

The value of reflective journaling with advanced piano students

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Abstract

Benefits to using a reflective journal include developing critical awareness and new perspective, problem-solving skills, and independent learning skills. The training of advanced piano students could be enhanced by the addition of journals to assist with their piano practice, specifically when learning new repertoire. Using the model by Plack and colleagues (2005) for developing and assessing reflection in reflective journal entries, we examined the journal entries of 18 advanced piano students to explore the development of reflection over a period of four weeks. Results suggest that reflectively trained piano students develop more critical reflection compared to a control group. Reflectively trained students perceive the same benefits to journaling as their counterparts in other disciplines. The most frequently referenced reflective elements include listing practice strategies and expressing feelings about the learning process. The reflective training model used in this study can be implemented by piano teachers and piano students.

***Keywords:* Reflection, Critical Reflection, Reflective Learning, Reflective Journal Models, Journals, Piano, Advanced Piano Students**

Abstrait

Avantages pour l'aide d'un journal de réflexion comprennent le développement et la prise de conscience critique nouvelle perspective, la résolution de problèmes et les compétences d'apprentissage autonome. La formation des étudiants de piano avancés pourrait être améliorée par l'ajout une guide pour aider à leur pratique de piano, en particulier lors de l'apprentissage nouveau répertoire. En utilisant le modèle par Plack et ses collègues (2005) pour le développement et l'évaluation de la réflexion dans les écritures de journal de réflexion, nous avons examiné les écritures de journal de 18 élèves de piano pour explorer le développement de la réflexion pendant une période de quatre semaines. Les résultats suggèrent que les élèves de piano pensivement formés à développer une réflexion plus critique par rapport à un groupe témoin. Etudiants pensivement formés perçoivent les mêmes avantages pour la journalisation que leurs homologues dans d'autres disciplines. Les éléments réfléchissants les plus fréquemment mentionnés comprennent une liste de stratégies de pratique et d'exprimer des sentiments au sujet du processus d'apprentissage. Le modèle de formation réfléchissante utilisée dans cette étude peut être mis en œuvre par les professeurs de piano et des étudiants de piano.

***Mots-clés:* réflexion, réflexion critique, l'apprentissage réflexif, modèles réflexives, journal, journaux, piano, étudiants de piano avancés**

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*Hold on to me as we go
As we roll down this unfamiliar road
And although this wave is stringing us along
Just know you're not alone
'Cause I'm gonna make this place your home
-Phillip Phillips, "Home"*

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Introduction

I, the researcher of this study, conducted a self-experiment using a journal to assist with my daily piano practice. At the time, I was entering my fourth year of a Bachelor of Arts (Honours) Music program. My purpose of starting a journal project was to be accountable for my piano practice habits so that I could prepare efficiently for both a piano examination with the Royal Conservatory of Music as well as performance opportunities at the university. These two goals would be accomplished by writing a brief entry about my practice following all my practice sessions. I endeavoured to write an entry every day for at least 100 consecutive days. My initial journal format included start and end times for each practice session element, and factual information such as tempi and measure numbers. The journal project began on Tuesday, July 30th, 2013. I was successful at keeping accountable to practicing and writing about it every day for 100 days, and decided to continue writing until I reached 365 days. When I reached the milestone of a year, I decided to continue writing for as long as I was able. I had surpassed 400 days by the time I reached graduate studies at the University of Ottawa and had to become less consistent in my writing habits to cope with the demands of being a full-time graduate student. The project is ongoing because I continue to experience benefits to regular journal writing and these will be explained below.

Through regular journal writing to assist with my piano practice, I accomplished the initial goals I had set for myself, but I perceived a personal growth beyond goal attainment. I participated in three piano class recitals, eight masterclass workshops, and completed my piano examination with honours. These goals were accomplished within 365 days. While the initial journal entries contained only factual information, after a short time, I elaborated about

practicing strategies, physical injuries, and attitudes towards practicing, ultimately gaining confidence in my abilities as an independent learner. For instance, on Tuesday, November 19th, 2013, I wrote about my practice strategies with the slow movement of Beethoven's Sonata, Op. 10/I: "In order to keep a slow movement feel, I've decided that this piece can't be any faster than 50 to the eighth note. I sorted out the tempo by checking out a comfortable pace for the 64th-note runs. I thought about a story to sort out the slightly different main theme each time it returns". I perceive that I have developed a deepness of reflection that allows me to feel more connected to the music than I had been previously when I learned music without journal assistance. Presently, I view practicing with journal assistance as forming layers of a musical journey rather than being only a means to goal attainment. Moreover, I have transformed my view of practicing piano through my journal activity. I feel prepared for a professional career in music now that I have confidence acknowledging my feelings at the piano, problem-solving, and learning independently.

Reflection is a cognitive activity involving a sequence of ideas and is produced by a higher order of mental processes. Dewey (1933) was an early author who defined this concept. According to Dewey, "[Reflection] involves not simply a sequence of ideas, but a consequence--a consecutive ordering in such a way that each [idea] determines the next as its proper outcome, which each [idea] in turn leans back on its predecessors". (p. 7) This notion of reflection encompassing a sequence of ideas has been interpreted by Mezirow (1990) as a sequence that is synonymous with "higher-order mental processes" (p. 5) Reflection as a series of processes has been studied across several disciplines such as nursing education, teacher education, physical therapy and sports science education, and music education, which will all be discussed in the review of literature.

The reflective journal is a means through which reflection and reflective learning can be explored and through reflective journaling, there are benefits to be gained. Thorpe (2004) defined the reflective journal as "written documents that students create as they think about various concepts, events, or interactions over a period of time for the purposes of gaining insights into self-awareness and learning". (p. 328) For Plack and colleagues (2005) the reflective journal allows for an awareness of feelings and thoughts based upon experience. There are numerous benefits to individuals who engage in reflection through usage of the reflective journal: problem solving and a transformation of beliefs (Cranton, 2006; Mezirow, 1990), encouraging authority based on experimentation (Schön, 1983), and encouraging development of independent learning skills (Schön, 1983).

The literature review will discuss the following concepts – reflection, reflective learning, and the reflective journal – first, as they evolved as reflective theories in professional training, and second, as they have been applied in the development of reflective journal models for undergraduate students in the following disciplines: nursing education, teacher education, physical therapy education and sports education, and music education. Connections will be made between the reflective theories and the models for completing reflective journals. The wealth of literature on reflection, reflective learning theories in professional training, and reflective journals, will show the potential of researching these in the field of music, particularly piano study. Existing reflective literature will show the reader what is available and how reflective learning techniques can benefit the mature piano student. The literature review will close with the specific research problem, research question, and hypothesis.

Chapter One: Review Of Literature

The function of this literature review is to present the background information that constitutes the theoretical framework chosen for the research study. Described in this chapter are the chronological exchange of ideas that built upon each other and were implemented into the model for assessing reflective journals by Plack and colleagues (2005). To assist in our understanding of their model, first, we present reflective theories in professional training. Next, we introduce the journal models that evolved from those theories. Finally, we conclude with our research problem and chosen theoretical framework.

Reflective theories in professional training

Reflective journal models emerged from reflective theories in professional practice. Schön (1983) defines professional practice as an ambiguous term that depends on the activity. For instance, in the case of piano, he refers to the "repetitive or experimental activity by which [the pianist] tries to increase his proficiency on the instrument" (p. 60) while in law, professional practice is "the kinds of things [the lawyer] does, the kinds of clients he has, [and] the range of cases he is called upon to handle". (p. 60) Authors whose reflective theories are pertinent to the development of reflective journal models include Dewey (1933), Schön (1983, 1987), Boud and colleagues (1985, 2001), Mezirow (1990), Cranton (1995, revised 2006), Jarvis and colleagues (1998), and Killion and Todnem (2001). It is important to discuss each of these authors' assessments of reflective theories in professional training in order to properly present the literature on reflective journal models.

Dewey (1910, revised 1933, 2009) was an early author to define the concept of reflection and suggest theories in professional training. Reflection is an ordered process, in which specific components are related to each other. Successfully completing a reflective component prepares the learner for the next component. Human beings are capable of being "reflective agents" (p. 12) (capable of reflectivity) led by their curiosity. While human beings are capable of reflectivity, it is important that thoughts are trained so that the mind's "best and not its worst possibilities will be realized". (p. 13) Exploring reflective thought renders humans vulnerable to "the possibility of failure and mistake". (p. 14) This can be interpreted as humans experiencing discomfort in relation to an experience upon which they are reflecting. These insights by Dewey regarding reflection as a specific sequence of ideas (processes), the human capability to reflect, and the human possibility of failure are particularly important to professional training because they support the need for developing reflective training models that are profession specific.

Schön (1983, 1987) explored to what extent the reflective process played a role in professional training. He considered reflection to be a "process" (1983, p. 50) which divided into smaller processes. Schön described the first process as *reflection-in-action*, in which an individual pauses to consider "some puzzling, or troubling phenomena". *Reflection-in-action* is the necessary process through which professionals deal with situations that can cause them "uncertainty, instability, uniqueness, and value conflict". (p. 50) Common phrases that indicate *reflection-in-action* include: thinking on your feet, keepings your wits about you, and learning by doing. These "in-action" thoughts occur in the midst of a performance. Schön explained how jazz musicians *reflect-in-action* because they are able to "feel the direction of the music that is developing, make sense of it, and adjust their performance to the new sense they have made". (p. 55) A second reflective process is called *reflection-on-action*, meaning that an individual is

thinking about an experience either after or during the activity, depending on the context. This process is specific to what the individual already knows about their situation. Schön's theories on reflection in professional training are best summarized in the following passage:

When someone reflects, he becomes a researcher in the practice context. He is not dependent on the categories of established theory and technique, but constructs a new theory of the unique case. His inquiry is not limited to a deliberation about means which depends on a prior agreement about ends. He does not keep means and ends separate, but defines them interactively as he frames a problematic situation. He does not separate thinking from doing, ratiocinating his way to a decision which he must later convert to action. Because his experimentation is a kind of action, implementation is built into his inquiry. (p. 60)

Therefore, according to Schön's theory of reflection in professional training, an individual who reflects becomes a researcher within their own work, creating a unique solution to whichever challenges they face, associating thought with action, and constantly experimenting with new ideas.

Killion and Todnem (1991) added a third component of reflection, *reflection-for-action*, to the work of Schön. *Reflection-for-action* "is the desired outcome of the previous types of reflection (*reflection-in-action* and *reflection-on action*)". (p. 15) *Reflection-for-action* has to do with planning for future experiences, whereas the previous types deal with the past and present, respectively. When an individual reflects-for-action, they are creating meaning and gaining new insights. The new meaning and insights are context-specific, that is to say that these emerge from related past experiences. *Reflection-for-action* "elevates the work [of the individual] to the status of a profession". (p. 16) When an individual is able to achieve reflection-for-action, they are indeed demonstrating preparedness for their profession. Killion and Todnem used the example of student teachers gaining new insights regarding teaching strategies to put *reflection-for-action*

into a context. Therefore, reflection-for-action is the third component of reflection as presented by Killion and Todnem, and is considered essential to preparing individuals for their professions.

Mezirow (1990) and Cranton (1995, revised 2006) suggested three more reflective processes (or elements) that can transform one's beliefs: *content*, *process*, and *premise*. According to Mezirow (1990), the individual's perception of a situation is framed by "habits of expectation that constitute [one's] frame of reference, that is, a set of assumptions that structure the way [one can] interpret experiences". (p. 1) When an individual transforms their beliefs, they become critically reflective and gain a new perspective on a situation. In order to properly reflect and not simply draw on prior knowledge, one has to make connections between ideas. A given example by Mezirow is a chess game, in which the players must use "thoughtful action". (p. 6) In accordance with Mezirow, Cranton maintained that "critical reflection is central to transformative learning". (p. 33) Cranton explained that *content*, *process*, and *premise reflection* constitute separate reflective elements. *Content reflection* "is an examination of the content or description of a problem". (p. 34) *Process reflection* "involves checking on the problem-solving strategies that are being used". (p. 34) *Premise reflection* "takes place when the problem itself is questioned". (p. 34) Therefore, content, process, and premise reflection are three processes (or elements) of reflection among the six others previously presented.

Boud and colleagues (1985, 2001) expanded on the reflective process of Schön by adding the processes of *returning-to-experience*, *attending-to-feelings*, and *re-evaluating the experience*, all of which take place immediately after an experience occurs. These processes of reflection are meant to help learners cope with "a considerable amount of new information". (1985, p. 10) In *returning-to-experience*, an individual makes observations about an experience that has previously taken place. In *attending-to-feelings*, an individual addresses feelings that might be

overwhelming to them. In *re-evaluating the experience*, an individual makes connections between the experience and other ideas, such as approaches that were not used that could be implemented next time. Boud and colleagues (1985) used the example of students in early childhood education writing notes, comments, and questions in a journal or a notebook following a day of fieldwork. The journal could be a "personal diary" (p. 10) that helps the students to "record issues, feelings and value conflicts". (p. 10) These authors credit Dewey (1933) with the notion of "conscious reflectivity" (p. 10) meaning that an individual has to consciously reconstruct their experience in order to achieve reflectivity. Moreover, all three of these reflective processes give the individual's reflection a purpose and a means to be critical. Therefore, reflection is synonymous with purposeful activity.

Jarvis and colleagues (1998) categorized responses to learning as being *nonreflective*, *reflective*, or *critically reflective* based upon the individual's expressed desire to learn from their experiences and plan for the future. Jarvis and colleagues emphasized the importance of defining "experience" before describing the ways through which one can respond to such an event. An experience is a "self-constructed" (p. 50) event, of which an individual is conscious. That means that an individual's personal experience refers to their perception of an event. Due to the fact that an experience is built upon an individual's construction, they can choose how to respond to the experience. When an individual responds to an experience, they are conducting what is called "experimental learning" (p. 55) because they are incorporating theories into practice; this is in keeping with the theories of Schön (1983, 1987). That is to say, through reflection, an individual becomes a researcher in the practice context. In the *nonreflective* response, an individual "accepts a situation within which an experience occurs" (p. 61) and does not demonstrate evidence of learning from it. In the *reflective* response, an individual begins to

become critical. This means that an individual "thinks about the situation and then decides to accept or seek to change the situation". (p. 61) The critically reflective response is definite in its expression of a change of perspective. Therefore, according to Jarvis and colleagues, there are three responses to an experience faced by an individual.

The table below summarizes the authors previously discussed and their contributions to reflective theories in professional training:

Table 1 *Reflective Theories in Professional Training*

Author(s)	Reflective theory
Dewey (1933)	<u>Reflection</u> : "[Reflection] involves not simply a sequence of ideas, but a consequence-- a consecutive ordering in such a way that each [idea] determines the next as its proper outcome, which each [idea] in turn leans back on its predecessors"
Schön (1983, 1987)	<p><u>Reflection-in-action</u>: is the necessary process through which professionals deal with situations that can cause them "uncertainty, instability, uniqueness, and value conflict"</p> <p><u>Reflection-on-action</u>: is when an individual is thinking about an experience either after or during the activity, depending on the context. This process is specific to what the individual already knows about their situation</p>
Killion and Todnem (2001)	<u>Reflection-for-action</u> : is the desired outcome of the previous types of reflection (reflection-in-action and reflection-on action); When an individual reflects-for-action, they are creating meaning and gaining new insights
Mezirow (1990)	<u>Transformation of beliefs</u> : an individual's perception of a situation is framed by "habits of expectation that constitute [one's] frame of reference, that is, a set of assumptions that structure the way [one can] interpret experiences; When an individual transforms their beliefs, they become critically reflective and gain a new perspective on a situation"
Cranton (1995)	<p><u>Content reflection</u>: is an examination of the content or description of a problem</p> <p><u>Process reflection</u>: involves checking on the problem-solving strategies that are being used</p>

Boud and colleagues (1990)	<p><u>Premise reflection</u>: takes place when the problem itself is questioned</p>
	<p><u>Returning- to-experience</u>: an individual makes observations about an experience that has previously taken place.</p>
	<p><u>Attending-to-feelings</u>: an individual addresses feelings that might be overwhelming to them</p>
	<p><u>Re-evaluating the experience</u>: an individual makes connections between the experience and other ideas, such as approaches that were not used that could be implemented next time</p>
Jarvis and colleagues (1998)	<p><u>Nonreflective</u>: an individual "accepts a situation within which an experience occurs and learning from it</p>
	<p><u>Reflective</u>: an individual begins to become critical. This means that an individual "thinks about the situation and then decides to accept or seek to change the situation"</p>
	<p><u>Critically reflective</u>: is definite in its expression of a change of perspective</p>

The development of reflective journal models

1.1 Reflective journal models in nursing education

Reflective journals are used with undergraduate nursing students, and in order to gain an understanding of reflective journal literature in this field, two connections have to be made. First, reflective journal models in nursing education have emerged from reflective learning theories in professional training. Second, reflective journal models in nursing education have developed over the last two decades with contributions from many research teams. Both of these connections will be addressed in this section.

Atkins and Murphy (1993) reviewed existing literature on reflection in order to identify the skills gained by reflective learning as well as to identify reflective processes. The purpose of their review of literature was to identify the reflective skills and processes that could be pertinent

to nursing. The important researchers that emerged from their literature review were Schön (1983, 1987, 1991), Mezirow (1982), Boud and colleagues (1985), and Jarvis (1992). Atkins and Murphy suggest that the theories of reflective learning consist of very similar reflective processes that only differ in their terminology. There are three general processes of reflective learning that are shared by the researchers listed above: awareness (dealing with feelings, perhaps uncomfortable), critical analysis (an examination of one's feelings and existing knowledge), and new perspective (gaining new insights, therefore learning from the situation). While these reflective processes are usually represented linearly, according to Atkins and Murphy, these processes are integrated. One perceives them as being linear "in order to facilitate an understanding of the processes of reflection". (p. 1190) Reflection is possible through writing in the form of a diary because knowledge is "made implicit through writing". (p. 1190) At the time of their literature review, Atkins and Murphy suggested that reflective journal writing be used in conjunction with other research methods, as no reliable method for assessing reflective journals existed at that time. Now that the first connection has been made between the theories of reflective learning in professional training and the emergence of reflective scholarship in nursing education, we turn to the development of specific reflective journal models in nursing education throughout the past two decades.

