a lot to teach us" (KF1p6 10/24/11).

Min modeled his approach on that of the teacher. Min said:

I knew how to mentor through observation. Because the professor [is] teaching, you can observe how the teacher is teaching the students and you can apply that to mentoring. It's very transitive. Of course, you would be better if you had training, but that's just because that is so specialized. It's like, would you be a better accountant if you took accounting over someone who is just really good at math? (MH1p3 10/18/11)

Min asserted that he did not believe in "a natural ability to mentor" and stated that "anything can be taught" (MH1p3 10/18/11).

Although Jada believed mentoring came "naturally," she, too, used the teacher as a model for the process. She explained, "I pretty much did the same thing the professor did when she listened to us play. She would critique us on what we did wrong. I just did

the same thing when we listened to each other play” (JV1p3 10/18/11). Jada did not think that mentor training was necessary. She thought that “the fact that playing and critiquing, that fact that our professor did it for us together, it just came naturally” (JV1p3 10/18/11). Jada didn’t “think anyone had a problem with doing it. [We] understood where we were going, so it was kind of like how to help each other get there” (JV1p3 10/18/11).

Jada did not believe that age, gender, or ability level had a bearing on mentoring without training for this group of peers, but thought ability levels could affect the process if differences were extreme. She stated:

I had help from a female and a male and different age group, as well, and I don’t really feel there was a difference. The fact that we [were] all on a close, similar level of skill, that affected the process. I think if we had a stronger mix of students at different levels of skills on the piano, peer mentoring would be a little different. Being that most of us were close to the same ability level, everyone was more at ease when it came to peer mentoring. If skill levels were different, I feel like, if I was in a class with people who had more skill, I would feel uncomfortable with peer mentoring. I would definitely be grateful to hear someone who was better than me and receive their critiques, but I would have nothing to offer them. I would be intimidated by them. (JV1p4 10/18/11)

Katia thought education and prior experience affected her peers’ ability to mentor without training because her classmates were “younger” and reciprocal mentoring requires a “degree of maturity” (KF1p2 10/24/11). She stated, “We are beginners so we have a little bit of feedback for each other but not too much. We have broad advice to offer but nothing specific. We can just say that sounded good; that sounded off” (KF1p2 10/24/11). Mary agreed that “obviously, if somebody did have more experience, they would have more to say” (MgK2p1 12/14/11). Katia suggested that “those who have more experience and who have more skill should be paired with those who have less skill

and ability so they can help them out. That would be more beneficial to the person who has less skill” (KF1p2 10/24/11). In Katia’s opinion, the “person with more skill can always learn. Maybe listening to somebody else, they can think about their piece and think, ‘I’ve got to remember to go slower at this part’ or ‘I have to make those notes staccato’” (KF1p2 10/24/11).

Several participants suggested it was challenging to mentor a peer who was working on a piece they had not played themselves. Jelena gave the following example:

I worked with Chas for the repertoire. I had a little bit of difficulty with the “Queen’s Harpsichord.” I tried to listen to what he was playing and, if he had any questions (How does this go? How does that go?), I tried to help him with that. But I know for that piece specifically, I might not have been the best mentor because I wasn’t so great at it. (JM2p1 12/13/11)

Jelena was satisfied with her mentoring skills when it came to “the things that I know I know,” but said she was “still a little less confident in teaching things that I’m not too sure about because I don’t want to feel I’m teaching someone the wrong thing or I’m telling them how to do it the wrong way” (JM2p1 12/13/11). Jelena stated, “In that instance, I would like to work together with that person to come up with the best solution” (JM2p1 12/13/11). George similarly asserted “I’m pretty confident in my mentoring skills when I know the material. If I don’t know the material, I’m not confident at all in trying to help someone else” (GJ2p2 12/15/11). Daria said, “I don’t think I would be confident enough to help someone playing a more advanced piece” (DS1p2 10/20/11). Katia thought it would be possible for her to mentor a piece she hadn’t played only if she “had heard it from a tape recorder or [the teacher] had played it first” because she “would need something to compare it to” (KF1p7 10/24/11).

Classmates in the piano lab were able to mentor successfully without training by drawing on their personal resources (conceptual understanding, social skills, and prior mentoring experience) and modeling their approach on that of the teacher. Students were less certain of their ability to mentor a piece they had not played themselves and suggested that reciprocal mentoring might be more difficult if differences in student skill levels were extreme. Classmates were confident in their ability to mentor students of similar facility and “felt good” about helping their peers.

Satisfaction in Helping Others

The participants took great satisfaction in teaching others and experienced a personal sense of achievement in being able to do so. They recognized that their peers might experience the same altruistic sense of satisfaction in teaching them. Katia believed this feeling was universal. She said, “It’s a good feeling to know that you’ve helped somebody else and, if they get it, that’s even better especially if it’s their field of learning or something that they like to do” (KF1p3 10/24/11). In Katia’s opinion, “To know that you’ve helped somebody achieve something is just a really wonderful feeling” (KF1p3 10/24/11). Katia also thought her peers might find satisfaction in helping her. She hoped “that the person who helped me to understand my mistake felt good about themselves if they realized that they helped me catch the mistake” (KF1p5 10/24/11).

Jelena reiterated this sense of satisfaction:

Mark was having a little bit of a problem playing with his hands together. He could play each hand of his repertoire separately, but kind of messed up when he had to play them at the same time. We went over the different parts together and what fingers he had to use and kind of separately practiced the parts—not the hands separately—practiced those two difficult parts again and again—using

repetition. Once he actually got it, I felt pretty good. I was glad that I was actually able to help. (JM1p1 10/18/11)

Chas recognized the personal sense of accomplishment he derived from helping others and the reciprocal satisfaction available to his peers. He remarked, "It always feels good to help somebody else because you have a sense of accomplishment because you are understanding it" (CH1p2 10/20/11). Chas continued, "But I don't feel discouraged when I am asking for help with something I don't get. I imagine the other person has the same feeling when they help me" (CH1p2 10/20/11).

Min found the experience of helping a peer in the piano lab to be inspirational:

I helped Silas with one of his songs, and after that I thought he played really, really well. I think he improved one of the highest. His growth on a graph would be exponential. He improved more drastically. I think he was someone that had no real background with piano or anything. Seeing someone improve that greatly is really inspiring. (MH1p1 10/18/11)

Through the process of peer mentoring, the participants in this study developed supportive interdependent relationships that promoted both individual confidence and collective efficacy among the peer group. Peers were able to mentor others of similar ability level effectively without mentor training and derived great satisfaction from helping one another to succeed.

Summary

The participants in this study benefited from the interactive and participatory character of learning through peer mentoring in the piano lab. As participants developed relationships in the piano lab, nervousness and competitive anxiety were replaced by an ethos of collaboration and support. Peers exhibited a growing sense of comfort and willingness to take risks due to the more relaxed learning environment engendered by

peer mentoring. They expressed a preference for active learning through peer mentoring and referenced the difficulty of maintaining focus for the duration of a traditional lecture.

The participants found peer communication to be effective in advancing their knowledge of how to play the piano, noting that sometimes they could relate more easily to the explanations of their peers than to the language of experts. The participants believed they honed their own understanding by putting concepts into words during the mentoring process. Although the participants had some concerns about the accuracy of peer advice, they were reassured by teacher oversight during the mentoring process. They appreciated the multiple perspectives available to them through interaction with peers and valued the opportunity to manage aspects of their own learning through comparison. The participants generally held a negative view of group learning that does not involve shared authority in the classroom and ongoing dialogue between peers.

The interaction that occurred during reciprocal mentoring strengthened social connections among peers. Even though peer relationships did not always extend outside the piano lab, the participants came to view themselves as a community of learners and to care about the feelings and success of each member of the group. The participants had confidence in their ability to mentor without training, gained both collective and self-efficacy as a result of their successful efforts, and expressed satisfaction in being able to help one another.

CHAPTER 6: DISCUSSION

In this study I sought: (a) to examine reciprocal peer mentoring in a post-secondary piano class for general studies students; (b) to explore the perceptions of both the participants and instructor regarding the impact of reciprocal peer mentoring on knowledge, skills, and dispositions; and (c) to examine the social dimensions of cognitive and technical learning in a collaborative class environment that includes reciprocal peer mentoring. The questions guiding this study focused on how the inclusion of reciprocal peer mentoring in the pedagogical process contributed to the learning environment in a post-secondary introductory piano course; how reciprocal peer mentoring contributed to the sharing of knowledge and skills in a post-secondary introductory piano course; and the perspectives of the students with regard to the process of reciprocal peer mentoring and social interaction.

I chose qualitative inquiry as the methodological approach, case study design, and constructivism as the theoretical lens because of the research questions to be addressed and my own philosophical convictions regarding multiple perspectives of reality and the constructed acquisition of knowledge. Although the experiences and perspectives portrayed in this document are specific to this particular case and not intended to be generalized, through accurate description of the experience for this particular cohort, systematic analysis of an extensive data set, and thoughtful interpretation of themes, I hope to provide insight into how peer mentoring functioned in this piano lab.

As I reflected on the data set, I was able to identify a number of emergent themes relevant to each of the research questions. The inclusion of reciprocal peer mentoring in

the pedagogical process contributed to the learning environment in several ways. Students became actively involved in learning through discovery and collaboration. As students worked together to solve problems and advance their skills, they developed supportive relationships that heightened their level of comfort in the classroom and, in turn, gave them the freedom to take risks without emotional constraint; the students came to view mistakes as a means to learning.

Several themes emerged regarding the contribution of peer mentoring to the sharing of knowledge and skills: the effectiveness of peer-to-peer communication; the educational value of exposure to multiple perspectives; and the thorough level of comprehension acquired through the process of teaching others. Participants specified a preference for collaborative learning in this context, deeming it both more efficient and more effective than other methods; the participants generally held a negative view of both traditional instruction and group learning that does not involve shared authority in the classroom and ongoing dialogue between knowledgeable peers.

Participants held remarkably similar perceptions regarding the effect of peer mentoring on social interaction. Themes included: social awareness; interdependent relationships and social equality; the management benefits of monitoring personal learning through comparison with peers; and successful mentoring of others without direct training. Additionally, peer mentoring contributed to dispositional attitudes such as motivation for learning, empathy, collective and self-efficacy, and pride and personal satisfaction in helping others.

In order to address each of the research questions guiding this study, I begin this

chapter with a discussion of the findings relevant to each question and relate the findings to prior literature and relevant theoretical concepts. I then offer suggestions for integrating reciprocal peer mentoring into professional practice. Next I discuss the implications of this study and provide suggestions for further research. Finally, I offer a summative conclusion.