Wong and colleagues (1997) studied the development of reflection using a reflective procedure, including reflective journal usage, with university students enrolled in a first-year nursing course. The theme of the course was exploring students' awareness of professional issues pertaining to nursing. Seventy-three students participated in the project, and these students were divided into about eight groups comprising nine or ten students each. The study spanned two school semesters. Students were provided with eight course themes, and each student was

required to write four journal entries per week based on the theme that was most interesting to them. The final project of the course was a paper on the same topic. Students were made aware that while the weekly journal entries would not be graded, the final paper would be assessed for course marks. However, Wong and colleagues told the students that the journal entries would be measured according to their reflection model to aid in future curriculum design. In addition to completing reflective journal entries, each group met regularly to discuss course topics. Upon completion of the course, Wong and colleagues measured and analyzed their data according to the reflective model presented below.

The reflective model by Wong and colleagues comprises three categories: nonreflective, reflective, and critically reflective. Methods included observation, interview, students' written material, and teacher reflection. In this study, "teacher reflection" referred to the research team of Wong and colleagues. The researchers observed the students discussing weekly topics in the dialogue sessions, noting which students acted as facilitators of the sessions. Fifteen students were chosen for interviews because the research team recognized their journal entries and dialogue as clearly including examples of the nonreflective, reflective, and critically reflective responses. Nonreflective students did not indicate an appraisal of the topics being discussed, remaining within their current frame-of-reference. Reflective students made insightful comments about the topics through analyzing, discriminating, and evaluating multiple points of view. Critically reflective students demonstrated that they had formed a new perspective after having reflected on the discussion topics. Interviews were recorded and transcribed. Wong and colleagues concluded based on the interviews, observations, journal entries, and additional reflections of the teachers (the research team) that reflection strategies helped students to challenge their old points of view and moreover develop new perspectives in nursing.

Scanlan and Chernomas (1997) proposed a model for developing reflection in nursing teachers to solve conceptual issues pertaining to reflection. The researchers argued that reflection study is important in a range of professional fields because "it facilitates understanding of the self within the dimensions of practice and encourages critical thinking skills in the student". (p. 1138) Using the theories of Schön (1983, 1987), Mezirow (1981), and Atkins and Murphy (1993), Scanlan and Chernomas created a reflection model with three stages: awareness (present), critical analysis (connects present with the past and future), and learning (future). This is illustrated below in Figure 1. To be in the first stage, awareness, is to be conscious of one's own thoughts in reaction to a situation. Next, in the second stage, critical analysis, the student expands their point of view through "self-awareness, description, critical analysis, synthesis, and evaluation". (p. 1139) Finally, in the third stage, critical awareness, "the individual develops a new perspective of the situation, transformed by the analysis and/or application of new information to the experience". (p. 1139) Scanlan and Chernomas suggest that their reflection stages can be present in student journal entries. The researchers note the assessing of reflective journals involves making inferential judgments about how the students are reflecting.

Figure 1 *The Reflective Process: Scanlan and Chernomas (1997, p. 1140)*

Awareness → (Present)	Critical analysis → (Connects present with the past & future)	Learning (Future)
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Kember and colleagues (1999) developed a model to empirically assess reflective journals, in order to show that reflective learning could transform one's beliefs. This model was

influenced by Mezirow's (1990) theories of transformative learning and Wong and colleagues' (1997) work on categories of reflection. Kember and colleagues aimed to promote reflection in curriculum through the usage of reflective journals. An unspecified number of students enrolled in a healthcare course about reflective practice completed weekly reflective journal entries as well as a final paper on the same healthcare topic. Similarly to Wong and colleagues' reflective study, students' reflective journal entries were not graded, however, they were assessed for reflection according to the coding categories in the figure below. Kember and colleagues used four members of a jury to assess and categorize the journal entries. The four members of the jury included: the course coordinator, a faculty member from the same department, a faculty member from a different department, and a research fellow working with the research team. All four members assessed all journal entries; the number of journal entries is unspecified. The inter-judge reliability was sufficient to deem the reflective model reliable. The researchers concluded that their scheme "should be applicable to any professional development course which requires students to write reflective journals". (p. 29)

Figure 2 *The Coding Categories for Reflective Thinking: Kember and colleagues (1999, p. 25)*

	7. premise reflection	
4. content reflection	5. process reflection	6. content and process reflection
2. introspection	3. thoughtful action	
	1. habitual action	

Thorpe (2004) applied her reflective journal model with nursing students in her university course. Fifty-two nursing students (49 females and 3 males) enrolled in a Nursing Management course in addition to full-time work or weekly practicum participated in the study. At the beginning of the school semester, all participants received reflective training in the form of

written guidelines for reflective journals. Guidelines included: what a learning journal comprises, the pedagogical value of journaling, appropriate times to write journal entries, and the course requirements (since these journal entries were to be graded). Students were expected to write about concepts that were new to them, or concepts that were confusing, with the ultimate goal of increasing their understanding. Students wrote journal entries to explore managerial nursing topics that corresponded to weekly lectures as well as the 26 chapters in the course textbook. Thorpe provided students with weekly feedback, typically acknowledging insightful entries, asking the students to reflect deeper, and clarifying how to improve their journal writing. Upon completion of the semester, Thorpe analyzed all the journal entries according to her model.

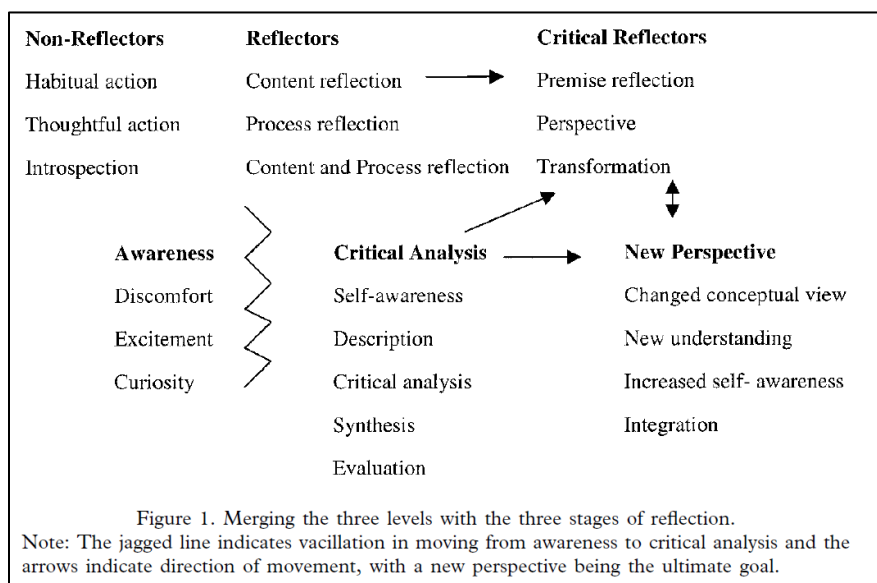
Thorpe's model for assessing reflective journals categorizes journal entries as being nonreflective (lacking evidence of deliberate appraisal), reflective (demonstrating insight through analysis, discrimination, and evaluation), and critically reflective (indicating a transformation from initial perspective). Thorpe cites the reflective models by Scanlan and Chernomas (1997) and Kember and colleagues (1999) for providing these categories of reflection, and the figure below represents how Thorpe merged their models into one. Thorpe used a computer software called NU*DIST to perform a content analysis of the journal entries. The number of entries analyzed is not provided in the article. The unit of analysis was a sentence in each entry; this choice was not explained further. Thorpe's analysis categorized most students' reflective journal entries as being reflective, meaning that most students demonstrated evidence of insight. Six students' journal entries were labelled as being critically reflective, meaning that their entries made connections between a variety of concepts discussed in lecture as well as in the readings. However, about 20 journal entries were categorized as being nonreflective. Thorpe postulates that this number was high because this category included some brief journal entries the program

could not analyze. Thorpe concludes that her study has implications for students in general to learn, because reflective training gives students a responsibility to take ownership of their learning:

Acknowledge reality of lifelong learning. Embrace reflective learning activities as essential to professional development and professional practice. This recommendation addresses the need for students to engage actively in the learning process, with reflection as one important way to be effective in learning about their profession. Self-awareness is an initial step in recognizing when changes are necessary. Be constantly curious, systematic in analysis, constructively critical, diligent in making connections among conceptual patterns, and vigorously evaluative in determining the outcomes of one's practice. (p. 341)

In Figure 3 below we see the model used by Thorpe. This is relevant to the development of my proposed methodology in chapter 2 because it demonstrates that reflective growth can be measured.

Figure 3 Merging the three levels (categories) with the three stages of reflection: Thorpe (2004, p. 334)



1.2 Reflective journal models in teacher education

Reflective journal models are used in teacher education. In a similar way to the development of reflective journal models in nursing education, these models developed over the last two decades with contributions from many researchers. The chronology of the reflective journal model development in this field will now be presented.

Hutchinson and Allen (1997) developed a reflective process to help student teachers to become reflective learners. This process is called the Reflection Integration Model (RIM) which is meant to promote experiential-based learning. The model comprises four components: pre-experience, experience, reflection, and integration. The pre-experience component constitutes assigned activities that encourage students to make observations about an experience through a "specific set of glasses" (p. 229), that is to say the students are made aware of the purpose of the experience. The experience component is planned by the researcher (teacher) to have an impact on the student in a specific way; an example of this would be any structured activity. The reflection component involves creating insights based upon the experience. One can reflect by "reading, writing (e.g. journals), oral discussions, and [making] observations (e.g. of pictures, photographs, drawings)". (p. 230) The integration component encourages students to examine themselves, to see if they have formed new perspectives on their experiences. Sometimes, the integration component is omitted because students may not be able to gain new perspectives without prompting. While this model is not specific to reflective journals, one can adapt it within a journal context, as the researchers mention journals as a means for a student to complete the reflection component of the model. One such connection to reflective journals is the work by Kolar and Dickson (2002) that will be presented next.

Kolar and Dickson (2002) conducted a qualitative study in which they delineated findings from an analysis of 80 student teachers' perspectives of structured journal writing. The reflective model by Hutchinson and Allen (1997) influenced this study. The researchers' rationale for the project was their held belief that "the process of reflection is not natural". (p. 397) An undetermined number of students from two Midwestern universities enrolled in education courses completed a reflective journal project. Structured reflective journals include guiding questions, and these questions are meant to "lead students beyond a literal personal level of response to a higher level of reflectivity" (p. 396). Students were allowed to respond to the questions using narrative, poems, stories, cartoons, or other pictures. Students completed between 5 to 10 logs during a semester. A picture of their researchers' guiding questions for reflective journals is presented below in figure 4. Student teachers perceived the following benefits from journal writing: promote reflection of coursework and fieldwork, connect coursework with hypothetical settings, allow students to explore varied topics, encourage critical reading, and increase analytical thought. On the other hand, student teachers perceived the following limitations to journal writing. It consumes a great deal of time, it is not equally effective for everyone, students may not mirror what professors expect, and journal writing may not lead to increase analytical thought. From the analysis of the students' reflective journals, the researchers ascertained that student teachers perceived more strengths than limitations to writing structured entries. The researchers do not mention details about the methods used to qualitatively analyze the journal entries. Therefore, the conclusion to this study is that students generally perceive more advantages than disadvantages regarding structured journal writing.

Figure 4 *Guiding Journal Questions: Kolar and Dickson (2002, p. 396)*

Sample Structured Questions from Logs #1 and #2
<p>Questions from Log #1:</p> <p>(1) Reflect on your experiences with individuals with disabilities. What experiences have you had with individuals with disabilities? This could be in elementary school, middle school, high school, or college. It could be with someone in your family or a friend. How have your experiences with people with disabilities influenced your understandings of them? How have your experiences influenced your expectations for working with students with disabilities in your classroom?</p> <p>(2) React to the Following Scenario: Imagine that this is your first year of teaching. The principal informs you that the school now educates students with disabilities in full inclusion in the general education classrooms. Friend and Bursuck (1996) define inclusion as "the integration of most students with disabilities into general education classes. Full inclusion is the integration of students with disabilities in the general education classrooms at all times regardless of the nature or severity of the disability" (p. 4). <input type="checkbox"/> Tell how you feel about the statement "All children should be educated in a general education setting." Expand on areas of agreement and disagreement.</p> <p>Selected Structured Questions from Log #2 (Inclusion of Students with Low Incidence Disabilities) <i>Remember this is your log. Be creative in format. Typing is recommended—highly legible handwriting will be accepted.</i></p> <p>1. Today you watched the video, <i>Educating Peter</i>. You were asked to view this movie focused on the full inclusion of a third grade student with Down Syndrome taking one perspective (Peter, parents, general educators, general education teacher, special education teacher, administrator). Which perspective did you take? Using your interpretation of this person's viewpoint, how successful was the inclusion program for Peter and "you"—the perspective you took? What were the major problems (2–3 obstacles) you faced? How did you (or could you) overcome these obstacles?</p>

Loughran (2002) examined reflection as a concept, and wondered how it can become an effective practice that can be utilized in teacher preparation programs. According to Loughran, reflection "continually emerges [in literature] as a suggested way of helping practitioners better understand what they know and do as they develop their knowledge of practice through reconsidering what they learn in practice... placing emphasis on learning through questioning". (p. 34) A means for student teachers to develop reflective practice is through writing anecdotes about their own experience as learners. Loughran had promoted anecdotal writing assignments with his student teachers at the time of this article, but had not conducted empirical research with this method. However, he hypothesized that through anecdotal writing, student teachers could do individual self-observations through which understandings, misconceptions, and contradictions could be revealed. The result of an anecdotal observation could be a change of

perspective. Loughran made reference to an anecdotal report from a student teacher (from one of his courses) that experienced a change of perspective in the classroom setting. This student teacher had envisioned the classroom of high school students to respond quickly to questions, but discovered through the experience that the children were timid at first. This anecdotal entry is presented below in figure 5. Loughran concluded that it is important for student teachers to write anecdotal reflections because, "encouraging the episode to be reconsidered, developed, and articulated through writing enhances the meaning-making from the action in the practice setting and can unsettle some of the taken-for granted assumptions about teaching that student teachers [might] have developed". (p. 37)

Figure 5 *Student teacher anecdote: Loughran (2002, p. 37)*

Wait Time

My first class. Palms sweating, breathing shallow, tie too tight, pulse too fast. I guess I was kind of nervous. I had fully prepared the whole lesson in intricate detail, and even rehearsed certain key sections. I shuffled my books, watching them enter the room noisily, with attitude to burn. They sat down. Eventually, I swallowed.

"Good morning 10B! My name is Mr. Burns, I'm a teacher from Monash University. Today we are . . ." and into the lesson I launched. Cool as a cucumber and smooth as a strawberry smoothie. I wrote on the board in big letters. "What Makes A Film?"

Having bonded with the students on an incredibly deep and substantial level in the first three minutes of the class, I swiftly and confidently turned to face the class. With a big smile and the most open of expressions I could muster, I threw out my first question.

"Can anyone tell me some elements of film making?"

I paused for the expected barrage of excited responses. I waited and waited. Anyone? Longer and longer. Help? It felt like an hour. A week. A year.

Would the wait be worth it? A . . . yes? Finally from the back of the class! "Um . . . scripts, sir?"

"Thank you!" I said, hopefully without too much desperation. The trickle of answers gradually became a waterfall. I was finally safe, splashing gleefully in the puddles of their intuitive responses, the dam of silence broken. (Student teacher's anecdote, June 2000)

Watson (2010) used a reflective journal procedure with student teachers "to ensure meaningful learning and application of knowledge within a teaching and learning context". (p.

12) Using a reflective journal helps students to question the standard teaching and learning practices. Specific to the study, Watson used a reflective journal procedure to improve students' understanding of the expository writing style. The research questions were:

- 1) Can the incorporation of reflective journaling in the academic writing classroom improve students' understanding of key concepts?
- 2) What is the nature of journaling as experienced by the students?
- 3) How does student journaling contribute to improving their knowledge?
- 4) Can the processes involved in journaling be identified and used in other circumstances?
- 5) To what extent are the processes involved in journaling utilized in the conceptualization of academic writing concepts?

Twenty-five Bachelor of Education students between the ages of 30 and 45 participated in the study. All participants had previously failed the academic writing course. The study took place over a six-week period during which students completed five structured journal entries (one per week) in response to topics in class about expository writing. Each journal entry has a specific purpose of which the students were made aware. This is presented below in table 2. Reflective journaling was introduced in the second week of the study. The researchers followed up on the journal participants with semi-structured interviews (both group and individual) to ascertain feedback on the students' engagement with the journal procedure. An examination of the procedure and results of the study follows.

Table 2 *Time and Purpose of Journal Entries: Watson (2010, p. 14)*

Entry	Time	Purpose
#1	Before actual engagement with content/expository method	Students were required to write: What they think they know about the method What it entails Why it is used
#2	After attending the plenary session	Students were required to articulate how what was taught about the expository method differed to what they knew.
#3	After written application of what was learnt	Students were required to articulate beliefs on the application process & Comment on the application of theory to practice as it relates to the method.
#4	After feedback is received from the instructor	Students were required to articulate the extent to which what they thought they knew was captured in their application & State what could have been done to improve their writing.
#5	Final scheduled meeting	Students were required to articulate the impact of producing written journals & Indicate the usefulness and/or shortcomings of reflective journal usage.

The method and results of the study were approached through a qualitative, descriptive content analysis. The journal entries were assessed by the researcher according to how well the students followed the objectives of the weekly question topics. Content analysis techniques identified key words and phrases that reflected the students' understanding of the questions as well as their ability to integrate the course concepts into other concepts. These key words and phrases were not provided in the document. While each question posed at the beginning of the article was not addressed specifically, the researcher explains that the results of the content analysis of the journal entries and interviews indicated a need for further opportunities for students to engage in the learning process through [writing] exercises, and continuing to foster the relationship between knowledge and application. Moreover, the reflective journal approach successfully encouraged the students to link course concepts with written applications. In addition, writing journal entries encouraged students to explore teaching concepts to prepare them for the professional setting.

1.3 Reflective journal models in physical therapy and sports science education

Plack and colleagues (2005) developed a method to assess reflective journals. Within this method, the researchers endeavoured to determine the presence of reflective elements as well as to categorize the reflectivity in journal entries according to the theories of Schön (1983, 1987), Boud and colleagues (1985, 2001), Mezirow (1990), Cranton (1995, revised 2006), Jarvis and colleagues (1998), and Killion and Todnem (2001). Twenty-seven undergraduate students enrolled in a physical therapy program participated in the study (mean age of 27.1 years). Each student had to complete journal entries throughout three of their eight-week clinical experience. Three professionals were selected as raters of the journal entries: the director of a physical therapy program, a faculty member in a professional physical therapy program with a background in education and psychology, a clinician enrolled in a transitional doctor of physical therapy program, and an academic coordinator of clinical education for a professional physical therapy program. The researchers designed a retrospective study, using the students' journal entries as data. The 27 student participants completed a total of 48 journal entries. The four raters agreed upon a coding scheme, and completed a pilot analysis of five journal entries to gain an acceptable inter-rater reliability.

In the larger study by Plack and colleagues, 48 journal entries were coded in total. The following elements of reflection were operationally defined: *reflection-in-action*, *reflection-on-action*, *reflection-on-action*, *reflection-for-action*, *content reflection*, *process reflection*, *premise reflection*, *returns-to-experience*, *attends-to-feelings*, and *evaluation-of-the-experience*. Further, each journal entry was categorized as showing *no evidence of reflection*, *evidence of reflection*, or *evidence of critical reflection*. These elements and categories of reflection come from reflective theories in professional training as discussed earlier in the literature review. All three

raters assessed the journal entries for the reflection components. While the study offers tables showing the successful inter-rater reliability on all components of reflection, development of reflectivity over time is not measured. However, the researchers suggested that their framework can be used to measure the development of reflectivity (from nonreflective to critically reflective) in students' journal entries in future studies. The researchers elaborated on this point:

Facilitating the different elements of reflection can be used to extend the reflective thought process and enhance the critical thinking skills of students. Finally, this method of assessment provides a mechanism for instructors to judge competence in the reflective process without judging the personal content or topic of the student's reflections. It separated the product from the process, allowing competence to be judged without undermining the freedom of thought critical to the reflective process. (p. 207)

Therefore, this model for assessing reflective journals by Plack and colleagues has achieved inter-rater reliability in the field of physical therapy education and has implications to measure the development of students' reflective components using a journal procedure.

Knowles and colleagues (2010) sought to assess and develop reflection in undergraduate students using a reflective journal procedure adapted from Mezirow (1990). Eight second-year undergraduate students enrolled in a BSc. (Hons) program participated in the study. All participants were simultaneously completing coaching placements at the time of the study. During the fall semester of the school year, all students learned about reflective theories as part of their course program, in addition to some conceptual and practical issues (unspecified) associated with reflective practice. Students were responsible for keeping reflective journal entries (an unspecified number) about their placement experiences according to guidelines. The guidelines are presented below in table 3. In addition to the reflective journal entries, the

researchers interviewed the participants about their perception of the effectiveness of the reflective journal project. All the interviews were recorded and transcribed.

Table 3 *Assessment Scheme for Reflective Journals: Knowles and colleagues (2010, p. 192)*

Level	State description	Criteria
1a	Reflectivity	Awareness, observation, description <i>Description of a short dribbling drill session with junior players</i>
1b	Affective reflectivity	Awareness of feelings (subjects) <i>1a followed by analysis of feelings, e.g. coach feeling happy/disappointed about session outcome</i>
2	Reflection to reach given objectives	Criterion for reflection are limited to issues of efficiency, effectiveness and accountability <i>1a, 1b and recognition of need for readjustment of skill level to achieve session aims</i>
3a	Reflection on the relationships between principles and practice	There is an assessment of the implications and consequences of actions and self beliefs/values as well as the underlying rationale for practice <i>1a, 1b, 2 and recognition another coaching style may be appropriate for session delivery</i>
3b	Wider reflection	Practitioner contributes towards discussion in practice with others regarding the nature of beliefs and moral issues <i>1a, 1b, 2, 3a, 3b and discussion with others/coach educators regarding culture of coaching in youth football</i>
4	Critical reflection	Issues of justice and emancipation enter deliberations over the value of professional goals and practice. The practitioner makes links between the setting of everyday practice and broader social structure and forces and may contribute to ethical decision making in practice <i>As above and discussion as to whether view of teaching is commensurate with global issues in teaching children in other areas, policies and legislation</i>

The researchers were responsible for assessing the journal entries. While there was a coding scheme (presented above), it is not clear in the article how many journal entries were assessed as well as the length of the entries. The researchers highlighted key words and phrases pertaining to comfort versus discomfort (e.g. transition from anxiousness to self-confidence). Generally, the student coaches documented in their reflective journals a rise in confidence while incorporating the reflective strategies taught to them in class. In the interviews, students reported

that they perceived that they became more reflective, as they incorporated reflective theories, particularly those of Schön (1983, 1987). Specific to the context of coaching, students found reflective journaling to be "both time consuming and needing more structure". (p. 197) However, the students creatively reflected by combining the journal procedure with self-recording thoughts on-the-spot using a recording device, and writing down the thoughts at a later time. Therefore, the researchers were able to successfully assess and develop reflection in the undergraduate student coaches through implementing a reflective journal procedure.

1.4 Reflective journal models in music study

This section of the literature review is about available research regarding reflective journals in music education. Reflective learning and reflective journals are used with student music teachers. Reflective journals are a relatively new tool for student music teachers to develop their reflective learning skills; this idea was supported by Leglar and Collay (2002) who made comments about the implementation of reflective journals among music educators. They suggested that through reflective journal writing, a teacher could experience personal development, enhanced motivation, and brainstorm ideas pertaining to lesson planning. Rideout and Feldman (2002) pointed out that literature on reflective learning and reflective journals with student music teachers is borrowed from literature in general teacher education. That is to say reflective learning is a concept that is applicable to the music profession. However, there are no empirical studies in the music field to date. Indeed, reflective learning and reflective journals exist in literature with student music teachers, although the literature borrows from that of

general student teachers. Only one specific article applies that which has been presented so far on the subject of reflective learning in a music context.

Elgersma (2012) devised a journal model to assist piano pedagogy students in a master's program, with a two-fold purpose: first, to combine reflection on personal experience with academic research, and second, to develop a model that would assist beginner teachers. Elgersma completed a self-study upon the completion of her first year as an assistant professor, feeling dissatisfied with how she evaluated her students. Elgersma wanted her students to be able to "develop a richer understanding of their personal strengths, weaknesses, and experiences". (p. 413) Elgersma consulted the theoretical work of Dewey (1933) and the teaching education work of Loughran (2002) in order to encourage her pedagogy students to use reflective practice. A suggestion for reflective writing that Elgersma gained from her search is that "rather than having [the] pedagogy students do self-evaluations for every lesson, [she] will ask them to complete more in-depth narrative reflection, only three or four times during the semester". (p. 416) She justified this decision through claiming that long stretches of uninterrupted teaching time allow the development of reflection into practice to happen "in a natural way, over time". (p. 416) The name of the journal model is called "The Narrative Anecdote", and while it has a different name compared to the reflective journals from the disciplines previously discussed, the function is the same. This model is presented below in figure 6. Elgersma did not conduct empirical research with this model; instead, she used it to periodically evaluate her pedagogy students throughout the school year.

Figure 6 *The Narrative Anecdote: Elgersma (2012, p. 414)*

<p>Student Teaching Self-Evaluation:</p> <p>Narrative Anecdote</p> <p><i>In narrative (story) form, write an anecdote about a challenging moment from your teaching, a moment in which things did not go as you had hoped. Describe the moment in as much detail as possible, as though you were telling the story to a friend.</i></p> <p><i>In this anecdote, you should reflect on your thought processes – what you intended to do, why you think you chose the methods that you did – and should also speculate as to what you think “went wrong.”</i></p> <p><i>Additionally, try to put yourself in the mind of your student(s) – what do you think they were experiencing or feeling during this problem moment?</i></p> <p><i>When you are finished telling the story from these multiple perspectives, try to come up with a solution. Can you see a way to address this particular moment that would have been better? What will you try next time that you are in a similar experience?</i></p> <p><i>Finally, can you distill this challenging teaching moment into a generalized assertion? For example:</i> <i>“I have learned that, when I am nervous and uncomfortable, I tend to substitute lots and lots of talking for the pointed feedback I should be giving – feedback is not specific enough.”</i></p> <p><i>*Examples of anecdotes from other student teaching experiences are available for you to view on Blackboard.</i></p> <hr/> <p>Name: _____ Date: _____</p>	
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Reflective journal models have now been presented as they have appeared in nursing education, teacher education, physical therapy and sports science education, and music education. These models are inter-related as has been discussed in the literature review. Below is a table that summarizes the available reflective journal models.

Table 4 *Summary of Available Literature on Reflective Journal Models*

Author(s)	Problem/Question	Participants	Measurements	Method	Results
Atkins & Murphy (1993)	The purpose of their review of literature was to identify the reflective skills and processes that could be pertinent to nursing	N/A	N/A	Review of literature	There are three general processes of reflective learning that are shared by the researchers listed above: awareness (dealing with feelings, perhaps uncomfortable), critical analysis (an examination of one's feelings and existing knowledge), and new perspective (gaining new insights, therefore learning from the situation. Engaging the reflective processes is possible through writing in the form of a diary because knowledge is "made implicit through writing
Wong et al. (1997)	To study the development of reflection using a reflective procedure, including reflective journal usage, with university students enrolled in a first-year nursing course	73 nursing students, divided into groups of about 9 or 10 each.	Observations, interviews, written journal entries, researcher reflection (all reviewed by research team)	Students wrote an undetermined number of entries based on course themes; 15 students chosen for interviews based on observations and journal reflections	Based on information gleaned from observations, journal entries, and interviews, students became critically reflective (no empirical number)
Scanlan & Chernomas (1997)	Proposed a model for developing reflection in nursing teachers to solve conceptual issues pertaining to reflection	N/A	N/A	Using the theories of Schön (1983, 1987), Mezirow (1990), and Atkins and Murphy (1993), the researchers created a reflection model comprising of three stages: awareness (present), critical analysis (connects present with the past and future), and learning (future).	Scanlan & Chernomas suggested that their reflection process can be present in student journal entries. The researchers noted that assessing reflective journals involves making inferential judgments about how the students are reflecting.
Kember et al. (1999)	To develop a model to empirically assess reflective journals, in	Unspecified number of students enrolled in a	Unspecified number of journal entries were assessed by four	Journal entries were completed weekly by the students. Students were	The researchers concluded that their scheme "should be applicable to any professional development course which requires students to

	order to show that reflective learning could transform one's beliefs, based on Mezirow (1990) and Wong et al. (1997)	healthcare course about reflective practice	members of a jury according to a coding scheme	aware of journal expectations prior to the training	write reflective journals
Thorpe (2004)	To create a model for reflective journals to apply to her university students based on Scanlan & Chernomas (1997) and Kember et. al (1999)	52 nursing students (49 females and 3 males) enrolled in a Nursing Management course in addition to full-time work or weekly practicum	Computer software called NU*DIST (precursor to NVivo) performed a content analysis of the journal entries. The number of entries analyzed is not provided in the article.	At the beginning of the school semester, all participants received reflective training in the form of written guidelines for reflective journals. Students were expected to write about concepts that were new to them, or concepts that were confusing, with the ultimate goal of increasing their understanding Thorpe provided students with weekly feedback	Thorpe's analysis categorized most students' reflective journal entries as being reflective, meaning that most students demonstrated evidence of insight. Six students' journal entries were labelled as being critically reflective, meaning that their entries made connections between a variety of concepts discussed in lecture as well as in the readings. However, about 20 journal entries were categorized as being nonreflective
Hutchinson & Allen (1997)	Developed a reflective process to help student teachers to become reflective learners. This process is a model called the Reflection Integration Model (RIM) which is meant to promote experiential-based learning.	N/A	N/A	N/A	While this model is not specific to reflective journals, one can adapt it within a journal context, as the researchers mention journals as a means for a student to complete the reflection component of the model.
Kolar & Dickson (2002)	Conducted a qualitative study in which they delineated findings from an analysis of 80 student teachers' perspectives of structured journal writing, influenced by	Undetermined number of students from two midwestern universities enrolled in education courses	The researchers do not mention details about the methods used to qualitatively analyze the journal entries.	Students were allowed to write journal entries with narrative, poems, stories, cartoons, or other pictures; students spoke to researchers about their perceptions of the project	Student teachers perceived the following benefits from journal writing: promotes reflection of coursework and fieldwork, connects coursework with hypothetical settings, allows students to explore varied topics, encourages critical reading, and increases analytical thought. On the other

	Hutchinson & Allen (1997)	completed a reflective journal project			hand, student teachers perceived the following limitations to journal writing: consumes a great deal of time, is not equally effective for everyone, students may not mirror what professors expect, journal writing may not lead to increase analytical thought
Loughran (2002)	Examined reflection as a concept, and wondered how one can become an effective practice that can be utilized in teacher preparation programs. Loughran had promoted anecdotal writing assignments with his student teachers at the time of this article	N/A	N/A	N/A	The researcher hypothesized that through anecdotal writing, student teachers could do individual self-observations through which understandings, misconceptions, and contradictions could be revealed
Watson (2010)	<p>1) Can the incorporation of reflective journaling in the academic writing classroom improve students' understanding of key concepts?</p> <p>2) What is the nature of journaling as experienced by the students?</p> <p>3) How does student journaling contribute to improving their knowledge?</p> <p>4) Can the processes involved in journaling be identified and used in other circumstances?</p> <p>5) To what extent are the processes involved in journaling utilized in the conceptualization of</p>	Twenty-five BEd students between the ages of 30 and 45 participated in the study; all students had previously failed the academic writing course.	The journal entries were assessed by the researcher according to how well the students followed the objectives of the weekly question topics	The study took place over a six-week period during which students completed five structured journal entries (one per week) in response to topics in class about expository writing. Reflective journaling was introduced in the second week of the study. The researcher followed up on the journal participants with semi-structured interviews	The researcher explains that the results of the content analysis of the journal entries and interviews indicated a need for further opportunities for students to engage in the learning process through [writing] exercises, and continuing to foster the relationship between knowledge and application. Moreover, the reflective journal approach successfully encouraged the students to link course concepts with written applications

Plack et al. (2005)	<p>academic writing concepts?</p> <p>Developed a method to assess reflective journals as well as a reflective journal procedure for students. Within this method, the researchers endeavoured to determine the presence of reflective elements as well as categorize the reflectivity in journal entries according to the theories of Schön (1983, 1987), Boud et al. (1985, 2001), Mezirow (1990), Cranton (1995, revised 2006), Jarvis et al. (1998), and Killion & Todnem (2001).</p>	27 undergraduate students enrolled in a physical therapy program participated in the study (mean age of 27.1 years)	A content analysis; codes determined by the research team and the assessment completed by three members of a jury	Each student had to complete journal entries throughout three of their eight-week clinical experience; Raters assessed all 48 journal entries for the presence of 9 elements of reflection and categorized each entry as being either nonreflective, reflective, or critically reflective	The researchers suggested that their framework can be used to measure the development of reflectivity (from nonreflective to critically reflective) in students' journal entries in future studies
Knowles et al. (2010)	Sought to assess and develop reflection in undergraduate students using a reflective journal procedure adapted from Mezirow (1990).	8 undergraduate students enrolled in a BSc. (Hons) program, in their second year of the program; simultaneously completing coaching placements at the time of the study	While there was a coding scheme it is not clear in the article how many journal entries were assessed as well as the length of the entries. The researchers highlighted key words and phrases pertaining to comfort versus discomfort; there were also interviews	During the fall semester of the school year, all students learned about reflective theories as part of their course program, in addition to some conceptual and practical issues (unspecified) associated with reflective practice. Students were responsible for keeping reflective journal entries (an unspecified number)	In the interviews, students reported that they perceived that they became more reflective, as they incorporated reflective theories, particularly those of Schön (1983, 1987). Specific to the context of coaching, students found reflective journaling to be "both time consuming and needing more structure"; the researchers were able to successfully assess and develop reflection in the undergraduate student coaches through implementing a reflective journal procedure.
Elgersma (2012)	She devised a journal model to assist piano pedagogy students in a master's program, with a two-fold purpose: first, to	Undetermined number of masters in piano pedagogy students	N/A	N/A	Elgersma did not conduct empirical research with this model; instead, she used it to periodically evaluate her pedagogy students throughout the school year.

combine reflection on personal experience with academic research, and second, to develop a model that would assist beginner teachers consulted the theoretical work of Dewey (1933) and the teaching education work of Loughran (2002) to be able to encourage her pedagogy students to use reflective practice

1.5 Research Problem

Reflective journal literature in the field of music does not include empirical studies and no reflective journal literature exists pertaining to piano students. The use of reflective journals in the fields of nursing education, teacher education, physical therapy, sports science education, and music education has benefited undergraduate students undergoing professional training and these benefits could be valuable to piano students for a variety of reasons. First, reflectively trained students become critically aware of their feelings and knowledge, ultimately gaining new perspective and transforming their beliefs (Mezirow, 1990; Scanlan and Chernomas, 1997; Thorpe, 2004; Cranton, 2006; Watson, 2010). Piano students using a reflective journal to assist with their practice could address feelings such as stress or anxiety that are associated with the music they are learning. New perspectives can be gained through the admission that beliefs have changed with the guidance of the journal. Beliefs specific to piano learning include physical habits (e.g. postural and technical requirements for the music) and musical interpretation (e.g. tempo, pedaling). Second, reflective trained students using a reflective journal develop their problem solving skills within a learning context (Schön, 1983; Watson, 2010). In a broad context, advanced piano students could develop practice habits such as dealing with motivation to practice. Regarding the musical score, piano students could become conscious of musical challenges (e.g. tricky rhythms and voicing) and remark about the strategies that are efficient and inefficient in solving the issues. Third, reflective trained students using a reflective journal develop independent learning skills (Schön, 1983). Advanced piano students, especially at the undergraduate level, are independent except for weekly lessons with an instructor. However, the independent learning skills among undergraduate students vary due to factors such as the influence of previous piano teachers and personal motivation to practice. Reflective journaling

could provide piano students the opportunity to plan practice sessions, set appropriate goals, and overcome motivational challenges without frequent guidance from an instructor. Therefore, advanced piano students could experience benefits from using a reflective journal to assist with their piano practice. It is unknown to what extent reflection can be developed and assessed in the journal entries of reflectively trained music students compared to students without reflective training because this has not been addressed in existing reflection literature.