The Learning Environment

The first question I sought to answer in this study asked what contribution the inclusion of reciprocal peer mentoring in the pedagogical process made to the learning environment in a post-secondary introductory piano course. Whether music educators believe music education is fundamentally about knowing through feeling, knowing through doing, or some integration of both, they share the exclusively human experience of music with their students, its meaning and value, and its consequence in the world in an educational setting that is both physical and social (Reimer, 2003). As educational leaders, our attitudes and choices are one of the determinants of the learning environment.

Hiemstra (1991) defined the learning environment as all of the physical surroundings, psychological or emotional conditions, and social or cultural influences affecting the growth and development of a learner engaged in an educational experience. In autocratic music instruction, the learning process is controlled by the teacher or conductor. It is the teacher or conductor who initiates each learning sequence—typically, by introducing or demonstrating new material, asking for student response, and evaluating whether the response is correct or incorrect. This serves to reinforce the

teacher-centered power structure of the classroom; thus, students control only their level of preparation and their responses (Johnson, 2013).

During the course of this study I sought to create a collaborative learning experience for students that reflected my own beliefs regarding the academic, technical, and social benefits of a holistic education based on constructivist principles. Accordingly, I asked the participants about their interests and abilities and sought to tailor the learning environment to meet both their intellectual and social needs by asking them to share in the learning process and interact with one another. I provided extensive opportunities for learning through discovery in collaboration with peers. Activities included experiences performing alone and together, harmonizing and composing in a variety of musical styles, exposure to theoretical concepts and historical background, and reciprocal listening exercises to stimulate auditory skills. To the greatest extent possible, I wanted students to construct knowledge through a process of discovery and transfer rather than transmission and recitation. I sought to provide a forum where students could discuss and discover new ways to collaborate for themselves (Johnson, 2013). My overarching goal was to enable students to develop their musical understanding and expand their social skill set while refining their abilities.

Active Involvement in the Learning Process

Active involvement in music may be intrinsically reinforcing; unfortunately, music teachers spend approximately 50% of available lesson or rehearsal time talking (Sink, 2002). A music class in which the teacher finds, solves, and reduces all musical problems results in a passive experience for students and they are deprived of the

opportunity to engage critically. Although I did not keep an exact tally of the minutes I spent talking, I sought to speak less and keep the students actively involved in learning during the course of this study.

Weaver and Qi (2005) asserted that students who actively participate in the learning process learn more than those who do not. According to Elliott (1995), this occurs because the relationships among student apprentices play an important role in the development of musical expertise. The formal and informal coaching functions assumed by peers provide mutual reinforcement to both the learning and social unit, and students come to understand the distributed nature of expertise and insight. As participants were given opportunities to share insights and problem-solve during the course of this study, I observed that both learning and social connections among peers were strengthened. Students came to value both the knowledge of their peers and the relationships that formed between classmates.

One frustrating feature of the conventional educational experience may be the prevailing lack of authority or decision-making power granted to learners. In a survey of teaching and learning at the university level, Weaver and Qi (2005) reported that during traditional instruction only 25% of students participate in class discussion and five dominate due to a phenomenon labeled consolidation of responsibility. The findings from this study indicate that reciprocal peer mentoring can break this pattern. Reciprocal peer mentoring allows students to exercise control over their educational experience in a way that the typical hierarchical pedagogical routine does not. In contrast to standard authoritarian protocol, members of a mentoring pair are allowed to make choices related

to the learning process (e.g., pacing, sequencing, adapting) and adjust the process to meet their needs.

As students in this study were given an opportunity to discover and develop knowledge through the collaborative process of reciprocal peer mentoring, learning became a participatory, interactive event that validated student contributions. The participants freely collaborated to unpack the logic behind musical notation, fingering preferences, form, and traditional harmony. For example, during a peer discussion of fingering, students exchanged ideas unreservedly. Classmates considered the merits of each idea and experimented with alternative fingerings. None of the students seemed content to simply memorize the recommended fingering in the text; they wanted to discern the logic behind it and worked together to construct an essential understanding that could be transferred to other chords and keys (11/10/11). Both Mary and Jada suggested that learning this way would enable them to remember concepts over time and to apply them to new situations (MgK1p4 10/24/11; JV2p1 12/13/11).

The participants in this study displayed interest and extended concentration while learning through reciprocal peer mentoring. This aligns with Allsup's (2003) findings that students in mutual learning communities tend to be self-directed and efficient and enjoy long periods of concentration. For example, when mentoring pairs were asked to create note words on staff paper, they began working immediately. None of the pairs asked how long they would have to work or how many words they were required to write; each pair continued to work enthusiastically to create new words until they were asked to stop and share their examples with their classmates (9/26/11).

Throughout the course of the semester, the participants in this study were actively engaged in learning (rather than merely receiving information) and interacted with all members of their learning community. Kelehear and Heid (2002) surmised that active participation increases confidence and openness in both mentors and mentees. The participants in this study gradually became empowered and even those who were initially reticent (in some instances, due to feelings of inferiority) became emboldened to participate and contribute. For example, Jada felt reciprocal peer mentoring helped her to be more comfortable playing out loud (JV1p2 10/18/11). By the end of the semester, she was eager to play her composition and discuss it with her classmates.

Students seem to prefer and benefit from the more meaningful learning environment found in classrooms with an interactive participant structure where students are given an opportunity to share and develop knowledge with their peers (Johnson, 2013). The participants in this study had a strong preference for interactive and participatory learning through the collaborative process of reciprocal peer mentoring. For example, Jada articulated a “definite” preference for this type of learning and pointed out that students have a limited capacity for passive listening (JV1p3 10/18/11). Chas considered a lecture to be needless repetition of material that students could read on their own (CH1p2 10/20/11). Min identified “lack of interaction” as the “problem with appreciation classes” (MH2p2 12/14/11). Katia preferred interactive participatory learning because it was “fun” instead of “rigid” (KF2p3 12/15/11). The participants did not favor learning solely through peer mentoring, however: They preferred teacher-guided learning during the introduction of new material and teacher oversight during

mentoring to ensure accuracy. Mark noted the possibility that students might tell one another “the wrong things” because of their lack of knowledge and experience (MK1p2 10/20/11). Jelena suggested students might feel “distanced” if they were not able to communicate directly with their teacher (JM1p2 10/18/11).

The participants found active learning both more effective (noting the advantage to students with different learning preferences) and more interesting (resulting in heightened student focus and commitment) than traditional teacher-centered instruction. According to Min, there was an additional social-emotional benefit: Isolation could not occur when students were actively involved in the learning process (MH1p2 10/18/11).

A Caring Environment

Noddings (1988) suggested that a caring environment is essential for learning and that the quality of both teacher and peer interaction may be as important for students as academic outcomes. Stader (2001) surmised that in an educational institution, student perception of the learning culture determines student behavior. Trust and respect between students, therefore, is essential—however, “respect and responsibility cannot be imposed” (p. 14).

In this study, reciprocal peer mentoring provided a way to help students learn to support one another, thereby cultivating the respectful and caring learning environment essential to student achievement. Reciprocal peer mentoring provided a safe place for peers to practice before playing aloud or playing for a teacher. Through the process of reciprocal peer mentoring, the participants came together in pursuit of a common goal. As they developed supportive relationships, a caring community of learners was created.

This encouraged student exploration and discovery in pursuit of knowledge, enhanced the quality of the learning experience for the members of the learning community, and reduced fear of failure.

Due to the rigid social hierarchy that is often present in an institutional setting, students may be more anxious to avoid appearing foolish, unskilled, or uninformed than they are motivated to attempt to master a new skill. Music educators may make every effort to balance musical standards with an atmosphere conducive to emotional security, but it is certainly discouraging that, according to Maehr, Pintrich, and Linnenbrink (2002), researchers have found that with the exception of sports, students' expectations that they will do well on tasks in the future decline during the elementary school years, most particularly in instrumental music.

On some level students may discount instructor affirmation—feeling that the teacher supports their efforts and cares about them as a person because they have to—it is an expected part of the job. The concern of a peer mentor may be seen as more genuine and the ensuing trust and feeling of inclusion in the process of the creation of knowledge can create a very positive psychological environment. Peer validation is paramount to students' sense of self-worth. The one-on-one interest and encouragement provided by a peer mentor may simply be of more affective value than confirmation provided by an adult.

The findings of this study support the link documented in the research literature between peer mentoring and a caring learning environment in both general education and music education settings—peer validation contributes to a positive psychological learning

environment (e.g., Ehly & Larsen, 1976; Kelehear & Heid, 2002; Madsen, Smith, & Feeman, Jr., 1988; Webb, 2012). The safe, trusting, inclusive, and supportive learning atmosphere established in the piano lab in the course of this study enhanced the learning experience for this group. For example, Jelena enjoyed the stronger, more personal relationships she developed with her peers and credited peer mentoring with fostering a supportive atmosphere where students were “not afraid to approach each other with questions or to speak up in class” (JM1p2 10/18/11).

This caring learning environment allowed the participants freedom to explore and take risks without fear of failure because they had established caring, supportive relationships with their peers in the classroom. Peers became comfortable exploring, learning, practicing, and critiquing aloud; secure in the nonjudgmental support of their classmates. George believed classmates felt a sense of support because they received help without being judged (GJ2p1 12/15/11). George suggested this would not have occurred if students had “acted with superiority” (GJ1p5 10/20/11). According to Mary, peers were not afraid to make or admit mistakes due to the caring learning environment engendered by reciprocal mentoring; they considered it a means to learning (MgK1p2 10/24/11).

Participants demonstrated sensitivity to the feelings of their peers; they made sure every member of the group was included during class interchanges and provided assistance when a peer was struggling with an answer to ensure that no one was ever embarrassed or humiliated. For example, when George became aware that Chas was having difficulty naming the notes in an F major chord during a class review, he sensed

that Chas might feel uncomfortable in front of his peers. George encouraged Chas to use the keyboard to find the right notes, thereby enabling a grateful Chas to answer the question correctly (11/21/11).

In this study, the collaborative process of reciprocal peer mentoring made a positive contribution to the learning environment in a number of ways. Students became actively involved in learning through interaction with their peers. Active learning heightened student interest and concentration. As students collaborated, they formed supportive relationships, thereby creating the caring learning environment necessary for learning. This encouraged student exploration and discovery in pursuit of knowledge, and reduced fear of failure. The participants used their abilities to observe, analyze, explore and problem solve in collaboration with their peers. They were able to make productive decisions on issues that matter and to exercise control over their educational experience in a way that the typical hierarchical pedagogical routine precludes. As a result, the participants became confident, active, connected learners who demonstrated a commitment to the academic success and emotional well-being of the members of their learning community.

Sharing Knowledge and Skills

The second question I sought to answer in this study asked how reciprocal peer mentoring contributed to the sharing of knowledge and skills in a post-secondary introductory piano course. It has been suggested that an excellent way to learn something is by teaching it or showing it to someone else (Darrow, Gibbs, & Bonner, 2005). The reciprocal learning observed in this study aligned with that maxim. Reciprocal peer

mentoring facilitated the constructive conversation necessary for students to assimilate, articulate, and refine knowledge and skills relevant to playing the piano.

Knowledge in the piano lab encompassed both theoretical and practical understanding. This aligns with Elliot's (1995) stance that "musical understanding" is not distinct from "knowing how to make music well" (p. 68). In Elliott's view, "competent music making depends on a legitimate and complex form of knowledge that partakes of consciousness as a whole: attention, cognition, emotion, intention, and memory" (p. 69). Participants drew on each of these forms of knowing to create or interpret music in the piano lab. Skills in the piano lab consisted of students' learned ability to use musical knowledge effectively in performance at the piano. Elliot argued that knowledge and skill are not separate functions of musical understanding; musicianship is a "multipartite form of working understanding" that encompasses both knowledge and skill because "the procedural essence of music" always involves several forms of thinking (verbal, tacit, technical) and knowing (informal, impressionistic, and supervisory) linked to specific goals, ideas, and values (p. 70).

In this study, whether knowledge (notation, fingering, harmony, auditory understanding, interpretation, comparison, analysis,) or skills (articulation, execution) were involved, student mentors were able to clarify and internalize understandings for themselves while reinforcing the comprehension and skills of the mentee. Knowledge, ideas, and resources were seen to flow in a dynamic exchange with mentor and mentee learning from each other. Following reciprocal peer mentoring, students demonstrated

mastery of concepts and skills they had not been certain about prior to the mentoring session.

The participants called upon multiple cognitive and social skills (including perception, judgment, and empathy) to construct knowledge and internalize understandings. Mentoring pairs approached each learning opportunity in an idiosyncratic manner. Pairs did not collaborate in a uniform way; each pair adapted their approach to correspond to the nature of the task at hand and the preferred learning styles of the participants who were paired together.

Mentoring pairs worked together to eliminate stumbling blocks by communicating, negotiating, and cooperating. Both mentors and mentees gained from the individual and interpersonal learning that occurred. This is consistent with Piaget's hypothesis that children benefit from having to coordinate their thinking with that of their peers (Piaget, 1926; Crook, 1995).

Learning through Teaching Others

Sociolinguistic theorists have proposed the importance of dialogue in social and cognitive development (Froehlich, 2007). Vygotsky (1978) posited that language was directly related to cognitive development, permitting forms of thinking that would otherwise not be possible. Vygotsky viewed inner speech as a tool for problem solving and social communication as necessary to the cultivation of higher-order abstract thought. These concepts are directly relatable to peer mentoring. The necessity for a mentor to put concepts into words (forming clear, linear explanations) has a positive effect on the

mentor's own cognitive understanding and the dialogic support helps to maximize the level of achievement attainable for the mentee.

In this study, the interactive, participatory learning environment associated with the process of peer mentoring encouraged participants to develop ownership of musical knowledge and skills and engage in clarifying dialogue. Participants found value in interacting with one another, aware that they crystallized understanding for themselves through the process of articulating or demonstrating a concept or technique. For example, after George mentored Silas on five-finger patterns on the white keys, both of them were able to play the patterns correctly. George noted that before mentoring Silas he had not been sure about the notes and fingering (10/13/11). Knowledge (theoretical understanding of the structure of the patterns) and technical skill (effective performance of the patterns) advanced for both George and Silas.

Based upon my observations, the participants seemed to enjoy offering their own thoughts and musical ideas as a means to assist their peers and to appreciate the insightful comments offered to them by their peers. They expressed respect for the knowledge and feedback of peers as well as that of the teacher. For example, a grateful Katia recognized that peer feedback had "saved" her from making a positioning mistake on her repertoire for the first benchmark and believed that she had "gained a lot of knowledge [she could] take forward" as a result of working with her peers (KF2p3 12/15/11).

In this study, the shared knowledge of the participants served as a resource; classmates assumed authority to make decisions about which musical objectives needed immediate attention (Johnson, 2013). For example, in one session Mary and Daria

collaborated to create five-finger patterns using a whole, whole, half, whole step pattern. Initially, they referred to the grid in the book, but because they were unsure about one note, they put on their headphones to check whether or not the answer sounded correct (10/10/11).

Participants considered reciprocal peer mentoring to be advantageous for students with different learning styles. Jelena noted that when students worked together one-to-one during reciprocal peer mentoring, they could personalize the learning experience to meet their individual needs (JM1p1 10/18/11). Jelena referenced the impossibility of reaching the strengths of diverse learners through lecture alone (JM1p2 10/18/11).

The participants believed individual and group progress was facilitated effectively and efficiently through reciprocal peer mentoring. This aligns with the finding of Person, Kreuz, Zwaan, and Graesser (1995), who discovered that peer mentoring is more effective in developing musical understanding and skill than traditional classroom instruction even though mentors typically are not highly trained. Although the participants in this study did not all progress in the same way or reach the same level of understanding or performance, every one of the participants expressed a high level of satisfaction at both their individual attainment and the progress of the group as a result of reciprocal peer mentoring over the course of the semester (e.g., KF2p1 12/15/11; MH2p1 12/14/11; CH2p1 12/19/11). Further, an outside observer commented on the extraordinarily high level of interest and preparation displayed by this group (10/17/11).

Language and Dialogue in Cognitive Development

Wittgenstein reasoned that language delimits the mind because all we know is what we have words for (Hintikka, 1958). Building on the ideas of Wittgenstein, Bruffee (1999) reasoned that if “knowledge is a language game,” a social construct continually invented and reinvented, give-and-take communication is a driving force in learning (p. 117).

Piaget (1926) theorized that language can aid cognitive development. When students have to reconcile their thinking with that of their peers through the process of equilibration, their cognitive ability reaches a higher level (Piaget, 1926; Crook, 1995). According to Vygotsky (1978), cognitive development is promoted through social interaction. Developmental processes are able to operate only when a student is “interacting with people in his environment and in cooperation with his peers” (p. 90). “Good learning” should aim to advance development to the next level by providing opportunities for learners to problem solve under adult guidance or in collaboration with more capable peers (p. 89).

The theories of Piaget and Vygotsky share an emphasis on the importance of peer communication in cognitive development (Rogoff, 1990) and are, then, directly relatable to reciprocal peer mentoring. As peers work together to construct knowledge, it is necessary to discuss concepts. This verbalization has a positive effect on cognitive understanding for both members of the mentoring pair. Rogoff suggested, however, that there is an essential difference between the theories of Piaget and Vygotsky in the conception of intersubjectivity—the mutual understanding that is achieved between

people in communication. According to Piaget, peers use “back-and-forth discussion” to advance individual development; for Vygotsky, “shared thinking provides the opportunity to participate in a joint decision-making process from which [individuals] may appropriate what they contribute for later use” (p. 149).

Rogoff (1990) conjectured that the ideas of Piaget and Vygotsky may intersect during the process of peer mentoring: The resolution of a cognitive conflict may be necessary to achieve a shift in perspective (discarding an existing belief to consider one that is different) and interaction may be “necessary to provide practice in skills and access to information required to become proficient with culturally developed tools for thinking” (p. 141).

As implemented in this study, reciprocal peer mentoring always involved peer communication but did not always involve problem solving in collaboration with a more capable peer (the zone of proximal development). In some cases, participants collaborated with a peer of equal knowledge and expertise; in other cases, one peer may have been more knowledgeable or proficient. In both circumstances, however, peers had to communicate accurately, reconcile ideas, and reciprocate feedback. Learning was facilitated whether participants interacted with peers of equal knowledge and proficiency or with more expert partners. This aligns with Johnson’s (2013) observation that peer interaction promotes learning whether mentoring pairs are symmetrical (peers of equal status) or asymmetrical (a learner interacting with a more knowledgeable other).

I did not attempt to measure any cognitive functioning or measure any development in this study. The participants were given ongoing *opportunities* to

construct knowledge and refine skills through social interaction with their peers. Participants broadened their understanding through conversation with their peers because the language of peers was immediately accessible to them. As Jelena pointed out, it was sometimes easier for the participants to understand an explanation from a peer with the same perspective than from the teacher (JM1p1 10/18/11). Additionally, the reciprocal mentoring process required the students to manipulate new vocabulary and reconcile their conversations with one another, thus propelling them to clarify and internalize concepts and to develop and refine skills. According to Mark, this occurred due to ongoing feedback, discussion, and critique (MK1p3 10/20/11). For example, when Katia and Jada worked together to create five-finger patterns in major keys, Katia approached the task in terms of whole and half steps but was unsure about note names. Her partner, Jada, gave precedence to sequencing the letters of the alphabet. As they reconciled their ideas through discussion, they developed a more comprehensive understanding and successfully completed the task.

Peer Awareness of Strengths and Needs

Because of the closed physical environment of the typical classroom, students observe their classmates recurrently and have the opportunity to become aware of the strengths and weaknesses of their peers. Darrow, Gibbs, and Bonner (2005) suggested that peers may be more aware than their teachers of what their fellow students do and do not understand and better able to focus on problems in relevant ways. In this study, for example, Daria was aware that Katia struggled with hand position and fingerings and helped her to find the correct placement for a repertoire piece (DS1p2 10/20/11).

Darrow, Gibbs, and Bonner (2005) surmised that successful outcomes in terms of heightened cognitive comprehension for students engaged in peer mentoring may be due to such peer awareness.

The participants in this study were not only aware of the strengths and weaknesses of their classmates, as a result of the interdependent relationships developed through reciprocal peer mentoring, they were invested in the success of each member of the group and eager and able to meet the academic, technical, and social needs of their peers by discussing or modeling concepts and techniques and providing praise and encouragement as they deemed appropriate. In one instance, Jada saw that Chas was struggling with the chromatic scale and, without being asked, leaned over to help him. Jada described how she was able to figure it out and then focused on Chas to see what he was doing and to help him “fix whatever [he] was doing wrong” (CH1p1 10/20/11).