Theoretical Framework

This study uses the model developed by Plack and colleagues (2005) to both train undergraduate students in reflective learning as well as teach researchers how to assess the depth of reflection in journal entries. The ultimate goal for students following the reflective training procedure using a journal is the development of critical reflection. A summary of the theoretical framework immediately follows this detailed description in table 5. The theoretical framework by Plack and colleagues uses two levels to analyze reflection: Level 1 (words, sentences, and paragraphs), and Level 2 (the journal) and these are all operationally defined (Appendix A). Level 1 contains nine elements of reflection and reflective learning: reflection in action, reflection on action, reflection for action, content, process, premise, returns to experience, attends to feelings, and reevaluates (the experience) (Appendix A). Level 2 contains three categories of reflection: nonreflection (NR), reflection (R), and critical reflection (CR). All levels of analysis and categories and elements of reflection used in this model come from researchers discussed in the literature review

Within Level 1 of the model by Plack and colleagues (Words, Sentences, and Paragraphs), the stage dependent contains the following elements: reflection in action (R-I-A), reflection on action (R-O-A), and reflection for action (R-F-A). The researchers of these elements are Schön (1983, 1987), Boud and colleagues (1985, 2001), and Killion and Todnem (1991). Schön developed R-I-A and according to Plack and colleagues its operational definition is "an element of reflection [which occurs] while in the midst of an action; on-the-spot decisions". (p. 202) The second part of the reflective process, R-O-A, was also developed by Schön and its respective operational definition by Plack and colleagues is "[an element of reflection which] occurs after the action has been completed". (p. 202) Boud and colleagues (2001) suggest that R-O-A is the most appropriate of these elements for journal writing "because writing is a means of puzzling through what is happening in our work" (p. 11) thus, after a musical experience, students can reflect upon the specific event that had taken place. Killion and Todnem extended the work of Schön in their addition of a third type of reflection, R-F-A, a process which was summarized once again by Plack and colleagues in an operational way as "[an element which] occurs before being faced with the situation; begins to plan for the future". (p. 202) Moreover, Killion and Todnem describe R-F-A as "the desired outcome of both previous types of reflection" (p. 15) which is to say that students have achieved an understanding of their own reflective processes and are capable of planning for future improvements. To summarize, R-I-A affects the present moment (e.g. "I am..."), R-O-A affects a very recent experience (e.g. "I just..."), and R-F-A affects the future (e.g. "I will..."). Now that the elements of reflection and reflective learning in the category of stage dependent have been presented, the next part of the framework by Plack and colleagues to be outlined is the content dependent.

Within Level 1 of the model by Plack and colleagues (Words, Sentences, and Paragraphs), the content dependent contains the following elements: content (CON), process (PROC), and premise (PREM). These elements were developed by Mezirow (1990, 1991) and Cranton (1995). Plack and colleagues operationalize CON in the reflective journal as an entry in which the student "explores the experience from a number of perspectives, beyond description". (p. 202) A related situation in piano practice would be a student who reflects on a musical experience from the viewpoint of others, such as the teacher, peers, or audience members. PROC is a part of reflection in which strategies are listed in the journal. In piano practice, PROC would include a list of strategies listed by a student that could be used to accomplish a task, such as ways to memorize a piece. PREM "recognizes and explores [a student's] own assumptions, values, beliefs, and biases". (p. 202) This part of reflection works similarly to CON in its consideration of alternative perspectives, but in the case of PREM, a piano student would for example, begin to "critique" (p. 206) his or her own assumptions, values, beliefs, and biases. To summarize, CON considers alternative perspectives (e.g. "My teacher/peer/friend suggests that I..."), PROC lists strategies (e.g. "I can try doing...") and PREM critiques personal assumptions, values, and bias (e.g. "I am no longer sure that..."). At this point, the next category of the elements of reflection, the stage dependent, will be discussed.

Within Level 1 of the model by Plack and colleagues (Words, Sentences, and Paragraphs), the time dependent contains the following elements: returns to experience (RETRN), attends to feelings (ATTEND), and reevaluates (RE-EVAL). This category of the reflective process was developed by Boud and colleagues (1985, 2001). The time dependent still occurs immediately after an experience. RETRN, according to Plack and colleagues, "describes an experience" (p. 202) after an experience. The individual writes about what he or she considers

to be the most important aspects of the experience. ATTEND "acknowledges and begins to work with feelings" (p. 202) after an experience. The individual is able to reflect on the feelings experienced in the initial moment of reflection. Finally, RE-EVAL "reappraises the situation vis-à-vis past experiences" (p. 202) following an event. The individual uses the reflective journal to associate an experience to past experiences, integrate new information, validate personal insights, and appropriate new meaning. To summarize, RETRN describes an experience (e.g. "this is what happened"), ATTEND addresses feelings (e.g. "I was feeling") and RE-EVAL reappraises a situation (e.g. "This reminds me of...I had not considered...I think that I chose a good...I need to..."). As the time dependent is the final category of the nine elements of reflection and reflective learning, it is important to introduce Level 2 of the model by Plack and colleague: The Journal.

Within Level 2 of the model by Plack and colleagues (The Journal), there are three categories of reflection: nonreflection (NR), reflection (R), and critical reflection (CR). These categories were developed by Mezirow (1990, 1991), Schön (1983, 1987), and Jarvis and colleagues (1998). According to Plack and colleagues, a student's journal entry is categorized as NR when it merely describes an experience "with no evidence of questioning or evaluation of the experience" (p 206) and "may even reject the possibility of learning something new because he or she is sure he or she is right". (p. 206) A journal entry is categorized as R when "evidence of reflection is present in the journal" (p. 206) which is to say that a student pauses in action or immediately following an action "with the intent of better understanding the situation, or to decide how best to perform". (p. 206) Therefore, an entry that is R also shows evidence of R-I-A, R-O-A, or R-F-A. Finally, CR displays evidence of critical reflection meaning that the student stops an action to "explore the existence of the problem" (p. 206) and "revisits the experience,

begins to critique his or her own thought processes, shows evidence of recognizing his or her own assumption, and may begin to show evidence of modifying his or her own biases or assumptions". (p. 206) Therefore, an entry that is CR also shows evidence of PREM, RETRN, ATTEND, and RE-EVAL. Presently, Levels 1 and 2 of the elements of reflection and reflective learning by Plack and colleagues have been outlined and a summary of these definitions is in the appendix (Appendix A) as well as in a document which applies these definitions specifically to the piano student (Appendix B).

Table 5 *Theoretical Framework: Plack and colleagues (2005, p. 206)*

Levels	Stage/Categories	Elements
Level 1: Words, Sentences, & Paragraphs	Stage dependent	<ul style="list-style-type: none"> • Reflection in action (R-I-A) • Reflection on action (R-O-A) • Reflection for action (R-F-A)
	Content dependent	<ul style="list-style-type: none"> • Content (CON) • Process (PROC) • Premise (PREM)
	Time dependent	<ul style="list-style-type: none"> • Returns to experience (RETRN) • Attends to feelings (ATTEND) • Reevaluates (RE-EVAL)
Level 2: The Journal	<ul style="list-style-type: none"> • Nonreflection (NR) • Reflection (R) • Critical Reflection (CR) 	

The reflective journal model by Plack and colleagues (2005) has some limitations which they acknowledge and for each limitation they demonstrate how it will be addressed. While assessing reflective journals provides "an early baseline for the facilitation of the reflective

process" (p. 203) there are other methods of assessing students' reflection such as "additional writings, probing questions in class, and so on". (p. 206) The model by Plack and colleagues relates particularly well to reflective journal procedures for piano students as most learning happens during an individual's daily practice. Each journal entry is unique to the writer, and this requires the raters to use their interpretation of the text in their assessment. While Plack and colleagues recognize that perfect agreement among rater interpretation is unrealistic, they provide operational definitions for each element. While there are limitations to the model by Plack and colleagues, this thesis considers the suggestions by Plack and colleagues in addition to adapting their procedure in order to answer the research questions.

Research Questions

Reflective journal literature is nonexistent in the field of piano study, providing an opportunity to explore its possibilities specifically with a group of undergraduate piano students who could implement a journal with their practice. The author's self-experiment with a journal to assist with her daily piano practice resulted in benefits from journaling that other students could perceive if they use a journal as a practice tool. While the author also perceived a development of reflectivity in her journal entries while undergoing a self-experiment, it is unknown whether or not the development of reflection can be measured qualitatively in the field of piano study. Reflective journal models (Plack et al., 2005; Thorpe, 2004; Kolar and Dickson, 2002) suggest that a deepness of reflection referred to as critical reflection can be developed in the journal entries of students who follow a reflective journal procedure, giving trained students a valuable tool to assist with their respective professions. The reflective journal as a tool to develop critical reflection could contribute to the preparedness of undergraduate piano students training for

professions in piano performance. Undergraduate piano students could perceive benefits from journal writing including: becoming critically aware of their feelings and knowledge so as to gain new perspectives, developing problem-solving skills within a learning context, and developing independent learning skills. Emerging from the research problem are the following questions:

- 1) Over a short period of time, can we see a development in reflective thinking skills in the journal entries of undergraduate piano students who have undergone reflective training compared to a control group?
- 2) Can undergraduate piano students who have undergone a reflective training program perceive the following benefits after using a journal to assist with their practice;-- development of critical awareness and new perspective, problem-solving skills, and independent learning skills?

Hypothesis

It is expected that over time, we will observe a development of reflective thinking skills in the journal entries of students who have received reflective training compared to a control group with no training. Also, it is anticipated that undergraduate piano students trained to use a reflective journal will perceive the benefits of the development of critical awareness and new perspectives, problem-solving skills, and independent learning skills.

Chapter Two: Methodology

The reflective journal literature in chapter one presented reflective journal models that could be used to develop and assess a deepness of reflection in undergraduate students' journal entries. For ease of summarizing the existing journal models and reflective training studies, a brief summary is presented below in table 6. The participants in all the studies were students enrolled in undergraduate courses at the time of the reflective training. All reflective training procedures implemented a journal for the student participants to use. Reflective training was most often carried out as part of the courses in which the students were enrolled. While it is disclosed that the students were reflectively trained in the classroom, the details of the reflective training procedure are not consistently made available to the reader. The training procedure by Plack and colleagues that we adapted into guidelines for our study can be found in Appendix B. The duration of the reflective training varied from one week (Thorpe, 2004, Plack et al., 2005) to two school semesters (Wong et al., 1997). Reflective journal entries were assessed qualitatively by either the research team (Wong et al., 1997; Scanlan & Chernomas, 1997; Kolar & Dickson, 2002; Knowles et al., 2010; Watson, 2010), computer software (Thorpe, 2004), or a blind jury (Kember et al., 1999; Plack et al., 2005). The studies that included a blind jury to assess the journal entries were also testing for model reliability. In each study, students who underwent reflective training and completed journal entries were either surveyed or interviewed in order for the researchers to ask students if they perceived benefits to journal reflective training and journal writing. Each study concluded that reflective training paired with reflective journal writing could assist students with their professional training and students can perceive many benefits. Moreover, the study by Plack and colleagues concluded that their model for reflective journals (training procedure, assessment coding scheme) can be used to measure the development of

reflectivity over time. Based on component availability, feasibility, and implications for future research, the model by Plack and colleagues has been chosen in order to sufficiently answer the first research question. The second research question will be addressed through a follow-up survey created by the researcher (Appendix C).

Table 6 *Summary of Qualitative Reflective Journal Methodologies*

Author(s)	Model components	Participants	Procedure	Assessment	Conclusion
Wong et al. (1997)	3 categories of reflection: nonreflection, reflection, & critical reflection	73 undergraduate students	During 2 school semesters, students wrote 4 journal entries per week; students were also enrolled in a reflective training course throughout the study; students discussed course topics in small groups (~10 each)	Researcher made observations of journal entries, group discussions and interviews	Reflection strategies (journal entries, group discussions, interviews) helped students to challenge their old points of view and develop new perspectives.
Scanlan & Chernomas (1997)	3 stages of reflection: awareness (present), critical analysis (connects past, present, & future), & learning (future)	N/A: A theoretical model created based on existing journal entries	Using existing journal entries from coursework (unspecified), the researchers created their reflection model	Researchers assessed the journal entries based on theories of Schön (1983, 1987), Mezirow (1990), Atkins & Murphy (1993)	The reflection process can be present in student journal entries
Hutchinson & Allen (1997)	Reflection Integration Model, 4 components: pre-experience, experience,	N/A: A theoretical model	Based on current reflection theories, the researchers created a model that includes: reading, writing, discussions,	N/A: A theoretical model	The journal is a means for a student to complete the reflection component of the model: creating insights based upon experience

	reflection, & integration		and observation-making		
Kember et al. (1999)	7 coding categories for reflective thinking: habitual action, introspection, thoughtful action, content reflection, process reflection, content and process reflection, & premise reflection	Unspecified number of students and students' journal entries consulted	The researchers created a model based on the theories of Mezirow.	Four jury members agreed on the 7 coding categories and assessed student journal entries in accordance with the categories	The coding scheme for assessing the depth of reflection in journal entries should be applicable to any professional development course.
Kolar & Dickson (2002)	Inspired by Hutchinson & Allen, delineated findings of 80 student teachers' perspectives on journal writing	Unspecified number; students from 2 universities (enrolled in the same course)	Students were enrolled in a reflective writing course; simultaneously, students wrote entries including narrative, poems, stories, cartoons; students were interviewed about their perceptions of the project	Researchers qualitatively analyzed the journals; not described	Based on interviews, students perceived the following benefits to journal writing: promotes reflection of coursework with application, exploration of topics, encourages critical reading/thought, increases analytical thought

Thorpe (2004)	Merged the models of Scanlan & Chernomas (1997) & Kember et al. (1999)	52 undergraduate students	Students received reflective training in form of written guidelines at the beginning of a semester; students wrote one entry per week during the semester; the course instructor/researcher provided weekly feedback	The researcher completed a content analysis using a computer software called NU*DIST(precursor to NVivo)	Most students' entries were reflective; some (6) were critically reflective; some were nonreflective (likely due to brevity); Reflective training gives students a responsibility to take ownership of their learning
Plack et al. (2005)	Developed a coding scheme and operational definitions according to theories of Schön (1983, 1987), Boud et al. (1985, 2001), Mezirow (1990), Cranton (1995, revised 2006), Jarvis et al. (1998), and Killion & Todnem (2001).	27 undergraduate students	3-week journal period during an 8-week clinical experience	Four raters assessed 48 journal entries according to the coding scheme; journal entries were categorized as being either nonreflective, reflective, or critically reflective	The researchers suggested that their framework can be used to measure the development of reflectivity (from nonreflective to critically reflective) in students' journal entries in future studies.

Knowles et al. (2010)	Adapted model from theories of Mezirow (1990)	8 undergraduate students	During a semester, studies learned about reflective theories in a course; simultaneously, students kept journal entries (# unspecified) based on course concepts	Researchers assessed journal entries and interviews according to the coding scheme	Researchers noticed a development of reflection in the students' journal entries over time; In the interviews, students reported that they perceived that they became more reflective, and made links between theories and application
Watson (2010)	The assessment codes are not provided (only known to the researcher); the reflective training given to the students is not disclosed	25 undergraduate students	6-week period; students wrote one journal entry per week in response to course topics; reflective journaling was introduced in week 2; journal period followed by semi-structured interviews	The researcher assessed the journal entries and interviews according to the coding scheme	Indicated a need for further opportunities for students to engage in the learning process through writing exercises; it is important to develop the relationship between knowledge and application; this study encouraged students to link concepts (knowledge) with applications

2.1 Design

Based on the model by Plack and colleagues (2005), this study wished to explore the development of reflection in students' journal entries over a period of time. A control group of participants was part of the study design. While no studies in the literature included a control group, the decision to include one adds significance to the results of the group that is reflectively trained. Results of the reflectively trained group were compared to the results of the group without the training. The duration of the study was four weeks. All participants were expected to write four journal entries per week. Participants in the reflective training group received reflective guidelines at the end of two weeks. For feasibility, the researcher chose to implement guidelines based on the training models discussed in the literature review. All journal entries were coded and analyzed using the qualitative analysis software, *NVivo 11*. Following the coding of journal entries, three main analyses were used to answer the first research question:

- i) Comparison between the reflective training group and the control (unstructured) group after two weeks of journaling.
- ii) Comparison between the results of the reflective training after the first two weeks of the study with the results of the remaining two weeks of the study.
- iii) Comparison between the results of the last two weeks of the reflective training group with the results of the last two weeks of the control group.