Peer Modeling

Sawyer (2001) noted the social value of a “living example” in crystallizing learner aspirations and encouraging growth. Students may be intimidated, however, by the musical abilities of their teachers. Ehly and Larsen (1976) noted that students who thought that the facility of a particular teacher was far beyond what they could hope to achieve were more apt to believe goals were attainable when they observed a successful peer.

Participants in this study found that interacting with their peers reduced their level of intimidation. The greater informality of peer interaction and perceived equality of status among peers increased the students’ sense of comfort and, as they observed the

successes of their peers, heightened self-belief in what they could achieve. Silas found that observing a successful peer helped him to believe he could achieve the same outcome. According to Silas, hearing one of his peers play a piece made him believe that he could do it, too (SS1p2 10/21/11).

Collaboration, but Not Group Work

The participants in this study enjoyed and valued both collaborative learning and reciprocal peer mentoring in the piano lab. They recognized that reciprocal peer mentoring combined the strengths of group work with one-on-one support and instruction and appreciated the opportunity to have a peer directly meet their needs (e.g., MH1p3 10/18/11; JM1p1 10/18/11). They did not favor collaboration to the exclusion of individual practice time, however. For example, Daria stated that she preferred to practice alone before working with a peer so that she was prepared (DS1p2 10/20/11).

Many of the participants in this study expressed a negative view of group work, which they perceived to be both awkward in situations where a collaborative task is assigned and peers have not been given the opportunity to form ongoing relationships, and ineffective in changing the dynamics of the learning environment over time. According to George, peers commonly return to a state of isolation subsequent to the completion of an assigned group project because compartmentalized group work does not necessarily change the dynamics in a class (GJ1p2 10/20/11). George noted that in several classes where he had worked with peers on an assigned group project, students were primarily focused on getting a good grade. Once the project was completed, the sense of camaraderie evaporated and the atmosphere reverted to “regular” (GJ1p2

10/20/11). While group work involves peer interaction, unlike reciprocal peer mentoring, it may not involve one-to-one helping relationships. Based upon the findings of this study, when peers believe they have the ability to help one another, they are more likely to form the interdependent connections that allow them to successfully engage in collaborative learning.

Another important difference between ongoing collaboration and segmented group work may lie in the locus of authority (Bruffee, 1999). Evidence of shared authority among peers in the piano lab was demonstrated by student initiative; participants suggested activities for the group and, of their own volition, altered the parameters of some group activities to better meet the needs of the group. For example, Mary asked me to create an accompaniment to support solo student performances as they played aloud for one another. After mentoring pairs had created a series of rhythms and written them on the board, Silas erased the counts written below. He suggested it would be better for the group to figure out the counting of each rhythm rather than to simply read it and tap it as presented. Participants showed markedly less enthusiasm for a particular peer learning exercise that did not involve collaborating to reach a goal. For example, during one class session, participants worked in mentoring pairs to edit rhythms that had been created individually prior to class. Peer interactions were muted; the students displayed little interest or enjoyment. In this activity peers acted as evaluators rather than collaborators. The activity, while shared, may have seemed to be mere group work to the participants—the equivalent of exchanging papers for grading purposes

rather than an opportunity to construct knowledge and share authority and dialogue among peers.

Common Goals

When students share a common goal, they are motivated to work together—an essential skill for any member of a musical ensemble (Johnson, 2013). The teamwork concomitant with reciprocal peer mentoring created a sense of solidarity and camaraderie among the participants in this study that was evident in their verbal exchanges and attentiveness to each other's needs. In one instance, knowing that Chas had been absent for the mentoring session on five-finger patterns, Jada quietly explained what he had missed and demonstrated fingerings, even offering a pencil for him to fill in the patterns on the grid in the text (10/13/11).

According to Daria, classmates viewed themselves as collaborators trying to get to the same goals and wanted each member of the group to experience success (DS1p3 10/20/11). Because the goals of the mentor and mentee were the same, peers worked together to gain understanding and hone technical skills. For example, on several occasions participants took the initiative to share the rough outlines of their compositions and offer feedback and words of encouragement to one another (12/8/11; 12/12/11). This contrasts with the oppositional struggle often underlying conventional educational configurations. The competition for grades or privileges seems to distract some students and divert their focus from learning to grading or scoring (McInerney, 2005). Peers may be viewed as rivals, particularly, as Min noted, when students are graded on a “bell curve which directly forces you to compete against your classmates” (MH1p2 10/18/11). As a

result, students may be encouraged to hoard knowledge and to concentrate on superficial goals and rewards without regard for understanding and process.

Reciprocal peer mentoring contributed to the sharing of knowledge and skills in this post-secondary introductory piano course in a number of positive ways. Reciprocal peer mentoring: facilitated the constructive conversation necessary for students to assimilate, articulate, and refine knowledge and skills relevant to playing the piano; allowed students to use their understanding of classmates' strengths and needs to help one another in a relevant way during reciprocal mentoring; heightened self-belief; and encouraged students to work together in pursuit of common goals.

Social Interaction

The third question I sought to answer in this study asked what the perspectives of the students were with regard to the process of reciprocal peer mentoring and social interaction. Sociological researchers assert the importance of the social and emotional domains as major factors of the educational experience (Froehlich, 2007). In order to provide students with an educational experience that will allow them to excel and contribute to their fullest potential, their social needs must be addressed (Paul & Ballantine, 2002). This suggests a need for educators to broaden their frame of reference to consider the parallel social and emotional learning that occurs in tandem with disciplinary instruction and the implications in terms of lifelong import on student identity. The ensemble and classroom experience should be one that is positive both musically and socially for all students. For this to occur, students need opportunities to

connect to their peers and to learn to work together on meaningful activities of value (Johnson, 2013).

The social learning nurtured by reciprocal peer mentoring can have far-reaching beneficial effects for students. As students become empowered collaborative learners, the traditional hierarchical classroom structure is gradually replaced with “negotiated relationships among students and a negotiated relationship between those student communities and the teacher,” effectively shifting classroom authority from the teacher to student groups (Bruffee, 1995, p. 17). This shift in authority, important to students both in terms of self-efficacy and decision-making skills, may be equally valuable for a less obvious reason. Education, and, by extension, pedagogical approaches and curriculum choices, transmit values on more than one level. Every time teaching occurs, a message is sent regarding not only the specifics of the subject matter and process, but also about what was chosen, why, and by whom it is considered significant (Apple, 2000). If knowledge is not neutral, then, educators influence much more than the construction of knowledge targeted by the curriculum. Consequently, educators have a responsibility to make legitimate and truthful pedagogical choices and to consider ethical perspectives and the social development of students in conjunction with and of equal weight to other educational concerns.

The positive academic, technical, and social results for students in this study speak to the self-actualizing power of constructivist and holistic ideals and may contradict two of the prevailing paradigms in the literature on peer mentoring in music education settings: teacher determination of a fixed role for each student for the duration

of the process, typically manifest in having students considered to be superior in some way serve as mentors to those considered to be in need of help; and the necessity of mentor training for students and extensive management and oversight of the process on the part of the music educator.

In the first instance, students who are classified as mentees may experience lower self-esteem and become discouraged about their prospects of learning and achieving on an equal plane with their peers. Bruffee (1999) emphasized that the term peer “refers to an equal, not a superior” and argued that although peers are “never absolutely equal in ability, knowledge, and expertise,” the effect of peer mentoring depends on the degree to which students “believe that they both bring an important measure of ability, expertise, and information to the encounter” (p. 95). In the second instance, when teachers dictate roles or rules about mentoring, students may interpret the overbearing imposition of teacher authority as a lack of trust and experience a loss of confidence that results in lowered expectation of achievement. According to Bruffee, direct intervention by teachers can compromise the peership required for successful mentoring. In this study, reciprocal mentoring based on holistic and constructivist principles in which the teacher served a supportive rather than authoritative role eliminated both of these negative issues. Mentoring activity was shared between peers and each member of the pair contributed to the learning experience of the other. The participants found that reciprocal mentoring fostered a perception of equality among peers even when levels of achievement differed. A productive culture prevailed because students with varying skill levels discovered they

were able to help one another; the participants came to realize that, no matter the level of achievement, “everyone has room for improvement” (JV1p3 10/18/11).

Social Awareness as Part of the Learning Process

Peer mentoring can foster social awareness: the ability to understand what others are thinking and feeling and the capacity to interact positively with others (Weissberg & O’Brien, 2004). The participants in this study demonstrated sensitivity to the feelings of their peers and a commitment to positive interaction. For example, when one classmate struggled to play a passage aloud during a class performance, peers offered both advice and encouragement (10/27/11).

Peer mentoring requires student mentors to focus on someone other than themselves. The motivation to do so is inherent in the process—a result of attending to another person’s progress and well-being. Sawyer (2001) found that adolescent males who were initially paid to mentor elementary students became committed not only to “teaching” and “helping,” they also came to care about the emotional well-being of their mentees to such an extent that the monetary incentive was no longer important (p. 52). Sawyer noted that mentors often give personalized attention to mentees who are distressed and choose to provide emotional support. Such psychosocial functions may be prioritized during peer mentoring when, as was the case in this study, peer mentoring transpires between persons of similar age and hierarchy level (Leidenfrost, Strassnig, Schabmann, Spiel, & Carbon, 2011).

The process of reciprocal peer mentoring nurtures the formation of relationships. Social awareness is enhanced as strong communal bonds are formed (Sawyer, 2001). As

a result of the strong, interdependent relationships that developed among the participants in this study, classmates took responsibility not only for their own learning, but demonstrated awareness of and concern for the progress of their peers as well. Peers provided extra support to those who had been absent or were struggling with a concept in order to ensure that no one failed to progress. Chas noted that peer awareness allowed students of different abilities to work together successfully during reciprocal peer mentoring because mentors were careful to “go at a pace so that we’re not losing anybody” (CH1p2 10/20/11). According to Mark, peers did not want to see anybody perform poorly; they helped each other to ensure that no one was left behind (MK2p1 12/13/11).

Interdependent Relationships and Social Equality

Both Lewin (1948) and Deutsch (1949) suggested that social interdependence results from mutual goals. When a sense of teamwork among students can be established through the use of reciprocal peer mentoring, the goals of the mentor and mentee can be the same creating positive social interdependence. In this study, ongoing peer interaction cultivated a sense of teamwork; peers viewed themselves as collaborators trying to get to the same goals (DS1p3 10/20/11). Peers were disposed to work together to eliminate stumbling blocks by communicating, negotiating, and cooperating (Weissberg & O’Brien, 2004). Cognitive, affective, and structural processes intersected (Sawyer, 2001), and both mentors and mentees benefited from the individual and interpersonal learning that occurred.

The interdependent relationships that are created through the process of reciprocal peer mentoring involve peers in one another's social development. Students make connections and learn to support one another (Stader, 2001). The participants in this study demonstrated the characteristics of positive social interdependence described by Johnson and Johnson (2009). Participants reported feelings of individual accountability for their own preparation in order to facilitate the work of other group members. Participants encouraged each other's efforts to accomplish the group's goals, employed appropriate interpersonal and small group social skills as they engaged in collaborative learning, and reflected on and modified their actions to further mutual goals. During the course of this study, participants developed such strong interdependent relationships that peers could "talk to anyone, ask for help from anyone, and help anyone" in the class (SS1p1 10/21/11). Weissberg and O'Brien (2004) suggested that the relationships that develop from such strengthened peer connections may have a positive effect for students that transfers to ethical values in daily life.

Bentz and Fuchs (1996) found that students analyze their own needs and offer and request help more often when a teacher is not directly present. Students may feel more comfortable questioning a peer rather than speaking up in front of an entire class, and discourse is more natural between peers (Kelehear & Heid, 2002). As the participants in this study developed supportive interdependent relationships, insecurity and embarrassment were reduced. Students became more assured and a perception of equality and unity formed within the group. Jada suggested that when students "are helping each other, everyone feels like equals" (JV1p3 10/18/11). When mentoring

relationships are reciprocal rather than unidirectional, then, students may perceive “that they both bring an important measure of ability, expertise, and information to the encounter” despite the fact that “students are never absolutely equal in ability, knowledge, and expertise” (Bruffee, 1999, p. 95). Although the participants in this study did not all progress in the same way or reach the same level of understanding or performance, this perception of equality allowed the students to talk to one another as equals and to complement one another’s strengths and limitations (Bruffee, 1999).

During reciprocal peer mentoring, students are purposefully involved in interactive problem-solving tasks. As the participants in this study recognized that classmates of differing backgrounds and ability levels not only were able to reciprocate help but readily chose to support one another in pursuit of a common goal, interdependent relationships formed. Peers viewed themselves as equals and became concerned with the progress and emotional well-being of their peers. Students began to compare their own ability level to that of their peers in a productive and motivational way. According to Silas, the perception of equality and unity “rallied everyone to try to do better” and “encouraged them to practice more” (SS1p2 10/21/11).

Reciprocal Roles

The participants in this study assumed reciprocal roles readily and effectively when I asked them to help one another or work together. Reciprocal mentoring was integrated as a routine part of the mentoring process from the outset; classmates were not assigned to rigid roles as either mentor or mentee. Participants mentored a peer and were mentored by that peer during each mentoring session and had an opportunity to interact

with all of their classmates throughout the course of the semester. This seemed to foster group coherence, unity of purpose, and a sense of mutual responsibility to an even greater extent than conventional fixed-pair mentoring. Mary noted that it did not matter who worked with whom in a particular mentoring session; no one was judgmental and everyone was equally willing to help (MgK1p2 10/24/11).

Similar to the findings of Sawyer (2001), the participants in this study viewed mentoring as teaching or helping. The participants did not solely take turns as the teacher or helper, however, they engaged in a mutually beneficial exchange during reciprocal peer mentoring. Roles were fluid with both mentor and mentee contributing to the learning experience. For example, Silas noted that when he made a mistake demonstrating a passage or exercise while serving as mentor, the mentee would notice and question it and they would both learn from the resulting discussion (SS2p1 12/12/11).

Elliott (1995) argued that students reap long-term benefits as a result of experiencing multiple roles while solving musical problems, in part, because they have opportunities to think critically, interdependently, and creatively. The participants in this study found value in both roles, discovering that they developed understanding when they mentored others as well as when they were mentored. For example, Daria recognized that the more she discussed concepts with others, the better she understood them (DS2p1 12/13/11).

None of the participants thought that age or gender had any bearing on their ability to mentor or be mentored, but some believed ability levels could affect the process. Jada suggested that less proficient students might be intimidated by highly

skilled peers during reciprocal mentoring and “feel that they had nothing to offer” (JV1p4 10/18/11). Daria and Katia thought that the limited experience and knowledge of peers at a beginning level might hinder their ability to mentor one another during reciprocal peer mentoring (DS1p3 10/20/11; (KF1p5 10/24/11), and Mark noted the possibility that students might tell one another “the wrong things” because of their lack of knowledge and experience (MK1p2 10/20/11).

Self-Management Skills

Self-management skills are essential to student success in and outside of school. When students are encouraged to exercise their abilities to observe, analyze, explore and problem solve in collaboration with their peers and make productive decisions on issues that matter, not only are these skills strengthened through practice, students feel respected and empowered and tend to respond positively. In this study, the collaborative process of reciprocal peer mentoring allowed students to become confident, active, connected learners who managed their own learning and demonstrated a commitment to the academic success and emotional well-being of the members of their learning community.

The participants in this study demonstrated an awareness of time management in each mentoring session by negotiating roles quickly and beginning to work promptly, generally choosing to have the more experienced peer serve first as mentor. Mentoring pairs apportioned the time available to ensure each member received the help needed and mutually agreed on the duration of time necessary to complete the task at hand.

Participants demonstrated effective instructional decision-making and dedication to the task at hand. For example, while engaged in a difficult auditory exercise, peers

focused on honing the targeted skill without trying to circumvent the process by looking at the placement of their classmate's fingers on the keyboard for a visual cue. The students concentrated on improving their ability to hear melodic and harmonic intervals rather than on getting the correct answer.

Scott (2012) suggested that when students are actively involved in instruction and assessment is used to help them learn rather than to assign a grade or ranking, students become "increasingly adept at assessing their own work and using the feedback to improve their performance" (p. 33). The participants in this study used evidence of their current progress to manage and adjust their own learning, thereby providing them with an opportunity to hone a skill with important lifelong benefits.

Participants were eager to work with their peers in order to compare their own level of understanding and skill with that of others in the learning community. They used the information gathered during peer mentoring to manage their own study and practice time. This occurred in two ways: Participants were motivated to excel by the progress of their peers, and they chose to spend more individual preparation time when necessary to keep pace with the group. No one wanted to slow the progress of the group. For example, Daria altered her routine to "practice more and play a piece more" in order to progress at the same rate as her peers (DS1p2 10/20/11).

The participants recognized the limited value of feedback confined to "right" or "wrong." As George noted, "right is not an explanation" (GJ2p2 12/15/11). The participants preferred to promote learning through dialogue and demonstration. Participants were attentive to their level of preparation, not solely in self-interest, but

because they wanted to be able to provide accurate and effective feedback to their peers. For example, Silas tried to “practice a lot more” so he could “help others out” (SS1p2 10/21/11). Participants stated that they would not be comfortable mentoring another student without having a firm understanding of the necessary concepts and skills themselves and they demonstrated a high level of commitment to the individual groundwork necessary to make this happen.

The following model illustrates:

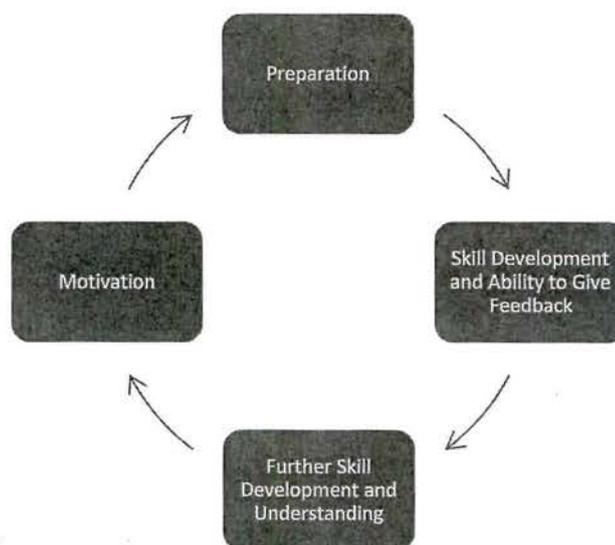


FIGURE 1: Self-Management of Study and Practice Time

Mentoring without Training

A majority of researchers who have studied peer mentoring have suggested that students are incapable of working in mentoring pairs without preliminary training. Mentor training is a consistent theme in the literature on peer-assisted learning in music education (Webb, 2012). For example, Sheldon (2001) stated that students “need specific instruction on how to approach” peer teaching and recommended isolating components of

instruction and breaking them down into “sequential, teachable segments” for the mentor (p. 36). Darrow, Gibbs, and Bonner (2005) used explanation, modeling, practice with feedback, demonstration, and role playing to train student mentors. Despite the fact that the participants in this study received no formal mentor training, when peer mentoring was introduced they asked no questions about how to begin the process and showed no hesitation in working together. Confident in their ability to mentor and unfazed by differences in age, gender, or ability level, participants drew on instinct, teacher modeling, and past mentoring experience in and outside of school. Rogoff (1990) suggested there may be an inborn human potential for social communication through taking turns and attending to others’ intentions. According to Rogoff, although cognitive processes and development vary in social context, “universals of cognition and development are based on universals of human cultural and biological heritage which cannot be disassociated. They have evolved together over the history of our species” (p. 139). Lebler (2008) posited that students’ prior experience with self-directed student learning as it occurs outside of the school setting prepares them for learning through peer mentoring.

When participants were asked to coach their peers on a repertoire piece, the mentors called upon multiple social and conceptual skills to aid them in the task: empathy, judgment, reading ability; auditory memory; and inner hearing. Although some participants suggested students with greater understanding and skill might be more effective as mentors than those who are learning something new together, all the participants believed they were able to provide valuable feedback in terms of technique

(fingering, posture, hand position and shape), accuracy of notes and rhythm, articulation and phrasing, and musicality (tempo, dynamics, flow, expressiveness), even when they themselves did not have technical mastery of the piece in question. They attributed this in part to the character of music itself—flexible and open to multiple interpretations.

According to Min, peers had the ability to contribute a distinct musical perspective even when they were less experienced (MH2p1 12/14/11). The participants were less confident about their ability to mentor a piece that they had not mastered themselves and thought they might have more to offer if they heard the piece first. For example, Katia believed that if she listened to a recording or heard the teacher play a particular piece before she worked with a peer so that she had “something to compare to,” she would be able to provide better feedback than if she just looked at the music (KF1p7.10/24/11).