In order to answer the second research question, the reflectively trained student participants were provided with a follow-up survey at the end of the four-week project. Students were asked to answer closed and open-ended questions pertaining to the journal project (Appendix C). The survey contained questions specific to the second research question.

2.2 Participants

Eighteen undergraduate music students (12 females, 6 males) enrolled in piano lessons at the university level participated in this study. It should be noted that one participant was a senior student in high school preparing for an examination with the Royal Conservatory of Music and was recruited through a colleague at the University of Ottawa. Participants were recruited through e-mails sent to piano professors (Appendix D). Interested participants e-mailed the researcher for further instructions. Participants were sorted quasi-randomly into the reflective training and control groups. Gender was controlled as a precaution. Each group was comprised of six females and three males. Gender influence in reflective training has not been studied. Plack and colleagues (2005) had twenty-seven undergraduate physical education students participate in their study and did not use a control group. It was hoped that twenty participants would participate for reasons of feasibility within the time-frame of a master's program. However, eighteen participants agreed to participate. The decision to use a control group was to be able to compare the results of reflectively trained students compared to untrained students. The hypothesis was that the reflective training group would develop significantly more reflection than that which would occur naturally. The decision to use undergraduate university students was based on the available literature on reflective journal procedures. The table below summarizes the participants' demographic information.

Table 7 *Participants' Demographic Information*

		Reflective Training N = 9	Control N = 9	Both N = 18
Age	17	N = 0	N = 1	N = 1
	18	N = 2	N = 0	N = 2
	19	N = 1	N = 1	N = 2
	20	N = 2	N = 3	N = 5
	21	N = 3	N = 2	N = 5
	22	N = 1	N = 0	N = 1
	23	N = 0	N = 0	N = 0
	24	N = 0	N = 1	N = 1
	25+	N = 0	N = 1	N = 1
Gender	Female	N = 6	N = 6	N = 12
	Male	N = 3	N = 3	N = 6
Year of Study	Grade 12	N = 0	N = 1	N = 1
	First year	N = 4	N = 0	N = 4
	Second year	N = 1	N = 4	N = 5
	Third year	N = 3	N = 2	N = 5
	Fourth year	N = 1	N = 2	N = 3

2.3 Apparatus and Setting

Apparatus

The first apparatus for the study was the journal that each participant used to assist with their piano practice. Each journal consisted of 16 individual journal entries (4 per week over a period of 4 weeks). The students in the reflective training group received the reflective journal guidelines for piano practice (Appendix B) to assist with their journal writing at the end of week two of the study. The guidelines that the reflective training group received included suggested

keywords to put into their subsequent journal entries. The researcher created keywords that were specific to piano study. Similar keyword suggestions were given to participants in studies in the literature (Watson, 2010; Knowles et al., 2010, Plack et al., 2005; Thorpe, 2004), but these were not accessible in the articles. It was expected that the guidelines would provide structure to the journal entries of the reflective training group. The checklist (Appendix E) was used to complete the evaluation of the reflective depth of the journal entries.

The second apparatus for the study was the follow-up survey (Appendix C) that the reflectively trained students completed upon completing their journal entries. The follow-up survey asked students if they perceived the following benefits of reflective journaling: critical awareness and new perspective, development of problem-solving skills within a learning context, and the development of independent learning skills. Also, the participants were encouraged to explain their reasoning for reporting "yes" or "no" to each of the possible perceived benefits.

Setting

The study took place in uncontrolled environments. The researcher encouraged participants to complete their reflective journal entries alone to achieve quiet reflection and not be influenced by peers.

2.4 Procedure

A certificate of ethics approval (Appendix F) was given by the University of Ottawa. Participants were quasi-randomly sorted into reflective training and control groups prior to the beginning of the study. Participants did not know to which group they belonged to prevent result bias. Before the participants began the study, they completed and returned to the researcher a consent form (Appendix G) and demographic survey (Appendix H). Participants were given journal instructions through e-mail (Appendix D). They began writing four journal entries per

week about a brand new piece of challenging piano repertoire. After two weeks of journaling, participants in the reflective training received an e-mail from the researcher regarding guidelines for keeping a reflective journal for piano practice. These participants used guidelines for reflective journal writing for the remainder of the project (2 weeks). At the same time, the participants in the control group received an e-mail from the researcher (Appendix D) reminding them to continue writing four entries per week for the remainder of the project (2 weeks). The justification of four entries per week per student was out of fairness to the participants and for feasibility for the researcher assessing the journal entries. Upon completing four weeks of journal writing, participants typed up their journal entries into a word processor (16 short documents) and sent the documents to researcher's e-mail address. The researcher e-mailed all the participants with a debriefing consent form to clarify the study design and the research questions. The researcher e-mailed the follow-up survey to the participants in the reflective training group to be completed and returned through e-mail.

2.5 Independent Variables

The independent variables in this study are the operational definitions of the elements of reflection and categories of reflection as defined by Plack and colleagues (2005) (Appendix A). These definitions are briefly presented in chart form below in table 8. These components of reflection constitute a reflective procedure that the researcher sent to the participants in the reflective training group at the beginning of the third week of the study (Appendix B). The guidelines for reflective journal writing were intended to assist the participants in the reflective training group with their journal writing. Due to reasons of feasibility, the guidelines presented to the students functioned as their reflective training. Guidelines included suggested keywords and

phrases that encouraged participants to reflect upon their practice experiences. While it was expected that participants would use a combination of suggested keywords and phrases in their journal entries, there was no limit to the possible combinations that could have been present in the entries. We included sample sentences pertaining to piano practice that were meant to guide participants to create ideas specific to their own repertoire.

Table 8 *Brief Definitions of Reflection Components: Plack and colleagues (2005)*

Brief definitions of elements of reflection and reflective learning and categories of reflection	
<u>Element of Reflection</u>	<u>Brief definition</u>
Reflection in action	Occurs while in the midst of an action; on-the-spot decisions
Reflection on action	Occurs after the action has been completed
Reflection for action	Occurs before being faced with the situation; begins to plan for the future
Content	Explores the experience from a number of perspectives (beyond description)
Process	Describes the strategies used or available
Premise	Recognizes and explores own assumptions, values, beliefs, and biases
Returns to experience	Describes the experience
Attends to feelings	Acknowledges and begins to work with feelings
Reevaluates	Reappraises the situation <i>vis-à-vis</i> past experiences
<u>Category of Reflection</u>	<u>Brief definition</u>
Nonreflection	No evidence of reflection is present
Reflection	Evidence of reflection is present
Critical reflection	Evidence of critical reflection is present

2.6 Dependent Variables

The dependent variables in this study were the reflective journal entries of the participants that were assessed by the researcher and the follow-up surveys. While each participant was responsible for writing 16 entries over a period of four weeks, the content of the journal entries was dependent on which group the participants were sorted into as well as to what extent the participants in the reflective training decided to implement the guidelines into their journal entries. Even with the assistance of the reflective guidelines, the participants could have used any number and any combination of keywords and key phrases to assist with their journal writing. Similarly, the participants in the reflective training group were asked to complete a follow-up survey after having completed their journal entries. The content of their answers depended on what the participants felt like revealing regarding their perception of reflective journaling benefits.

2.7 Data Collection

All participants were instructed as to how they were to label their journal entry documents prior to sending them to the researcher through e-mail. Documents were labelled using the participants' initials and journal entry number (e.g. MSCW 1, MSCW 2, MSCW 3, etc). Participants in the reflective training group completed a follow-up survey that was accessible as a word document. The researcher kept track of all the data using a spreadsheet in Microsoft Excel. The researcher recorded participants' names, groups (either reflective training or control), individual journal entry file titles, randomized journal titles, demographic survey

titles, randomized demographic survey titles, follow-up survey titles, and randomized follow-up survey titles. Each document or survey was assigned a random alpha-numeric codename.

2.8 Coding Procedure

Coding of the participants' journal entries was completed with a qualitative analysis software. First, the qualitative analysis program will be briefly explained. Second, the coding procedure will be described.

The qualitative analysis software, *NVivo 11*, was chosen based on its recommendation in the book, *Qualitative Research in Education: A User's Guide* (Lichtman 2012). It was praised for its intuitive interface and for the available help resources online. The most recent version was selected (2015). The program interface somewhat resembles an e-mail system such as Microsoft Outlook. The main function of *NVivo 11* is to account for all information that is manually entered by its user. The user manually completes the content analysis by highlighting text and "dragging and dropping" it into the appropriate theme. The program keeps a record of the source information, references, and any modifications made by the researcher. The researcher randomized all the typed journal entries, follow-up surveys, and demographic surveys. These were imported and sorted into folders: reflective training weeks 1 & 2, reflective training weeks 3 & 4, control weeks 1 & 2, control weeks 3 & 4, demographic surveys, and follow-up surveys.

The coding procedure unfolded in the following manner. First, "nodes" (themes) were inserted in the program. Nodes were inserted according to the guidelines for reflective journaling that were given to the participants in the reflective training group. Each category and sub-category of reflection was represented by a code. Beneath these, sub-themes were created based on the content of the journal entries themselves. (Appendix J). Again, these words and phrases

were taken from the reflective training guidelines. Second, the folder containing the journal entries for participants in the reflective training group, weeks 1 & 2 was opened. Each entry was examined with the intention of finding themes to select. Identifiable themes were highlighted using the highlighting feature, and were manually "dragged and dropped" into the according theme. As the coding process continued, the sub-themes were adjusted according to the words and phrases chosen by the participants themselves. The program kept a tally of the number of themes present in each entry and the total number of theme references in each entry. On average, between 20 and 50 entries were coded at every session. The program kept track of which entries were coded and at which date they were last modified. Third, entries were systematically re-coded after a few days to a week had elapsed. In this way, the researcher maintained a self-reliability and was able to ensure that all new words and phrases were adequately addressed in all of the entries. In total, 284 journal entries were coded. For further clarification regarding the coding process, we provide an example (Appendix K).

While coding the journal entries according to the given themes (reflection components) and sub-themes (created themes from the journal entries themselves), the researcher became particularly interested in the specific reflective themes of process reflection (PROC) and attends to feelings (ATTEND). It was curious which themes were reported by the students within each of these. The following question emerged: What are the most common themes within PROC and ATTEND, and what do these themes imply about how undergraduate piano students approach their practice? Because this question came about from the coding procedure and not from the review of literature, a hypothesis cannot be created based on existing research. In order to answer this question, the themes were sorted from their largest to smallest numbers within the *Nivo 11* program, and then these were exported into *Microsoft Excel*

Chapter Three: Results

This chapter is divided into three sections, one for each research question. For each research question, the analysis test will be described first, followed by results. Then, the findings will be discussed, and each research question will have its own conclusion. Finally, there will be a general conclusion to the whole chapter.

3.1 Research Question 1

Over a short period of time, can we see a development in reflective thinking skills in the journal entries of undergraduate piano students who have undergone reflective training compared to a control group?

We hypothesized that we would be able to see a development in reflective thinking skills in the journal entries of undergraduate piano students who have undergone reflective training compared to the control group. In order to test this hypothesis, all journal entries were coded using *NVivo 11* (see section 2.8) and were sorted in preparation for analysis.

Upon completion of coding all of the journal entries according to themes, the matrix coding function of the software was used to run analysis queries. In order to perform a matrix query, the following datasets were created: reflective training weeks 1-2, reflective training weeks 3-4, control weeks 1-2, control weeks 3-4, reflective training females weeks 1-2, reflective training females weeks 3-4, control females weeks 1-2, control females weeks 3-4, reflective training males weeks 1-2, reflective training males weeks 3-4, control males weeks 1-2, control males weeks 3-4, and individual participants (numbered 01-18) weeks 1-2, and

individual participants weeks 3-4. The matrix coding function created comparison tables according to the datasets and themes. The tables were exported into *Microsoft Excel*.

The first three analyses run were in accordance with the initial methodology plan. For each analysis test, the information from the reflective training and control groups was analyzed according to content in each of the reflective components discussed in the methodology (see chapter two). Before continuing with the analysis test, this is a reminder of these reflective components, which were also given to the participants in the reflective training group as guidelines for reflective practice.

Table 9 *Summary Table of Reflective Components in Piano Practice*

Summary Table of Reflective Components in Piano Practice		
<u>Element of Reflection</u>	<u>Brief definition</u>	<u>Key phrases</u>
Reflection in action	Occurs while in the midst of an action; on-the-spot decisions	Right now... <ul style="list-style-type: none"> • I am having... • I am noticing... • I am observing...
Reflection on action	Occurs after the action has been completed	I just did...
Reflection for action	Occurs before being faced with the situation; begins to plan for the future	I will...
Content	Explores the experience from a number of perspectives (beyond description)	My teacher/peer/friend/someone suggests that I...
Process	Describes the strategies used or available	I can try doing...
Premise	Recognizes and explores own assumptions, values, beliefs, and biases	I am no longer sure that...
Returns to experience	Describes the experience	It is significant that... this is what happened....
Attends to feelings	Acknowledges and begins to work with	I was feeling...

	feelings	
Reevaluates	Reappraises the situation <i>vis-à-vis</i> past experiences	This reminds me of... I had not considered... I think that I chose a good... I need to...
<u>Category of Reflection</u>	<u>Brief definition</u>	
Nonreflection	No evidence of reflection is present	A nonreflective journal entry contains no reflective elements
Reflection	Evidence of reflection is present	A reflective journal entry contains the following elements: <ul style="list-style-type: none"> • Reflection-in-action • Reflection-on-action • Reflection-for-action
Critical reflection	Evidence of critical reflection is present	A critically reflective journal entry contains the following elements: <ul style="list-style-type: none"> • Premise • Returns to feelings • Attends to feelings • Re-evaluates the experience

Analysis Test I: Comparison between the reflective training group and the control (unstructured) group after two weeks of journaling.

This comparison was completed to ensure that the students in each group were satisfactorily similar. Based on the table below, the reflective training and control groups appear evenly matched. With the exception of PROC, all reflective elements differ by fewer than twenty entries. While the PROC score is quite a bit higher in the control group compared to the reflective training group, both of these figures are still large.

Table 10 *Comparing Reflective Training and Control Groups after 2 Weeks of Journaling*

	1. Stage Dependent			2. Content Dependent			3. Time Dependent		
	1.1. R-I- A	1.2. R-O- A	1.3. R-F- A	2.1. CON	2.2. PROC	2.3. PREM	3.1. RETRN	3.2. ATTEND	3.3. RE- EVAL
Control Weeks 1-2	35	169	25	6	265	43	11	20	44
Ref. Tr. Weeks 1-2	16	160	61	20	164	64	28	20	51

From consulting this table, a few general observations can be made about both groups after two weeks of journaling. Students tended to prefer writing in the past tense (R-O-A), meaning after the practice session had ended, compared to the present tense (R-I-A). Both groups considered future planning (R-F-A), expressed judgments (PREM), and re-evaluated experiences (RE-EVAL) more often than consulting a professor or peer (CON) or addressing their feelings (ATTEND). It is likely that the CON references were relatively low because piano students only have lessons once per week, and practice in a solitary space, often away from peers. Perhaps the students did not attend much to feelings during these first two weeks of unstructured journaling because they were unsure if the researcher would consider these to be important. Nevertheless, there were twenty references coded in each group for ATTEND, meaning that students were identical in this way. The highest figure in each group was for PROC, in which students listed the practice strategies they employed. This is not surprising, because practice strategies are essential to the learning process in not only piano study, but music study at large. Given that both groups were similarly matched after two weeks of journaling, the next exploration was the growth of the reflective training group over time.

Analysis Test II: Comparison between the results of the reflective training after the first two weeks of the study with the results of the remaining two weeks of the study.

Over four weeks of journaling, the following trends were present in the reflective training group. The corresponding figures are in the table below.

Table 11 *Comparison of Reflective Training before and after Training*

	1. Stage Dependent			2. Content Dependent			3. Time Dependent		
	1.1. R-I- A	1.2. R-O- A	1.3. R-F- A	2.1. CON	2.2. PROC	2.3. PREM	3.1. RETRN	3.2. ATTEND	3.3. RE- EVAL
Ref. Tr. Weeks 1-2	16	160	61	20	164	64	28	20	51
Ref. Tr. Weeks 3-4	49	145	88	32	129	86	21	54	77

While students still preferred to write in the past tense (R-O-A) compared to the present (R-I-A), there was a growth in the present tense and a decline in the past tense. Perhaps some students used R-I-A to become more conscious of themselves in the moment rather than trying to remember what had occurred at the end of a session. A growth in future planning (R-F-A) suggests that participants were goal-setting and thinking about their learning over a long-term period instead of just in the context of an individual practice session. A growth in CON reflection suggests that students actively sought out advice from peers during their practice time and reflected about their weekly piano lessons in their entries. Initially, it was surprising to notice that the students reported fewer strategies after four weeks of journaling. However, it may be possible that students reasoned that employing a variety of strategies became unnecessary once basic elements such as notes and rhythms were in place. A growth in PREM could imply that participants became more conscious of their playing, and as a result, made more judgments than prior to the training. While the students described fewer experiences (RETRN), they

became more attuned to how they were feeling (ATTEND) and were more willing to create new perspectives (RE-EVAL).

Analysis Test III: Comparison between the results of the last two weeks of the reflective training group with the results of the last two weeks of the control group.

After four weeks of journaling, the reflectively trained group referenced elements of reflection more often than the control group. In all elements except for PROC, the reflectively trained group made significantly more references to the elements of reflection compared to the control group. While after two weeks of journaling, the control group had referenced R-I-A, R-O-A, and PROC more frequently than the reflectively trained, the latter surpassed the former in both R-I-A and R-O-A. However, the control group still had more PROC references compared to the reflectively trained group after four weeks of journaling. Both groups experienced a decline in PROC. This could suggest that students choose not to write about strategies after the initial first practices of new repertoire.