The perspectives of the participants in this study concurred with regard to the process of reciprocal peer mentoring and social interaction. Participants indicated that reciprocal peer mentoring: fostered the creation of supportive relationships; heightened social awareness among classmates that, in turn, engendered a commitment to the social well-being of others; and contributed to positive self-management skills.

The participants believed they were capable of mentoring their peers without training and indicated that reciprocal peer mentoring fostered a sense of equality that fixed pair mentoring could not. These findings contradict two of the prevailing paradigms in the literature on peer mentoring in music education settings: the necessity of mentor training for students and extensive management and oversight of the process on the part of the music educator, and teacher determination of a fixed role for each student

for the duration of the process (e.g., Alexander & Dorow, 1983; Baker, 2008; Sheldon, 2001; Webb, 2012).

Dispositional Attitudes

Scott (2012) suggested that providing students with learning opportunities that give them a chance to take risks without reprisals in the form of grades can contribute to student success and may lead to enhanced self-esteem and increased positive attitudes toward learning. Bluestein (2010) contended there might be common attributes or dispositions students should internalize as part of the educational process. These might include respect for others, the ability to collaborate to achieve a goal, an ability to self-regulate, tolerance for ambiguity, persistence in meeting demanding challenges, an ability to problem solve, and the capability to self-assess and respond to feedback. Peer mentoring offers a way to strengthen these desired dispositions by providing an opportunity for social (as well as cognitive and technical) skills to develop through interaction with a diverse group of peers. Johnson (2013) posited that student interaction ought to be reciprocal “so that the conversation cannot be dominated by one person” (p. 52). Reciprocal mentoring was observed to provide validation for the participants in this study and strengthen feelings of satisfaction, equality, and efficacy.

Motivation for Learning

The successful academic, technical, and social outcomes for the participants in this study may be attributable in part to the intrinsic motivation inherent in the process of interactive, unscripted peer mentoring. Students have a natural tendency to be internally motivated when learning goals are personally relevant and meaningful and when they

perceive that they have some personal control over their learning (McInerney, 2005).

Intrinsic motivation, internal interest or enjoyment in a task, springs from two motivators: a desire to improve personal performance, and personal satisfaction in solving problems in order to gain understanding. Research indicates that intrinsic motivation can be nurtured through active involvement in learning through collaborative work among supportive peers that provides immediate feedback (McInerney, 2005).

Curiosity is another major element of intrinsic motivation (McInerney, 2005).

When information is dispensed, students' desire to discover and learn is reduced. This may be one of the reasons the participants in this study held such a positive view of learning through peer mentoring and expressed a strong dislike for the exclusive use of the lecture format. Students may place a higher value on discovering what they want to know than on listening to what someone wants to tell them. When students are allowed to explore and discover in order to construct enduring understandings that are transferable to other situations, they seem to find the process inherently satisfying. Tellingly, all of the participants in this study expressed an ongoing interest in learning to play the piano. For example, both Katia and Daria stated a desire to continue playing the piano after graduation (KF2p3 12/15/11; DS2p1 12/13/11). Jelena spoke of her interest in taking another piano course (JM2p2 12/13/11), and Silas enrolled in and completed the next piano course in the sequence.

Diversity and Empathy

The actual results of educational practice can be skewed by unintended factors such as the autocratic nature of traditional instruction and the powerful influence of the

hidden curriculum. While current institutional practice may prioritize a functionalist view of efficiency, students ought to have an equal opportunity to share in a democratic educational experience that affirms them as individuals and as contributors to the greater heterogeneous culture (Apple, 2000). In the holistic view, education ought to address the many factors that affect social and intellectual development: the dichotomous nature of each student's search for identity (needing to be part of a social group while establishing a unique self-identity), ethnic background, gender, social class, economic level, and linguistic socialization, for example. In sharing authority equally and providing each student with a respected voice, reciprocal peer mentoring can counteract negative elements that may be present in some educational contexts and may increase feelings of self-worth.

The participants in this study came from disparate backgrounds and possessed various levels of experience, yet expressed confidence in the equality of the group. They agreed that age and gender had no bearing on the process of peer mentoring. They also believed the diversity of the group added value to the learning experience, particularly in terms of the multiple perspectives available to each of them. For example, Katia enjoyed interacting with the many "different personalities" of her peers, and Min suggested that students learn better when exposed to other views (KF2p3 12/15/11; MH2p1 12/14/11).

Further, the participants demonstrated a sense of empathy. For example, during a class review the participants made sure to include every member of the group and quickly intervened to help one another when someone was unsure of an answer (10/13/11). This aligns with the findings of Kelehear and Heid (2002), who discovered that during

mentoring, caring relationships become primary, and Sawyer (2001), who found that adolescent mentors exhibited extraordinary dedication and empathy and a concern for the emotional well-being of their elementary mentees.

Interestingly, supportive relationships formed among the participants in this study despite the fact that, in many cases, interaction among classmates did not extend to social contact outside the piano lab. Min suggested outside interaction might not have occurred because students could not “really make strong bonds in an hour-and-fifteen-minute class period” (MH1p2 10/18/11).

Efficacy

Within a framework of social learning theory, Bandura (1977) posited that “cognitive events are induced and altered most readily by experiences of mastery arising from successful performance” (p. 79). When individuals are able to attain objectives, perceptions of personal effectiveness (efficacy) are strengthened. Efficacy determines the amount of active effort individuals “will expend and how long they will persist in the face of obstacles” to achieve a goal (Bandura, 1977, p. 80). An efficacy expectation is “the conviction that one can successfully execute the behavior required to produce [a given] outcome” (Bandura, 1977, p. 79). According to Bandura, efficacy expectations are “based on several sources of information: performance accomplishments, vicarious experience, verbal persuasion, and emotional arousal” (p. 81). When students are actively engaged in learning through reciprocal peer mentoring, efficacy can be strengthened through each of these means: During reciprocal peer mentoring, students help one another improve performance; seeing peers perform well heightens students’

expectancy that they will eventually succeed if they persist in their efforts; peers provide verbal support and encouragement for one another during reciprocal peer mentoring; and the collaborative learning environment eases nervous tension.

McPherson and McCormick (2000) found self-efficacy to be an important predictor of both current achievement in musical performance and future success. Kelehear and Heid (2002) suggested efficacy will be heightened in a setting where the group ethos is supportive. With reciprocal peer mentoring, social and emotional reinforcement become an integral part of the learning process. The sympathetic culture engendered by peer mentoring nurtures self-belief. As Daria suggested, this may occur because students “feel more confident when [they] have peers supporting [them]” (DS2p1 12/13/11). Additionally, students gain efficacy when they feel that the teacher believes they are capable. In the students’ view, teacher initiation of peer mentoring demonstrates confidence in both the students’ understanding of the material and their ability to teach their peers (McInerney, 2005).

During this study, both self and collective efficacy were enhanced as participants experienced both individual and group success as they played alone and together. Participants gained confidence when they found they were able to discuss concepts with their classmates or help them improve skills. In one instance, Jelena helped Mark to overcome coordination difficulties between his right and left hands as he prepared a repertoire piece. She “felt pretty good” about his success and found it gave her confidence to see that he was able to understand as a result of her explanation and demonstration (JM1p2 10/18/11). The participants acknowledged that efficacy could

suffer during reciprocal mentoring, however. Daria noted that she sometimes felt “vulnerable” when she was being mentored (DS1p2 10/20/11). George suggested students may feel “slow” when they don’t know something that others in the class do know (GJ1p3 10/20/11). Nevertheless, both Daria and George believed reciprocal mentoring ultimately had a positive effect on efficacy. George noted that when students know something and can help someone else, it contributes to a more positive “mindset” (GJ1p3 10/20/11). Daria agreed that “in the end [students had] a more positive attitude about playing and mentoring” because they were able to help one another (DS1p3 10/20/11).

The participants in this study took pride in their ability to analyze both the academic and social needs of their classmates and respond effectively. The participants found satisfaction in their individual progress as well as that of the group, knowing that, through the process of peer mentoring, each of them had made a worthwhile contribution to the progress of this community of peers.

Satisfaction in Helping Others

Peer mentoring can provide students with the opportunity to experience the sense of satisfaction, fulfillment, and self-respect that comes from helping others (e.g., Heward, Heron, & Cooke, 1982; Madsen, Smith, & Feeman Jr., 1988; Sawyer, 2001; Stader, 2001). The participants in this study shared a belief that helping others was inherently satisfying and suggested that good feelings are a natural result of helping others. This aligns with Sawyer’s (2001) finding that students derive great personal satisfaction from mentoring others. For example, Katia noted that it was “always a good feeling to know

that you understood something and were able to help somebody else understand it. Later on, if they're able to return it, it's just as good as well" (KF2p2 12/15/11). Daria described the satisfaction of helping others as "a mutual feeling" (DS2p1 12/13/11). Not only did participants express feelings of gratification, they believed their peers found the same intrinsic satisfaction in helping them.

Reciprocal peer mentoring influenced the dispositional attitudes of the participants in this study. Motivation was enhanced because students were actively involved in learning and had some personal control over the learning process. Students came to respect and value diversity and demonstrated sensitivity to the feelings of others. Efficacy was heightened as participants experienced success. Additionally, students found satisfaction and fulfillment in helping others and believed their peers felt the same way about helping them.

Integration of the Process

Based upon the results of this study, music educators who wish to integrate peer mentoring into their pedagogical repertoire might take the following steps:

- know each student;
- build trust;
- start with small steps; and
- expect the best.

Get to know each student. Build relationships with students both as individuals and as a community of learners. This is a necessary foundation of peer mentoring.

Music educators can learn about their students in a number of ways: Surveys or

interviews may reveal unique needs and goals; demographic and school records can provide background information; parent-teacher interviews can reveal concerns in students' lives; and observation in the classroom, lunchroom, or on the playground can offer additional insight (Bluestein, 2010). In classroom settings, students can interview one another and take turns introducing a peer to the class; this process not only affords an opportunity to learn something about both the presenter and the interviewee, it starts to build a sense of community in the classroom. In ensemble settings, educators may want to ask students about individual musical goals and interests—information that can be used to plan relevant and meaningful learning activities for the group and help the teacher to customize supplemental musical opportunities for students.

Build trust. “If you lead with fear, you’ll get little respect; if you lead with respect, you’ll have little fear” (Bluestein, 2010, p. 202). In order for students to take the risks that lead to in-depth learning, they must be confident in the support of their teacher and classmates. Without trust, students may be reluctant to engage. In order to trust, students need to feel valued and respected. Rather than predetermine every aspect of learning, provide opportunities for students to make decisions and to have some control over the learning process in areas in which they can make valid decisions. This might include setting goals that are reasonable and attainable (McInerney, 2005) and selecting the type of activity, level of mastery, time taken, nature of assessment (which could include self-assessment), and social involvement included (Bluestein, 2010).

Empower students to make decisions; don’t simply require them to engage in shared activity. In both ensemble and classroom settings educators can begin by offering

choices from a menu of warm-up or closure activities; some of these learning experiences can include peer mentoring activities followed by group closure including informal assessment. Take this opportunity to model the use of assessment as a tool for learning and improvement—not as a determiner of rank or status. Additional mentoring opportunities can gradually be feathered in as students gain confidence in their ability to mentor one another and understand the limitations of assessment as an imposed measure of value that marginalizes the abilities of many learners. As students develop trust and lose fear, they probably will take the initiative to contribute their own ideas regarding learning activities, begin to create achievable short and long-term goals for themselves, collaborate with their peers on goals for the class or ensemble, and come to understand and value assessment as a learning tool.

Help students build trusting relationships and sound core values by demonstrating inclusivity, tolerance, patience, and persistence. For peer mentoring to be successful, ongoing, interdependent relationships must be sustained among peers. This cannot happen when students are asked to work together only a few times throughout the course of a year or semester. Peer mentoring must become an integral part of the learning process in order to change the dynamics of the learning environment in the classroom or ensemble. Provide students with continuing opportunities to experience the satisfaction of helping one another in rehearsals and in the classroom.

Make sure peer interaction is reciprocal so that the input of all students is valued and classmates come to understand the distributed nature of knowledge that allows peers to teach one another (Wiggins, 1999/2000). Make every effort to structure mentoring

tasks so that, with effort, success will be achieved. It is helpful to reflect on the results following each mentoring session in order to formulate future improvements.

Start with small steps. Before asking students to mentor one another, model expected behavior. The results of this study indicate that students model their mentoring approach on that of the teacher. Communicate expectations and goals and model constructive critique. In the music classroom, provide oral feedback and reflect aloud so that students can internalize the process. Ask ensemble members for feedback during rehearsals and encourage them to suggest means of improvement. It is beneficial to teach positive behavior first—before teaching subject matter—so that students can function independently and non-disruptively during mentoring (Bluestein, 2010).

Recognize the value of peer communication. The results of this study indicate that students acquire understanding in the course of peer-to-peer communication that they cannot glean from the explanations of teachers, and—an additional benefit of reciprocal mentoring—students gain a higher level of personal comprehension through the process of mentoring others. As students develop their skills, remember that it is important for the teacher/facilitator to oversee the presentation of new material in order to address student concerns about transmitting or receiving erroneous information. Additionally, the teacher/facilitator should remain available as a resource during each mentoring session to provide support and clarification as needed.

Encourage students to vary groupings and pairings. Both homogenous and heterogeneous groupings in the classroom and musical ensemble (by instrument, voice, interest, level, or gender) can provide students with meaningful learning opportunities. In

a choral ensemble, an alto/tenor pairing as opposed to a tenor/tenor coupling, for example, can provide an opportunity for students to communicate about and understand music in a more comprehensive way and broaden their musical perspective.

Initial mentoring efforts in the music classroom or ensemble setting can be supported through the use of graphics. Younger students, in particular, may benefit from a visual guide whether it is in written form or makes use of pictures to convey concepts.

Expect the best. Demonstrate faith in students' abilities. The results of this study indicate that students gain efficacy when a teacher demonstrates confidence in their ability to mentor one another. Additionally, reciprocal peer mentoring can enhance self-worth by de-emphasizing ability differences among peers and demonstrating that every individual has something of worth to contribute to the group. Discourage students from relying on competitive, surface level strategies such as rote memorization and rehearsal to demonstrate that they "know" more than others; instead promote the sharing of ideas and achievement, concepts particularly relevant to ensemble performance. When students value one another and help one another in either classroom or ensemble settings, they become invested in the success of their peers and of the learning community. In sum, make the most of students' pride and satisfaction in their ability to help others and the inherent dynamism for self-growth that prompts students to improve personal performance, solve problems, and gain understanding (McInerney, 2005).

Educational leaders responsible for preparing future music educators could effectively implement this model in both methods classes and musical ensembles at the university level as well. This would allow music teacher candidates to observe the

implementation of reciprocal peer mentoring in classroom and ensemble settings as part of their university experience—especially important because music teachers commonly model their pedagogical strategies on that of their teachers. Additionally, teacher candidates would have an opportunity to experience learning through reciprocal peer mentoring personally, giving them an understanding of reciprocal mentoring from the student's point of view that could serve them well in their own teaching.

Implications of This Study

The contrast between teacher- or conductor-centered learning and student-centered learning parallels the historic philosophical debate between progressivism and idealism, or active, constructed process learning and passive, transmitted product-oriented learning. The results of this study suggest that a collaborative learning environment that includes reciprocal peer mentoring can advance student learning in multiple domains: knowledge, skills, and dispositions. The traditional teacher- or conductor-centered structure of the music classroom and ensemble, then, may not be the most effective learning environment because it may limit student development in one or more capacities (including decision making and social functions) and have political and ethical implications beyond the strictly musical. Although professionally respected, a strictly authoritarian model relegates students to passive receptacles, squanders hours of potentially productive time, and often results in frustration and boredom because students are deprived of the feelings of independence and control necessary to intrinsic motivation and positive self-identity. Recognition of the active, purposeful character of human development and respect for the shared understanding (socially distributed knowledge)

that enables peers to teach one another ought to shape the music educator's role and function—to serve as a musical guide, facilitator, and source of social support.

Based on the findings in this study, it appears that it may be possible to adapt reciprocal peer mentoring to diverse instructional situations regardless of the heterogeneous makeup of the learning group. Students seem to have an inherent affinity for the process (it is most similar to the learning paradigm found outside the classroom) and they are both eager and able to assume the role of mentor and mentee without extensive training. Differing personalities can serve as positives in reciprocal mentoring and peer interaction may be more effective than expert instruction in fostering cognitive, technical, and dispositional development due to the unique properties of peer awareness and peer communication. The successful findings for learning through reciprocal peer mentoring in this study occurred among a small group of post-secondary students; music educators implementing reciprocal peer mentoring at the elementary and secondary levels might find they need to provide students with additional support depending on students' developmental level and social maturity and the number of students involved.

It is essential that educators understand that what is learned is, after all, more important than what is taught. The most important acquired understandings are not factual; as Dewey (1938) suggested, the most valuable attribute an educator can hope to give their students is a desire to go on learning. Positive findings regarding the influence of peer mentoring on the learning environment, the sharing of knowledge and skills, and social interaction in an applied music setting are extended to the post-secondary level in this study. The possibility of beneficial social and emotional effects for students in terms

of caring relationships, a positive learning environment, and self and collective efficacy should resonate with educators who take a holistic view of educational development. Music educators may want to reconsider teacher-centered practices from a holistic standpoint. If music educators desire to nurture young adults who are independent, musically knowledgeable, and able to continue learning on their own after they have left school classrooms and ensembles, they need to approach music education from a standpoint of discovery and transfer rather than transmission and recitation. Music educators would do well to step off the podium and allow students to construct and collaborate, to mature and grow as musicians, individuals, and contributors to the greater culture.

In order to encourage music educators to integrate peer mentoring into their everyday practice, the misconceptions that prevent many of them from initiating it must be dispelled. Music educators may feel overextended from the multiple responsibilities associated with their jobs and wish to avoid what they view as an additional drain on their time and energy. For peer mentoring to be widely assimilated into the pedagogical practice of music educators, then, the idea that peer mentoring is difficult to implement and extremely time-consuming to manage must be changed.

Recent studies such as those by Lebler (2008) and Scruggs (2009) have focused on successful musical and social outcomes for students as well as student affinity for the process of peer mentoring. Such positive results, however, may not have reached the larger body of music educators in the field. Extended outreach on the part of the music education community through the National Association for Music Education and state

and local music education organizations might be effective in enlightening the greater community of music educators. A call for journal articles and presentations at conferences that focus on successful and easily accessible classroom- and rehearsal-ready processes for incorporating peer mentoring in a variety of music education settings would be one feasible way to disseminate viable models to a greater number of music educators.

Need for Further Research

While the collaborative process of reciprocal peer mentoring was quite successful in fostering student learning under the particular conditions of this study, questions may arise regarding the viability of reciprocal peer mentoring in different settings and among students of different age groups and developmental levels. Person, Kreuz, Zwaan, and Graesser (1995) found one-on-one mentoring to be more effective than traditional classroom instruction for multiple age groups even when mentors are not highly trained. They concluded that the advantage of peer mentoring is not attributable to age differences although it is possible that successful mentoring may be dependent on social and communication skills not yet acquired by very young students. Crook (1995) suggested young learners may find collaborative learning hard to sustain or not attractive; although young students benefit from having to coordinate their thinking with that of their peers, articulation and negotiation are cognitive skills not available early in psychological development. Contrarily, Jaffurs's (2004) observations regarding the limited exchange of praise and positive feedback among mentors and mentees and the importance of non-verbal as well as verbal communication suggest that young students may be fully capable of mentoring their peers. Research focused on peer mentoring in music education among

students of different ages and developmental levels might provide further insight into their ability to mentor and be mentored.

The participants in this study had little or no experience in playing the piano and none of them were music majors. Research exploring reciprocal peer mentoring among music majors or pianists of intermediate or advanced ability might offer additional understanding regarding this form of learning.

Darrow, Gibbs, and Bonner (2005) suggested that peer mentoring might be easier when an academic exercise is involved and prove more difficult with a performance activity. In contrast, the current study found peer mentoring to be both efficient and effective in an applied music setting. Further research investigating peer mentoring in a variety of applied music settings might yield insight into the ways peer mentoring can contribute to student learning in diverse music education settings.

The majority of research examining peer mentoring in music education has involved designated roles for mentors and mentees and stressed the importance of training the mentors prior to implementation. Although the participants in this study did not receive mentor training, they demonstrated an ability to mentor effectively without it. Lebler (2008) suggested that prior self-directed student learning in the broader music community outside of the school setting prepares students for peer mentoring. Additional investigation of peer mentoring in a setting in which students are not confined to the role of either mentor or mentee or trained in specific mentoring techniques might further support this assertion.