Table 12 Comparison of Reflective Training and Control Groups after 4 Weeks of Journaling

	1. Stage Dependent			2. Content Dependent			3. Time Dependent		
	1.1. R-I- A	1.2. R-O- A	1.3. R-F- A	2.1. CON	2.2. PROC	2.3. PREM	3.1. RETRN	3.2. ATTEND	3.3. RE- EVAL
Control Weeks 3- 4	21	130	28	2	192	61	10	18	52
Ref. Tr. Weeks 3-4	49	145	88	32	129	86	21	54	77

Analysis Test IV: Comparison of Reflective Growth over Time between the Reflective Training and Control Groups

While the three analyses made thus far suggest that the reflectively trained students developed more reflection compared to the control group, it was decided to further the investigation by comparing the difference in growth over time for both the reflective training and control groups. In this way, the most important numbers are the differences between the first two weeks and last two weeks of journaling, rather than the number of references. The differences are represented in the table below.

Table 13 *Comparison of Reflective Growth over Time*

	1. Stage Dependent			2. Content Dependent			3. Time Dependent		
	1.1. R-I- A	1.2. R-O- A	1.3. R-F- A	2.1. CON	2.2. PROC	2.3. PREM	3.1. RETRN	3.2. ATTEND	3.3. RE- EVAL
Control Weeks 1 - 2	35	169	25	6	265	43	11	20	44
Control Weeks 3 - 4	21	130	28	2	192	61	10	18	52
Difference +/-	-14	-39	3	-4	-73	18	-1	-2	8
Ref. Tr. Weeks 1 - 2	16	160	61	20	164	64	28	20	51
Ref. Tr. Weeks 3 - 4	49	145	88	32	129	86	21	54	77
Difference +/-	33	-15	27	12	-35	22	-7	34	26

While reflective changes occurred in both groups, the reflective training group became considerably more reflective over time in comparison to the control group. The reflective training group experienced a growth in reflection in six elements (R-I-A, R-F-A, CON, PREM, ATTEND, and RE-EVAL). By contrast, the control group experienced a decline in reflection in six elements (R-I-A, R-O-A, CON, PROC, RETRN, and ATTEND). Both groups experienced a

growth in R-F-A (future planning), PREM (making judgments), and gaining new perspectives (RE-EVAL). In all three of these elements, the reflective training group experienced more growth than the control group. Overall, the growth in the reflective training group was significant, as six of nine reflective elements increased by at least 10 references. By contrast, the growth of the control group in the three of nine elements was less impressive (between 3 and 18 references). Also, the control group experienced more significant declines in reflection compared to the reflective training group. For instance, the control group lost 73 references to PREM over time, compared to the reflective training group, which lost 35 references. These contrasts between the groups suggest that the reflective training group not only experienced a more profound reflective growth compared to the control group, but also experienced significantly less decline. Individual participant results also reflect these trends (Appendix L).

It is important to draw attention to positive differences between the reflective training and control groups regarding the negative numbers. Over time, there is an overall decline in R-O-A in both groups. However, the negative figure is much smaller in the reflective training group (-15) compared to the control group (-39). Similarly, for PROC, the decline is smaller for the reflective training group (-35) compared to the control group (-73). Given that these declines are nearly half the size for the reflective training group, we can affirm that the treatment still worked positively for these participants, thus contributing to their growth over time. Notwithstanding the reflective growth that occurred naturally for the control group, based on observations from the analysis charts above, the hypothesis that reflectively trained students develop more reflective thinking skills over a period of time compared to a control group is strongly supported.

Recall from the summary table at the beginning of this research question that a journal entry or entries can be categorized as showing nonreflection, reflection, or critical reflection. The most important of these is critical reflection, because it demonstrates an ability to think beyond a problem. Critical reflection is comprised of the following reflective components: PREM, RETURN, ATTEND, and RE-EVAL. This implies that an individual explores a problem (finds its roots, assumptions that could have created the problem), revisits the experience where one found the problem, begins to think critically about assumptions, and may show evidence of modifying any previous biases. While both the reflective training and control groups demonstrated evidence of critical reflection in their journal entries, the reflective training group developed more of this over time in comparison to the control group. The reflective training group developed critical reflection through increased numbers in PREM, ATTEND, and RE-EVAL. By contrast, the control group only showed a moderate growth of critical reflection through increased numbers in PREM and RE-EVAL.

3.2 Research Question 2

Can undergraduate piano students who have undergone reflective training program perceive the following benefits after using a journal to assist with their practice: development of critical awareness and new perspective, problem-solving skills, and independent learning skills?

The hypothesis for the second question is that it is anticipated that undergraduate piano students trained to use a reflective journal will perceive the benefits of the development of critical awareness and new perspective, problem-solving skills, and independent learning skills.

In order to answer this question, all nine students in the reflective training group completed a follow-up survey (Appendix C) after having completed four weeks of journaling. They responded either "yes" or "no" when asked if they had perceived the following potential benefits of reflective training: critical awareness and new perspective, development of problem-solving skills within a learning context, and development of independent learning skills. The results are displayed in the table below.

Table 14 *Perceived Benefits of Reflective Journaling*

	Yes	No
Critical Awareness and New Perspective	8	1
Development of Problem-Solving Skills Within a Learning Context	7	2
Development of Independent Learning Skills	8	1

Each "yes or no" question was followed by "please explain" to give students the chance to elaborate on their responses and these are now presented in a short discussion regarding each benefit.

Critical Awareness and New Perspective

Eight out of nine students reported that they perceived the benefit of critical awareness and new perspective after having completed journal entries according to the reflective training procedure. Regarding critical awareness, they reported becoming: more observant (of piece details, mistakes) while practicing, critical of their playing, and aware of shortcomings in practice habits. Regarding new perspectives, students reported thinking about their playing in hindsight, experiencing a reduction of frustration from reflecting on their playing, and questioning their practicing style in retrospect.

One student expressed:

I felt like I was more observant and aware, actively noting things while I was practicing. It may have been due to the fact that I subconsciously knew that I would need to write it all down afterwards. Regardless of why, I found it encouraged me to work on this piece very thoroughly since I feel as though I have gone through this entire piece, critiquing and analyzing my playing in every single bar. It also offered a new perspective because I would sometimes realize things in hindsight while I was writing the response. As well, I have never done anything like this before in the past, so this was an entirely new and positive experience for me.

A second student reported:

Critical awareness was achieved through the questioning of one's own practicing style as well as the content and immediate nature of the critical analysis and questioning... A new perspective as I began to experience a new way/form of critical practicing; this allowed me to draw upon different ways of reacting and approaching a technical/music[al] issue.

A participant who did not report perceiving the benefit of critical awareness and new perspective acknowledged the reflective journal's potential to assist students in this regard:

I often spend time reflecting on my practice sessions and use this time to determine what I should be practicing next session. This is what the journal entries also promote. Had I not already been doing this, the journaling would have been an excellent tool to develop critical thinking skills when practicing.

Thus, based on the positive responses, the reflective training benefit of critical awareness and new perspective was perceived among most of the reflectively trained students in the study. Perhaps previous reflective experiences have an impact on whether or not participants perceive the same benefits as those without any previous training.

Development of Problem-Solving Skills within a Learning Context

Seven out of nine students reported that they perceived the benefit developing problem-solving skills within a learning context after having completed journal entries according to the reflective training procedure. Students reported that through the reflective training via the

journal, they were able to distinguish specific mistakes and challenges in their learning and were better able to come up with a practice plan to remedy those issues.

According to one student:

Because I had to document all my problems and my subsequent remedies for them in a journal entry after every practice session, I felt as though I spent more time working on little details than I would have normally. I used more tips and tricks gathered throughout my years taking piano lessons and even experimented on my own to fix problems I had. The end result was that I had a very presentable piece of music to play for my professor at my first lesson – he was very impressed!

A second student described how new problem-solving habits gave practicing a direction:

If there was a section that I wasn't quite comfortable with, I found that I was better able to distinguish what it was that was troubling me. Instead of practicing aimlessly and not really knowing where I was going, I was able to be more in tune to what wasn't working for me.

A student who did not report perceiving this benefit as a result of the reflective training did recognize that problem-solving awareness could be inherent to the journaling process:

I often play a run through of my piece to find problems and fix them during practice time. Because I have already developed this habit, the journaling did not aid any further. However, journaling did allow me to reflect on the progress that my problem-solving techniques had during the learning process.

Therefore, the reflective training benefit of developing problem-solving skills within a learning context was perceived among most of the reflectively trained students in the study.

While problem-solving skills may be well in place by an advanced stage of learning, the journal helps with evaluating these skills. Paired with newfound awareness, problem-solving strategies constitute a type of awareness particular to how learning can be done.

Development of Independent Learning Skills

Eight out of nine students reported that they perceived the benefit developing independent learning skills after having completed journal entries according to the reflective

training procedure. Participants reported learning how to take responsibility for their own progress, effectively becoming their own teacher.

This was summarized effectively by this student:

I had a fun time reflecting on my productive practices in the journal. It definitely gave me independent learning skills. I realized the problems and [their] root[s] and I could easily find and solve [them]. I never tried this method and would have thought it is quite troublesome but it is quite interesting telling yourself information, to be your own teacher, and to reflect on your journals responsibly.

A second student recognized a growth in independent learning was a positive effect:

My initial ideas of practicing were challenged as I realized that they were not effective, and I was challenged to explore new options to learn practicing skills. Instead of relying on other people to tell me what to practice, I was forced (in a good way) to evaluate and learn in different ways.

The student who did not report perceiving this benefit hypothesized that learning how to practice independently could be an inherent outcome of years of study, thus taking more than a short duration of time to develop:

[...] I have a fair understanding of how to learn pieces and though I don't say I have learned everything I can, I wouldn't say I saw these learning skills improve over the course of the 4 weeks.

Therefore, while most participants reported perceiving the benefit of developing independent learning skills, the perception of growth is very unique to each person. Given that eight of the nine participants perceived this benefit and explained the positive impact this benefit has had on their practice experience, it is significant that advanced students thought independent skills were not necessarily inherent to piano study.

In conclusion, the reflective training benefits of critical awareness and new perspective, development of problem-solving skills within a learning context, and development of independent learning skills were perceived by most students in the reflective training group.

Notwithstanding the small sample size ($n = 9$), the students varied in gender, age, and year of study, thus being representative of a typical undergraduate cohort. It is plausible, then, that reflectively trained undergraduate piano students perceive the same benefits to reflective journaling as those in other disciplines.

3.3 Research Question 3

What are the most common themes within PROC and ATTEND, and what do these themes imply about how undergraduate piano students approach their practice?

While completing the coding procedure (see section 2.8), it was noticed that process reflection (PROC) and attends to feelings (ATTEND) were very frequently referenced in both the reflective training and control groups. Recall from Research Question 1 (see section 3.1) that the reflective training group made fewer references to PROC and made more references to ATTEND over time than the control group. Presently, the concern is with the specific strategies and feelings to which all students were making reference. Due to this question emerging from the procedure and not the literature review, no grounded hypotheses could be made. It is hoped that through the tables, one will be able to make general remarks on the practice strategies employed and the feelings expressed by all the participants in the study, perhaps representative of the undergraduate piano student population. For this question, both PROC and ATTEND will be discussed separately, followed by a conclusion.

Process (PROC)

Students in both the reflective training and control groups made many references to PROC, despite an overall decline in numbers over time. The high numbers are likely a result of the students wishing to express how they had practiced, beyond simply reporting what they had done. Because of the high frequency, light is shed on the most preferred practice strategies of undergraduate piano students. This information could be useful for pedagogy researchers, piano teachers, and piano students. In the table below, the "sources" column means the number of journal entries in which the strategies were present, and the "references" column refers to the total number of times the strategies were reported.

Table 15 *Top 20 References to PROC*

Strategy	Sources	References
slow practice	160	212
repetition	134	206
focused on x y z	138	158
metronome	96	134
hands-voices separately	98	132
hands together	96	124
run-though	92	98
small sections	52	56
analysis	46	46
listening	38	42
reviewed	30	30
counting out loud	6	28
stop and think	20	20
rhythms	18	18
wrist exercises - warmups	18	18
scales	18	18
timer - 3 minute-rule	14	14
goal-setting	14	14
backwards practice	12	12
singing	12	12

There are a few surprising strategies that constituted the top twenty list. As one can see from the table, "slow practice" was the most referenced practice strategy. Any reference to "slow" or its derivatives to this strategy was coded. It is acknowledged that perception of "slow" is unique to the individual. Nonetheless, "slow" practice is intriguing as the most referenced, given that it is a common complaint of piano teachers that students do not employ this nearly as often as they should. The "run-through" strategy being high on the list is surprising, given that brand-new pieces are supposedly challenging to sight-read. Some students consistently included a run-through at the beginning of every practice session as a means to discover which sections needed the most attention. While run-throughs can pinpoint problems and challenges, it perhaps suggests that a higher value is placed on problem detection rather than correct integration. The very slight preference to report hands (or voices) separately compared to a hands together approach was initially surprising because, again, the pieces the participants were learning were challenging. Perhaps the latter was reported frequently due to teacher influence; some professors strongly recommend hands together learning from the outset.

Likewise, there are a few unsurprising strategies that were frequently reported. Unsurprisingly, "repetition" is at the top of the list. It is understood that repetition is necessary in order to achieve automatism. The strategy that is labelled "focused on x y z" refers to any time when a student remarked that they played with an intention about a specific item (e.g. "I focused on having the fingering in place.") Because the "focused" strategy encompasses any practice intention, it is unsurprising that it is high on the list. Given the universal usage of the metronome, its high frequency is not surprising.

It is very likely that teachers influenced which strategies the students reported. Nearer the bottom of the list are strategies such as practicing in rhythms, practicing backwards, setting a

timer, and singing, which are not universally recommended as practice strategies. While the reflectively trained students reported perceiving a growth in their independent learning skills over time (see section 3.2), this does not separate them from teacher influence.

Attends to feelings (ATTEND)

There were no speculations about which feelings would be the most frequently reported by the students. The top twenty most frequently reported feelings are in the table below.

Table 16 *Top 20 References to ATTEND*

Feeling	Sources	References
happy	36	36
frustrated	32	32
comfortable	16	16
confident	12	12
satisfied	12	12
tired	10	10
excited	8	8
encouraged	6	8
accomplished	6	6
distracted	6	6
inspired	6	6
anxious	6	6
overwhelmed	6	6
proud	6	6
confused	4	4
determined	4	4
nervous	4	4
prepared	4	4
uninspired	2	4
focused	2	2

According to the table, students most frequently reported feeling happy. The word "happy" was used as a general theme, combined with synonyms such as "content" and "glad."

Perhaps not surprising to some, feeling frustrated was commonly reported as well. Given that the pieces learned for the study were challenging for the students involved, some frustrations would be natural in the initial stages of learning. The feeling of "tired" making it within the first half of the list may be indicative of a not-optimal practice routine. Perhaps students are either physically or mentally fatigued from their practice or their everyday lives in general. Students could benefit from a self-assessment about their physical and mental health in order to make their piano practice more invigorating and enjoyable. The feeling of being "focused" scoring as number twenty on this list is a bit surprising, given that focus is necessary for an effective practice session. If one is not focused, the mind is prone to wander and piano playing becomes a mechanical activity.

While the frequency reports for both PROC and ATTEND are very interesting, it is important to also mention the role that the "non-dits" (unspoken) strategies and feelings could play. Students were never obliged to write about the specific strategies they employed or the feelings they experienced while learning their new pieces of repertoire. Any information provided was based on their voluntary desire to do so. Therefore, unwritten strategies and feelings still influenced the students' learning. For example, every time someone practices a piece, they have a choice of either playing both hands together, hands separately, or voices in combination with each other. It would be expected, then, that these would constitute the top three practice strategies reported. However, this is untrue, meaning that not all students reported how they were practicing at all times. Similar logic can be applied to the feelings reports. For example, a student who is feeling happy may not always report it if this is their normal attitude when practicing.

In conclusion, this chapter addressed three research questions, two of which came from the literature review, and one emerged from the coding procedure. First, we compared the reflective growth over time between students who received a reflective training procedure and students who were part of a control group (unstructured journaling). It was hypothesized that the reflectively trained students would develop more profound reflection compared to the control group. It was discovered that the reflectively trained students did indeed develop a deeper reflection compared to the control group. In particular, the reflectively trained students became more critically reflective than their control counterparts, as demonstrated in the types of reflection that increased over time. Second, we considered the follow-up surveys of the reflectively trained students in which they reported a perception or lack thereof of the benefits of reflective training through journaling. It was hypothesized that the students would perceive the benefits of the reflective training. It was discovered that overall, students perceived the benefits, and the students who did not perceive them provided insightful commentary about how they were affected by the journal process. Third, we focused on two particular reflection components, process (PROC) and attends to feelings (ATTEND) because of their high frequencies, to see if any trends emerged from the themes that were coded. While the present themes may be incomplete due to the voluntary nature of the study design, that which was provided by the students in the study may be of benefit to piano pedagogy researchers, piano teachers and piano students.

Chapter Four: Discussion

The goal of this study was to explore the effects of using a journal to assist with piano practice. Specifically, we wanted to discover if an implemented reflective training procedure would increase the reflective depth of journal entries over time in comparison to unstructured journaling. Further, we were interested to see whether or not reflectively trained students perceived the same benefits to the journal procedure as counterparts in other disciplines. This section will synthesize the existing literature with the results of this study, present some student reflections on their journaling experiences, and discuss implications of this study for piano teachers and piano students.