Conclusion

The answers to the questions guiding this study suggest that music educators may be able to advance Dewey's constructivist vision of learning—an interactive social process in which students create meaning by collaborating in an interactive community where all individuals have an opportunity to contribute—through the use of reciprocal peer mentoring based on holistic and constructivist principles. This learning paradigm was observed to further student potential in multiple domains as a diverse group of participants developed academic, technical, and social proficiency through interactive, exploratory learning with peers. Reciprocal peer mentoring was found to augment the quality of the learning environment, encourage mutual discovery and collaboration, nurture caring interpersonal relationships, promote musical learning, enhance instructional efficiency, cultivate positive dispositions such as self-initiative and self-management, and develop social skills and self-esteem in a post-secondary music setting.

The flexible mentoring practiced in this study produced positive outcomes for students without training of the mentors and with the teacher serving primarily as a resource, support, and leader of group activities. Both members of the mentoring pair contributed to the learning experience during each reciprocal mentoring session and peers interacted with all members of the class throughout the course of the semester. The resulting perception of equality among peers seemed to foster group coherence, unity of purpose, a sense of mutual responsibility, and collective and self-efficacy to an even greater extent than conventional fixed-pair mentoring. Participants did not favor the exclusive use of peer mentoring in the classroom, however; they preferred teacher

oversight both during the introduction of new material and during mentoring sessions due to concerns regarding peer dissemination of erroneous information.

The positive academic, technical, and social results for students in this study corroborate the self-actualizing power of constructivist and holistic ideals and contradict two of the prevailing paradigms in the literature on peer mentoring in music education settings: teacher determination of a fixed role for each student for the duration of the process, and the necessity of mentor training for students on the part of the music educator. This paradigm shift suggests music educators may be able to implement reciprocal peer mentoring in a variety of settings with greater ease than has generally been assumed.

The participants in this study were able to mentor successfully by drawing on an inherent affinity for the process, teacher modeling, and informal mentoring experience in and outside of school. They called upon multiple social and conceptual skills (e.g., empathy, judgment, reading ability, auditory memory, and inner hearing) to aid them in the task and were able to provide useful feedback even when they themselves did not have technical mastery of the piece of music in question. They attributed this in part to the character of music itself—flexible and open to multiple interpretations. Participants were attentive to their level of preparation, not solely in self-interest, but because they wanted to be able to provide accurate and effective feedback to their peers: They demonstrated a high level of commitment to the community of learners.

Students may place a higher value on discovering what they want to know than on listening to what someone wants to tell them. The participants in this study enjoyed the

opportunity to construct knowledge, valued the supportive learning environment engendered by peer mentoring, welcomed the chance to make choices of consequence, and believed they gained from exposure to the multiple perspectives of their peers. The participants were able to learn and grow holistically through educational activities that provided opportunities to discover, construct, express, self-assess, create, communicate, and collaborate through the dynamic process of reciprocal peer mentoring.

APPENDIX A: SAMPLE INTERVIEW QUESTIONS

1. Tell me a little about your background and your interest in this class . . .
2. What is most important in teaching and learning?
3. Tell me about this course . . . How is it similar to and different from what you expected? Why do you think this is so?
4. Have you observed students helping each other in class? How would you describe it? How have you helped other students in class?
5. Have you had any prior experience guiding and being guided by other students outside of this class? Will you tell me a little about that experience (if yes)? Is this type of learning something you enjoy? Why? What do you think you might gain from this experience?
6. Tell me about your relationship with your classmates. Are there ways or specific instances in which you wish the relationship could be different?
7. How would you describe the relationships among classmates involved in peer mentoring? If there has been a change in relationships in this class, how would you characterize the change?
8. How would you describe the relationship between the students and teacher in this course? How do you feel about that?
9. How do you think the relationship between student and teacher changes when student-to-student learning is activated? Why?
10. How is the experience different in a lab course such as this one? Which structure do you prefer? Why?
11. How do you think peer mentoring affects the quality of instruction?
12. Did you feel that you could understand more while learning as part of a reciprocal mentor/mentee pair? How?
13. Did you feel that you could achieve more while learning as part of a reciprocal mentor/mentee pair? How?
14. Did your feelings of competence change as you alternated between the role of mentor and mentee? How?

15. Were you able to mentor successfully without being trained by the instructor? Why or why not? Did you feel that you and your classmates would have benefitted from mentor training prior to its use in the classroom? How?
16. How did you approach mentoring when it involved performance coaching of a piece that you had not played? Was it successful? Why do you think this was so?
17. Did the skill level of the mentor affect the success of the process? How? Is it possible to mentor reciprocally when skill levels differ? How or why not?
18. How did peer mentoring affect the learning environment in this class?
19. Did your feelings about this class change when peer mentoring was introduced? How? Did it affect your desire to attend? To prepare for class more thoroughly? To seek out classmates outside the piano lab? Why do you think this was so?
20. How did peer mentoring affect the progress of the class as a group? How did it affect individual progress?
21. How did the inclusion of peer mentoring affect the attitude of the class?
22. Do you think gender, age, or musical expertise affected the process? How?
23. If you had to write a catalogue description for this course, what would you say?
24. Is there anything else you would like to share about the experience?

APPENDIX B: SECOND INTERVIEW QUESTIONS

1. How would you describe your learning success in this class? Your feelings of confidence regarding your musical knowledge and playing skills? Your attitude about playing the piano? The progress of the group?
2. Did you feel that you learned from explaining concepts and demonstrating skills to others? How?
3. Did you feel a sense of support from your peers in this class? In what way? How did that make you feel?
4. Did you find satisfaction in helping others? Do you think your peers felt the same way about helping you?
5. How do you feel about your mentoring skills?
6. How did you approach mentoring when it involved performance coaching of a piece that you had not played? Was it successful? Why do you think this was so?
7. Did differing skill levels make a difference when working in pairs? How?
8. Have the relationships between classmates in the piano lab continued to evolve? How? What about outside of class?
9. Is there anything else you would like to share about the experience?
10. Would you be willing to share your contact information in case I wanted to reach you after the semester?

APPENDIX C: BENCHMARK 1

<u>Chromatic Scale</u>	1	2	3	4	5				
<u>5 Finger Patterns on White Keys</u>									
1. _____	1	2	3	4	5				
2. _____	1	2	3	4	5				
3. _____	1	2	3	4	5				
<u>Repertoire</u>									
1. Accuracy of notes	1	2	3	4	5	6	7	8	
2. Rhythm – steadiness of beat	1	2	3	4	5	6	7	8	
3. Rhythm – accuracy of note values	1	2	3	4	5	6	7	8	
4. Use of dynamics (loud and soft)	1	2	3	4	5	6	7	8	
5. Choice of tempo and tempo changes (such as rit.)	1	2	3	4	5	6	7	8	
6. Musical flow, expressiveness of style	1	2	3	4	5	6	7	8	
7. Use of articulation (such as legato and staccato)	1	2	3	4	5	6	7	8	
8. Ability to recover from mistakes	1	2	3	4	5	6	7	8	
9. Hand position	1	2	3	4	5	6	7	8	
10. Fingering	1	2	3	4	5	6	7	8	

APPENDIX D: BENCHMARK 2

Major scales in contrary motion

C major	1	2	3	4	5
G major	1	2	3	4	5

Tetrachord scales

_____ major (student choice)	1	2	3	4	5
_____ major	1	2	3	4	5

Primary Chord Patterns (I, IV^{6/4}, I, V^{6/5}, I)

C major	1	2	3	4	5
G major	1	2	3	4	5

Repertoire

1. Accuracy of notes	1	2	3	4	5	6	7
2. Rhythm – steadiness of beat	1	2	3	4	5	6	7
3. Rhythm – accuracy of note values	1	2	3	4	5	6	7
4. Use of dynamics (loud and soft)	1	2	3	4	5	6	7
5. Choice of tempo and tempo changes (such as rit.)	1	2	3	4	5	6	7
6. Musical flow, expressiveness of style	1	2	3	4	5	6	7
7. Use of articulation (such as legato and staccato)	1	2	3	4	5	6	7
8. Ability to recover from mistakes	1	2	3	4	5	6	7
9. Hand position	1	2	3	4	5	6	7
10. Fingering	1	2	3	4	5	6	7

APPENDIX E: FINAL BENCHMARK

Minor Five-Finger Patterns

_____ minor	1	2	3	4	5
_____ minor	1	2	3	4	5
_____ minor	1	2	3	4	5

Hand over hand Arpeggios - Major

_____ major	1	2	3	4	5
_____ major	1	2	3	4	5
_____ major	1	2	3	4	5

Hand over hand Arpeggios - Minor

_____ minor	1	2	3	4	5
_____ minor	1	2	3	4	5
_____ minor	1	2	3	4	5

<u>Triads of the Key in C major with pedal</u>	1	2	3	4	5
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Composition

Notation

1. Neatness, presentation, alignment of notes	1	2	3	4	5
2. Accuracy of notes, rhythm	1	2	3	4	5
3. Dynamics, tempo markings, fingerings	1	2	3	4	5

Performance

4. Accuracy of notes	1	2	3	4	5
5. Rhythm – steadiness of beat	1	2	3	4	5

6. Rhythm – accuracy of note values	1	2	3	4	5
7. Use of dynamics (loud and soft)	1	2	3	4	5
8. Use of articulation (legato and staccato)	1	2	3	4	5
9. Musical flow, expressiveness of style	1	2	3	4	5
10. Ability to recover from mistakes	1	2	3	4	5

APPENDIX F: DATA SOURCE NOTATION KEY

Notation	Corresponding Data Source
KF1	Interview 1 with Katia
MH1	Interview 1 with Min
CH1	Interview 1 with Chas
GJ1	Interview 1 with George
MgK1	Interview 1 with Mary
MK1	Interview 1 with Mark
JM1	Interview 1 with Jelena
DS1	Interview 1 with Daria
SS1	Interview 1 with Silas
JV1	Interview 1 with Jada
KF2	Interview 2 with Katia
MH2	Interview 2 with Min
CH2	Interview 2 with Chas
GJ2	Interview 2 with George
MgK2	Interview 2 with Mary
MK2	Interview 2 with Mark
JM2	Interview 2 with Jelena
DS2	Interview 2 with Daria
SS2	Interview 2 with Silas
JV2	Interview 2 with Jada
p	Page number of transcribed interview
Month/day/year	Date of interview or observation

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Fort Lee School District 1999 – 2004.

Director of Vocal Music. Fort Lee High School 1989 – 1999.

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Organist/Choir Director. Holy Spirit Lutheran Church 1983-1992.

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