4.1 Research Question 1: Growth in Reflective Depth

The first research question for our study asked if over a short period of time, we could see a development in reflective thinking skills in the journal entries of undergraduate piano students who underwent reflective training compared to a control group. We hypothesized that we would see more growth in reflective depth in the journal entries of trained students compared to those of a control group. Eighteen participants were divided into two groups: reflective training and control. Each participant completed four journal entries per week over a period of four weeks. In total, 284 journal entries were collected. All journal entries were coded and analyzed using the qualitative analysis software, *NVivo 11*. Specific to the reflective training group, reflective components were selected based on a model used in physical therapy (Plack et al. 2005) and these were adapted into guidelines for piano practice and were used as starting points in the creation of coding themes. These reflective components derived from reflective theories in professional training. Dewey (1910, revised 1993, 2009) defined reflection as a consecutive

ordering that can determine the outcome of a thought. Dewey's reflective theory inspired other writers, researchers, and practitioners to contribute more specific reflective theories that addressed components within a reflective sequence. As summarized in the literature review (chapter one), these reflective theories/components are best outlined in table form.

Author(s)	Reflective theory
Dewey (1910, revised 1933, 2009)	<u>Reflection:</u> "[Reflection] involves not simply a sequence of ideas, but a consequence-- a consecutive ordering in such a way that each [idea] determines the next as its proper outcome, which each [idea] in turn leans back on its predecessors"
Schön (1983, 1987)	<p><u>Reflection-in-action:</u> is the necessary process through which professionals deal with situations that can cause them "uncertainty, instability, uniqueness, and value conflict"</p> <p><u>Reflection-on-action:</u> is when an individual is thinking about an experience either after or during the activity, depending on the context. This process is specific to what the individual already knows about their situation</p>
Killion and Todnem (2001)	<u>Reflection-for-action:</u> is the desired outcome of the previous types of reflection (reflection-in-action and reflection-on action); When an individual reflects-for-action, they are creating meaning and gaining new insights
Mezirow (1990)	<u>Transformation of beliefs:</u> an individual's perception of a situation is framed by "habits of expectation that constitute [one's] frame of reference, that is, a set of assumptions that structure the way [one can] interpret experiences; When an individual transforms their beliefs, they become critically reflective and gain a new perspective on a situation"
Cranton (1995)	<p><u>Content reflection:</u> is an examination of the content or description of a problem</p> <p><u>Process reflection:</u> involves checking on the problem-solving strategies that are being used</p> <p><u>Premise reflection:</u> takes place when the problem itself as questioned</p>
Boud and colleagues (1990)	<p><u>Returning- to-experience:</u> an individual makes observations about an experience that has previously taken place.</p> <p><u>Attending-to-feelings:</u> an individual addresses feelings that might be</p>

	overwhelming to them
	<u>Re-evaluating the experience</u> : an individual makes connections between the experience and other ideas, such as approaches that were not used that could be implemented next time
Jarvis and colleagues (1998)	<u>Nonreflective</u> : an individual "accepts a situation within which an experience occurs and learning from it"
	<u>Reflective</u> : an individual begins to become critical. This means that an individual "thinks about the situation and then decides to accept or seek to change the situation"
	<u>Critically reflective</u> : is definite in its expression of a change of perspective

These reflective theories were integrated into qualitative reflective journal procedures. Reflective procedures were most common in the fields of education (Kolar & Dickson 2002; Watson 2010) and health sciences (Wong et. al. 1997; Scanlan & Chernomas 1997; Hutchinson & Allen 1997; Kember et al. 1999; Thorpe 2004; Plack et al. 2005; Knowles et al. 2010), Journal methodologies were either theoretical (Scanlan & Chernomas 1997; Hutchinson & Allen 1997; or practical (Wong et. al 1997; Kember et al 1999; Kolar & Dickson 2002; Thorpe 2004; Plack et al. 2005; Knowles et al. 2010; Watson 2010). Most practical procedures included reflective journaling as one part of a larger reflective training (Wong et. al 1997; Hutchinson & Allen 1997; Watson 2010) though some were journal specific (Scanlan & Chernomas 1997; Kember et al. 1999; Kolar & Dickson 2002; Thorpe 2004; Plack et al. 2005; Knowles et al. 2010). In the study by Scanlan and Chernomas (1997), journals were analyzed long after the course was completed in the case of Scanlan & Chernomas (1997). Many reflective training procedures were in the format of course lectures (Wong et al. 1997; Scanlan & Chernomas 1997; Kember et al. 1999; Kolar & Dickson 2002; Thorpe 2004; Knowles et al.; Watson 2010) and occurred over the course of a term or two terms. Some methods included a large number of participants (Wong et al. 1997; Thorpe 2004), while others used a smaller sample (Plack et al. 2005; Knowles et al.;

Watson 2010) or were unspecified (Kember et al. 1999; Kolar & Dickson 2002). In some instances, journal content was analyzed by a blind panel of specialists in the field (Kember et al. 1999), while in others it was completed by the researcher (Thorpe 2004; Watson 2010) or research team (Wong et al. 1997; Scalan & Chernomas 1997; Kolar & Dickson 2002; Plack et al. 2005; Knowles et al. 2010). No literature referred to having a control group.

The results of our study are well aligned with those from the literature review. The journal entries of the reflectively trained piano students exhibited elements of the reflection process as described in the models of Scanlan and Chernomas (1997), Hutchinson and Allen (1997). The journal entries of the reflectively trained students not only demonstrated reflectivity, moreover gradations of reflective depth, as described in the models of Kember and colleagues (1999) and Knowles and colleagues (2010). While collectively both groups of students in our study (reflective training and control) demonstrated critical reflection in their journal entries, the reflectively trained students experienced more growth in this regard over time than their control counterparts. The model by Thorpe (2004) that measured three levels of reflectivity (nonreflection, reflection, and critical reflection) focused on categorizing each journal entry rather than looking at the trends over time, as was done in our study. In our study, we noticed a development in reflective depth over time in the journal entries of the reflectively trained piano students. We used the model by Plack and colleagues (2005) who had suggested that their framework could be employed to measure the development of reflectivity over time. A control group was included in our study in order to confirm that reflective growth over a short period of time would be more noticeable in the entries of the reflectively trained students. Neither the framework study by Plack and colleagues nor the other studies in the literature included a control

group. Based on the results of our study and a comparison of these to the studies in existing literature, we can conclude that reflectively trained undergraduate piano students using a journal to assist with their practice develop more reflective depth, namely critical reflection, over a short period of time compared to a control group.

4.2 Research Question 2: Perceived Benefits to Reflective Journaling

The second question in our research study asked if undergraduate piano students who have undergone a reflective training program could perceive the following benefits after using a journal to assist with their practice: development of critical awareness and new perspective, problem-solving skills, and independent learning skills. We hypothesized that the reflectively trained students would perceive all three benefits because this was the case in the literature. Upon completing sixteen journal entries over a period of four weeks, the reflectively trained students completed a follow-up survey in which they responded "yes or no" as well as commented on each perceived benefit of reflective journaling. The reflectively trained piano students in our study reported challenging their initial points of view and developing new perspectives, as in the study of Wong and colleagues (1997). The piano students reported being able to explore their pieces in order to address challenges, and felt encouraged to think analytically and critically, which was similarly expressed by the students in the studies of Kolar and Dickson (2002), Loughran (2002), and Knowles and colleagues (2010). We found that the majority of the students in the reflective training group perceived each of these benefits and their comments suggested that writing journal entries was a positive experience. The conclusions of our study are in keeping with those in the literature.

4.3 Research Question 3: Significant Themes from the Analysis

The third research question emerged during the coding and analysis processes, because two reflective components, process reflection, or strategy usage (PROC) and attends to feelings (ATTEND) were frequently reported by students in both the reflective training and control groups. We asked, what are the most common themes within PROC and ATTEND, and what do these themes imply about how undergraduate piano students approach their practice? Due to a lack of reflection literature in music study, we did not have a specific hypothesis about the themes that the students would choose to report. Themes were organized in order of most-frequently referenced, and tables were created to show the top twenty items for both PROC and ATTEND. Surprising themes that occurred within PROC included slow practice (which was the most frequently reported strategy) and the run-through (which was the seventh most frequently reported strategy). Most strategies reported within PROC are seemingly typical (e.g. practicing with the metronome, practicing hands separately), while it appeared others were influenced by the students' teachers (e.g. using a timer, practicing in rhythms) as not all teachers agree on which strategies are most efficient in the initial stages of learning. Themes within ATTEND were somewhat surprising. While the feelings reported in the top twenty list included a mixture of happy, sad, and neutral items, the high frequency of "tired" might indicate a need to address the body and mind while practicing, and the low frequency of "focused" might imply a lack of concentration during practice. We acknowledged that unreported strategies and feelings play just as important of a role in how the students had practiced over the four-week period.

4.4 Student Reflections

Some participants in both the reflective training and control groups willingly provided a reflection on their journal experiences, either in the journal entries themselves or in a statement

after the study had ended. Beyond the reflective depth, perceived benefits to the reflective training, and prominent themes measured in this study, the journal in its own right was described by these students as a useful tool in the development of confidence and perceived practice efficacy. Four statements--two from reflectively trained participants and two from the control group-- will be given. The participants from both groups expressed how the journal process has impacted their piano lessons, their practice at home, and their own teaching.

This reflectively trained participant completed the project during the summer and reflected upon how the journal experience affected her first piano lesson in September.

I think it really forced me to critique and reflect on my own playing. It also forced me to address small details in my playing that I would have otherwise ignored. Not only that, I worked through them methodically since I knew I would have to write it down afterwards in the journal entry. My professor was so happy with my playing that he said "It's not fair to have to teach you [this piece] when you already play it so well." We actually spent more time talking about the piece itself rather than working on it because he had so little to say! That has NEVER happened with any piece I have ever played for him for the first time.

This reflectively trained participant was eager to share that she continued using the journal beyond the study for the reason that she perceived it was effectively preparing her for a musical career.

From my understanding, these journals should reflect as many aspects of your practice routine as possible, including but not limited to marking and brainstorming solutions for problem areas, documentation of all practice and warm-up exercises, physical challenges/pains, length and time of practice. I found this method extremely helpful because it allows me to formulate and express issues I'm having in a more organized way. I found it challenging at first to remember to journal. Once I made it a part of my practice routine, I began to improve my entries. They became shorter but more clear, more detailed and creative, and I think it may be possible my

memory has improved. By recording warm-up exercises I tried I can remember which ones I like best for what. By documenting problem sections, I keep my score less cluttered and practice those sections more often. When I plan for my next practice session, I find that I use my time more effectively. Practicing comes as a challenge to many aspiring musicians, especially when considering physical challenges, time management, and prioritizing. Having a journal is a great way to organize thoughts, improve the effectiveness of practicing, and decrease the amount of time spent at the instrument for the same result. I can see journaling as a technique that I will use for a very long time.

This participant in the control group developed her own inquisitive approach through journaling that she described in her last entry. Her described inquisitive approach is not unlike the reflective training procedure, dealing with problem-solving and goal-setting.

For my last journal entry I don't have much else to say about my piece. I would rather talk about how the journaling experience has shaped the overall development of my piece. I feel like knowing that I needed to have something to say at the end of my practice forced me to play with more meaning and intention. Not that I was playing inconsequentially before this experience, but I would often times play and not know why. Journaling has made me more inquisitive about why I do certain exercises. I would ask myself questions like: What is my goal for today? What would I like to achieve? What exercises will help me achieve my goal? I'm glad that practicing has become a more intellectual experience. I think I might try journaling in the future! It has in fact been quite fruitful.

This participant in the control group considered the journal to be a useful tool to develop both goal-setting skills as well as being a place to express attitudes about the learning process. She described an intent to continue journaling upon completion of the study in addition to perhaps implementing a journal component to teaching in her piano studio.

I enjoyed re-reading the journal entries and seeing my progress. It was also good to see some of the things that I said I would do and then didn't follow through with. I'll catch those on a future practice. I plan to continue with the journaling. I found that it gave me more discipline and made me more goal-oriented in my practices. It was also a good place to vent some frustration and then come back with renewed energy. I'm thinking of working in journal entries of some form to my students.

Perhaps in a more graphic format to my younger students and written entries for my adult students.

Thus, from reviewing the students' reflections on the journaling process, using a journal to assist with piano practice may be a useful endeavour both with and without a reflective training procedure. While reflectively trained students benefited from a significant growth in reflective depth over time as well as a perception of the benefits of the training procedure, the participants in the control group provided unique insights about how the journal became an individualized tool for them to perceive growth in their piano practice.

Conclusion

Reflective journaling is a valuable tool that can be used in the training of advanced piano students. The researcher's ongoing self-study developed into a curiosity about the ways in which piano learning can be improved through consistent journaling. The concept of reflection was explored as it influenced reflective theories in professional training, which eventually became reflective models that included a written component. Undergraduate piano students in this study were either reflectively trained or allowed to write journal entries in an unstructured manner. While the reflectively trained students experienced the most profound reflective growth over time as well as perceived benefits to their training, participants in the control group also reported benefitting from their writing experiences. Implications of our study include tools for piano teachers with which to experiment in their studios, and challenges for piano students to become critically aware of how they practice their art.

Piano teachers can implement a journal project in their piano studios. They could use the same reflective guidelines used in our study to assist students in their development of reflective thinking skills. As many of the reflective training participants reported experiencing changes in the ways they approached their practice in the follow-up surveys, the same changes may also be true for piano students of all levels. As one was able to see in the individual trajectory of participants (Appendix L), reflectivity varies from person to person. Having a procedure to develop reflective thinking skills can generally improve the reflective depth of most students, according to our study. Piano teachers can also opt to implement unstructured journal assignments in their studios. As mentioned in section 4.4, a participant in the control group intended to try promoting this approach with her own students. At the very least, regular journaling can keep students accountable for their practicing. As a result, teachers can become

more aware of their students' practicing habits. The goal of teachers implementing journal assignments in their studios would be to develop students' practice autonomy in preparation for their future musical endeavours.

Piano students wishing to challenge themselves with a new approach to practicing can consult our study for insights on the writing process. Due to the isolated nature of piano study, students could take advantage of the opportunity to use a reflective journal or an unstructured journal to teach themselves how to practice efficiently and become less dependent on their teachers. In this way, the gap between amateur player and professional musician will become narrower. As the students begin to take ownership of their own ideas, they could become more confident in their abilities, continuing to challenge themselves with new repertoire and to learn new repertoire in a shorter period of time as a result of their refined reflective skills. Reflective journaling can be used as much or as little as the student desires. In the personal narrative of the researcher, the journal was employed every day, but this need not be necessary to experience the benefits of writing, as was discovered in our study. The positive reports of the participants in both the reflective training and control groups suggest that journaling was a mostly positive process that allowed an opportunity for personal growth.

Limitations

We recognize the following limitations to our research study. First, we noticed that most participants responded very well to the requirement of writing 16 journal entries over four weeks, because only students fond of writing initially responded to the invitation to participate. Human willingness is impossible to control in qualitative research. Second, we provided participants with reflective training guidelines instead of a reflective training program. This decision was based on feasibility. Nonetheless, the results of our study were substantial. Third,

the keywords we provided to the participants were created by the researcher in order to be specific to piano study. While studies in the literature provided keyword suggestions to their participants, these were not provided in the articles so we could not borrow the same keywords for our study. We believe our keywords positively enriched the quality of the participants' journal entries. Fourth, we had to be accommodating to participants who did not complete the journal entries within the time frame of four weeks. A variety of reasons were given, including family troubles, work commitments, vacations, piano teacher influence (e.g. "my teacher insisted that I focus my practice time on another piece".) We allowed for these reasons only on the condition that the study documents were sent and read at the appropriate times. Fifth, the primary researcher was solely responsible for creating a set of sub-themes (codes) – the reflective components – with which to analyze the piano students' journal entries. The primary researcher handled this situation by consistently revisiting the chosen themes and making adjustments. In a future study, researchers could be able to improve upon this model by bringing in their own insights and collaborating on the choice of themes. Sixth, participants chose which brand new piece to use for the study. Some participants chose multi-movement works (e.g. a complete piano sonata) and others chose stand-alone pieces (e.g. studies and character pieces of varying lengths). A possibility for improving this design would be to conduct a study where the researcher chose the piece to be learned. For instance, if a study group included students playing at an Royal Conservatory of Music grade eight-level, the researcher could assign a piece of grade ten difficulty so as to ensure that all participants would be more similarly challenged.

In conclusion, the modifications we made to our research study were carefully considered. The results of our study suggest that our methodology was successful in its demonstration that reflective growth can develop over a short period of time with the assistance of guided training.

Recommendations for future research

Piano pedagogy researchers can expand on our research study. They could use a larger sample size, control for variables such as gender, age and year of study, and include a panelist of experienced piano teachers to agree on themes to include during the coding process. Future studies can be conducted over a longer period of time (e.g. a semester) to see if the differences in reflective growth between participant groups continue to expand or become narrower with the control group having more opportunities to become naturally more reflective. The guidelines and keyword choices used in this study can be adjusted or discussed at greater length. Or, as in the literature review, one could use a larger training procedure including seminars to facilitate discussions. The demographics of the study could be expanded to include adolescents or children. The same follow-up survey can be given to participants in the control group to see if there are perceptive differences between the two groups. Researchers can alter the initial journal instructions for all participants to include a note on being as specific as possible when journaling. In this way, the frequencies of reported reflective components might become more accurate. These avenues for further reflection research in piano study could ultimately encourage more burgeoning pianists to consider making use of journaling techniques in preparation for professions in music.

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Appendix

Appendix A: Operational Definitions: Plack and colleagues (2005, p. 206)

To be used by and referred to by researcher they complete an assessment for all the journal entries belonging to each of the twenty participants.

Operational Definitions for the Coding Schema

LEVEL 1 UNIT OF ANALYSIS: WORDS, SENTENCES, PARAGRAPHS

1. Stage dependent (Schön and Killion and Todnem)

Reflection in action (R-I-A). Occurs while in the midst of an activity and is the result of conscious decisions made on the spot.

Reflection on action (R-O-A). Occurs after the action has been completed. Reflection on action occurs only when the student (1) provides a description of a specific event and (2) attempts to better understand the situation, his or her action, and/or the outcomes.

Reflection for action (R-F-A). The student begins to anticipate situations before being faced with them and/or begins to plan for the future to improve the present situation/outcome.

2. Content dependent (Mezirow and Cranton)

Content (CON). The student attempts to explore the problem/experience to better understand it. The student goes beyond just describing an event to exploring the problem or situation. The student may begin to view the problem/experience from different perspectives.

Process (PROC). The student begins to describe the strategies and/or process involved in an experience. These may include strategies/processes used in learning, problem solving, or managing a situation. The student may begin to explore other strategies available for use.

Premise (PREM). the student recognizes and begins to explore or critique his or her own assumptions, values, beliefs, and biases. The student may begin to seek multiple perspectives and alternative explanations.

3. Time dependent (Boud et al.)

Returns to experience (RETRN). The student describes an experience replaying what he or she considers significant.

Attends to feelings (ATTEND). The student acknowledges and begins to work with feelings that might have resulted from the experience.

Reevaluates (RE-EVAL). The student reappraises the current situation vis-à-vis past experiences. The student might (1) associate the experience with past experiences to link new concepts to preexisting knowledge; (2) begin to integrate new information; (3) validate his or her new insights, thoughts, and perceptions (i.e., check the authenticity), and (4) appropriate this new meaning into his or her own way of being.

LEVEL 2 UNIT OF ANALYSIS: THE JOURNAL (JARVIS ET AL., MEZIROW, AND SCHÖN)

Nonreflection (NR). No evidence of reflection is present within the journal. The writer may describe experiences with no evidence of questioning or evaluation of the experience. Lack of reflection implies a person who acts based on habit or what he or she already knows, makes assumptions, acts mechanically, may not consider the potential for learning or change, and may even reject the possibility of learning something new because he or she is sure he or she is right.

Reflection (R). Evidence of reflection is present in the journal. This implies evidence that the writer either pauses in action or *ex post facto* to explore an experience, with the intent of better understanding the situation, or to decide how best to perform. This writer moves beyond simply reporting or describing events, to attempting to understand, question, or analyze the events.

Critical reflection (CR). Evidence of critical reflection is present within the journal. This implies evidence of a writer who stops to explore the existence of the problem, where the problem stems from, or the assumptions underlying the problem. The writer revisits the experience, begins to critique his or her own assumptions, and may begin to show evidence of modifying his or her own biases or assumptions. This person typically shows evidence of premise reflection.

Appendix B: Reflective journal guidelines for piano practice

Dear Piano Student Participants,

This document is a reflective procedure meant to guide you in writing your journal entries. This procedure was created by Plack and colleagues (2005). The definitions and examples listed below are provided to guide you in how you complete your journal entries for the remainder of the study. Please continue writing journal entries about the same piece that you chose at the beginning of the session for the remaining two weeks of the project.

Reflection has many components and these components are presented and described below. I have adapted the reflective components to piano practice. Allow these definitions to guide you as you write your journal entries.

If you require clarification on any of the information in this document, do not hesitate to e-mail me.

Elements of Reflection and Reflective Learning

Reflection in action (R-I-A). Occurs while in the midst of an activity and is the result of conscious decisions made on the spot.

Guidelines for Reflection-In-Action (R-I-A): Key phrase: I am having/noticing/observing right now...

Immediately after practicing a piece, you make note of what you were thinking about while you were practicing that piece. Here are some examples:

- a. In this section of the piece with the large chords, I am noticing tension in my shoulders. Perhaps I should adjust the bench height, or complete arm exercises to relieve the tension.
- b. In this section with the scalar passages, I am having difficulties keeping the scales legato. Perhaps I should check the fingering, practice with the metronome at a comfortable tempo, or experiment with rhythmic patterns.
- c. I am having difficulties memorizing this section of the fugue. Perhaps I should practice different voices in combination with each other, sing specific voices separately or in combination with each other, or analyze the harmonic structure.

- d. In the re-transition of the sonata, I am forgetting the change in the note pattern that modulates the piece back to the tonic key in the recapitulation. I will mark this spot in the score with my pencil.
- e. In this section of the nocturne, I am really enjoying the tone quality created by the pedal technique I am using. Perhaps I will make note of the technique I am employing so I can approach it similarly on the next page (or next section).

Reflection on action (R-O-A). Occurs after the action has been completed. Reflection on action occurs only when the student (1) provides a description of a specific event and (2) attempts to better understand the situation, his or her action, and/or the outcomes.

Guidelines for Reflection-On-Action (R-O-A): Key phrase: I just did...

Immediately following a practice session of a piece, you make note of what you observed after you finished practicing the piece.

- a. I just memorized mm. a to b
- b. I just made decisions about the fingering in mm. y to z.
- c. I just set the metronome to the following tempi (e.g 50, 75, 100bpm to the quarter)
- d. I just felt motivated to learn during the practice session because my piano lesson is tomorrow and I would like to show my teacher what I have learned.
- e. I just finished practicing and I feel uncertain about what I have tried to memorize because I was distracted by conversations with my friends in the practice room.

Reflection for action (R-F-A). The student begins to anticipate situations before being faced with them and/or begins to plan for the future to improve the present situation/outcome.

Guidelines for Reflection-For-Action (R-F-A): Key phrase: I will

Immediately following a practice session of a piece, you make note of thoughts in your journal and speculate as to how you will deal with them at subsequent practice sessions Here are some examples:

- a. After this practice, I notice that I am very distracted whenever I practice with my cell phone nearby and I was unable to memorize the section I set out to learn because of this distraction. Perhaps I will set my cell phone to "silent" mode, turn it off, or put it away the next time that I practice.

- b. After this practice, I notice that I have only been learning the first half of this piece and I do not know the notes in the second half. At my next practice session, I will start learning the second half.
- c. After this practice, I realized that I was feeling very tense my shoulders and neck because of a midterm later today. Next time that I have an opportunity to practice before a midterm, I will be extra aware of any physical tension, complete gentle stretches before the practice session, and practice at a very slow tempo to avoid aggravating existing tension.
- d. After this practice, I notice that I do not understand this piece harmonically. I will now take a look at it away from the piano and try to find the basic chord progressions. I will record them below the score. This should help me to memorize the piece.

Content (CON). The student attempts to explore the problem/experience to better understand it. The student goes beyond just describing an event to exploring the problem or situation. The student may begin to view the problem/experience from different perspectives.

Guidelines for Content (CON): Key phrase: My teacher/peer/friend suggests that I...

Immediately following a practice session of a piece, you consider what you have experienced while practicing from other perspectives such as those of your piano teacher, peers, or friends. Here are some examples:

- a. I have been practicing my piece from beginning to end so when I memorize the music, the sections of it will play in a logical order in my head during a performance. However, my teacher suggests that I start each practice session at a different structural point in the piece so that I feel more secure in my understanding of the music. This advice is logical and I might try it next time.
- b. I have been practicing my piece hands separately to learn the notes. My peer suggests that I might learn the notes more securely if I divide the learning by voices instead of by hand. I think this is a good idea and I might try it next time.
- c. I have been practicing this section of my piece over and over again trying to memorize it, with little success. My parents overheard me becoming increasingly frustrated and they suggested that I take a break and work on something else instead to relax. I think that this is a good idea because I will enjoy my piece more when I am calm enough to try memorizing it again.

Process (PROC). The student begins to describe the strategies and/or process involved in an experience. These may include strategies/processes used in learning, problem solving, or managing a situation. The student may begin to explore other strategies available for use.

Guidelines for Process (PROC): Key phrase: I can try doing...

Immediately following a practice session of a piece, you write down strategies for your next practice session in your journal. Here are some examples:

- a. The next time I practice, I can try memorizing my piece by memorizing a beat or two, considering the unit beat is the sixteenth note, I think that this is a manageable goal for a session.
- b. The next time I practice, I can try playing the B section very slowly so I can pay more attention to my wrist rotation before I start to speed up the tempo again.
- c. The next time I practice, I can try setting the metronome at a manageable notch, and increase it slightly over the next few days as long as it is comfortable to do so.

Premise (PREM). the student recognizes and begins to explore or critique his or her own assumptions, values, beliefs, and biases. The student may begin to seek multiple perspectives and alternative explanations.

Guidelines for Premise (PREM): Key phrase: I am no longer sure that...

Immediately following a practice session of a piece, you question what you previously believed to be true and you express these thoughts in your journal. Here are some examples:

- a. I spent this practice session with my metronome at the same notch. I am no longer sure that was a good idea, because it is more ideal to practice at a variety of tempi.
- b. I spent this practice session trying to memorize the music from the very beginning. I am no longer sure that this was a good idea because my teacher will want to hear me play more than the first few measures next week. I should alternate my time between memorizing and note-learning.

Returns to experience (RETRN). The student describes an experience replaying what he or she considers significant.

Guidelines for Returns to Experience (RETRN): Key phrase: It is significant that this happened...this is what happened

Immediately following a practice session of a piece, you make references to previous journal entries in your journal. Here are some examples:

- a. It is significant that when I was practicing, I felt tension in my shoulders. I was feeling rather loose until I approached measure X at which point I felt my shoulders tensing up and restricting my movement. This means that I need to find a strategy to deal with this tension so that this doesn't happen again in this spot in the piece.
- b. So, this is what happened when I was practicing today. I couldn't figure out the rhythm at measure X, but when I tapped it out on my knees using both hands very slowly, it suddenly made more sense to me. I repeated this a few more times and tried it on the piano again. I successfully applied this rhythm and now I can move onto the next tricky section.

Attends to feelings (ATTEND). The student acknowledges and begins to work with feelings that might have resulted from the experience.

Guidelines for ATTEND: Key phrase: I was feeling...

Immediately after a practice session of a piece, you write about how you were feeling when practicing the piece. Here are some examples:

- a. I was feeling anxious because I was becoming aware of my next performance date. Repeatedly I would become frustrated when I had lapses in memory. I did not feel satisfied after the practice session because I imagined my performance having similar memory issues. It is acceptable to feel anxious before a performance and perhaps I can work on other material prior to the concert to avoid experiencing as much pre-concert anxieties.
- b. I was feeling I finished memorizing section A of my piece. The feeling of having a week of efficient practice is motivating and I am happy to learn the second section of the piece this week.

Reevaluates (RE-EVAL). The student reappraises the current situation vis-à-vis past experiences. The student might (1) associate the experience with past experiences to link new concepts to preexisting knowledge; (2) begin to integrate new information; (3) validate his or her new insights, thoughts, and perceptions (i.e., check the authenticity), and (4) appropriate this new meaning into his or her own way of being.

Guidelines for Reevaluates (RE-EVAL): Key phrases: This reminds me of...I had not considered...I think that I chose a good...I need to...

Immediately after a practice session of a piece, you 1) associate your practice with previous experiences to make new connections, 2) decide to integrate what you learned through practicing today to future practice, 3) feel validated in your thoughts, or 4) feel like what you have learned will benefit you outside of piano practice. Here are some examples:

- a. I was practicing piece and was experiencing tension in my shoulders with the large chords. This reminds me of the time I was learning an etude for my previous exam and encountered similar issues. I recall that my teacher had said that I should release my hand as soon as it sinks into the keys and use the pedal to sustain the sound, whenever possible. Next time I practice I will try to incorporate this advice.
- b. I was practicing my piece and one of my friends wanted to hear me play it and I allowed her to listen in on part of my practice. She wondered if I should start the piece at a quieter dynamic level to allow more room for development. I had not considered the opening dynamic level until she mentioned it; from now on I will take a moment to set the dynamic in my head before I begin to play the piece.
- c. I was practicing my piece and I was unsure about the tempo I had decided for my upcoming performance. After some thought, I remembered a previous performance experience during which my excitement caused me to start the tempo at a faster tempo than I had practiced before. I think that I chose a good performance tempo in my practice yesterday, to allow some room for the adrenaline that I experience when performing. This way, I can be more relaxed in the performance and I will be able to handle the tempo, even if it is slightly faster than I originally planned.
- d. I was practicing my piece and felt uninspired. This caused me to reflect upon how I envisioned the piece and I think that I need to create my own inspiration now that I have learned the technical aspects of the piece.

Levels of Reflection:

Nonreflection (NR). No evidence of reflection is present within the journal. The writer may describe experiences with no evidence of questioning or evaluation of the experience. Lack of

reflection implies a person who acts based on habit or what he or she already knows, makes assumptions, acts mechanically, may not consider the potential for learning or change, and may even reject the possibility of learning something new because he or she is sure he or she is right.

Reflection (R). Evidence of reflection is present in the journal. This implies evidence that the writer either pauses in action or *ex post facto* (*meaning: immediately after*) to explore an experience, with the intent of better understanding the situation, or to decide how best to perform. This writer moves beyond simply reporting or describing events, to attempting to understand, question, or analyze the events.

Elements of reflection that constitute Reflection (R): R-I-A, R-O-A, and R-F-A.

Critical reflection (CR). Evidence of critical reflection is present within the journal. This implies evidence of a writer who stops to explore the existence of the problem, where the problem stems from, or the assumptions underlying the problem. The writer revisits the experience, begins to critique his or her own assumptions, and may begin to show evidence of modifying his or her own biases or assumptions. This person shows typically shows evidence of premise reflection.

Elements of reflection that constitute Critical Reflection (CR): PREM, RETRN, ATTEND, and RE-EVAL.

In summary:

The table on the following page summarizes these reflective components.

Table 17 *Summary Table of Reflective Components in Piano Practice*

Summary Table of Reflective Components in Piano Practice		
<u>Element of Reflection</u>	<u>Brief definition</u>	<u>Key phrases</u>
Reflection in action	Occurs while in the midst of an action; on-the-spot decisions	Right now... <ul style="list-style-type: none"> • I am having... • I am noticing... • I am observing...
Reflection on action	Occurs after the action has been completed	I just did...
Reflection for action	Occurs before being faced with the situation; begins to plan for the future	I will...
Content	Explores the experience from a number of perspectives (beyond description)	My teacher/peer/friend/someone suggests that I...
Process	Describes the strategies used or available	I can try doing...
Premise	Recognizes and explores own assumptions, values, beliefs, and biases	I am no longer sure that...
Returns to experience	Describes the experience	It is significant that... this is what happened....

Attends to feelings	Acknowledges and begins to work with feelings	I was feeling...
Reevaluates	Reappraises the situation <i>vis-à-vis</i> past experiences	This reminds me of... I had not considered... I think that I chose a good... I need to...
<u>Category of Reflection</u> Nonreflection	<u>Brief definition</u> No evidence of reflection is present	A nonreflective journal entry contains no reflective elements
Reflection	Evidence of reflection is present	A reflective journal entry contains the following elements: <ul style="list-style-type: none"> • Reflection-in-action • Reflection-on-action • Reflection-for-action
Critical reflection	Evidence of critical reflection is present	A critically reflective journal entry contains the following elements: <ul style="list-style-type: none"> • Premise • Returns to feelings • Attends to feelings • Re-evaluates the experience

Appendix C: Follow-Up Survey: Reflective training Group

Please take the time to fill out this survey. Your responses are confidential. Completing this survey will help the researcher to better understand the effectiveness of the project.

Did you perceive the following benefits listed below while completing the journal project?

Check all that apply.

Critical awareness and new perspective: Yes ___ No ___

Please explain:

Development of problem-solving skills within a learning context: Yes ___ No ___

Please explain:

Development of independent learning skills: Yes ___ No ___

Please explain:

Appendix D: E-mails to Participants

D1. Exploratory e-mails to Piano Professors and Student Participants

Exploratory e-mails to Piano Professors

To (Bcc): Subject: Piano Pedagogy Thesis Project- Seeking participants

Dear Piano Professor,

This is my official statement of interest to find undergraduate piano students who are interested in participating in my thesis project at the University of Ottawa, under the supervision of Dr. Gilles Comeau of the Piano Pedagogy Research Laboratory. Please pass the message below to your undergraduate piano students at your earliest convenience. My study will begin in July 2015 so early communication with student participants is preferable. Thank you very much for your time and consideration.

Sincerely,

Meganne Woronchak

Message: Dear piano students,

I am in the MA Music - Piano Pedagogy program at the University of Ottawa and my supervisor is Dr. Gilles Comeau of the Piano Pedagogy Research Laboratory. I am preparing a thesis on the effects of journaling during piano practice and I am looking for interested participants in my upcoming study. This study will take whenever you start a new piece of repertoire this Summer. If any of you are interested in taking part in this project, you must be an undergraduate music student enrolled in piano lessons for credit. You will be expected to correspond with me through e-mail and complete a journal to assist with your practice over a period of four weeks. Each journal entry will take about 5 minutes to write. In total, you will be responsible for writing 16 entries. After you have completed all the entries, you must type them in a word processor before sending the documents (16 in all) to me, the researcher, through e-mail. Benefits to participation in my study include: an opportunity to learn about yourself and how you practice, a means to develop your practice to become a more efficient learner, and a way through which you can contribute to piano pedagogy research by helping future students with your input. If you wish to participate in my study, please e-mail me promptly.

Sincerely,
Meganne Woronchak

D2. Instructional e-mails

Instructional e-mail to Participants Part 1

To (Bcc): All Participants

Subject: Piano Pedagogy Thesis Project Instructions Part 1

Attachments: Consent Form doc., Demographic Survey doc.,

Dear Piano Student,

Thank you for your interest in participating in my thesis project!

Attached to this e-mail are a demographic survey and a consent form. It is mandatory that you complete and send e-mail to me these documents prior to starting this project.

Here is the first set of instructions for the Journal Project. Please read them carefully before beginning the project:

- Pick a brand-new piece that you plan to use for your applied lessons this semester.
- Create 16 journal entries (four per week) for this piece. You can write or type your entries, so long as you type them up using a word processor prior to sending them to me. I will protect your privacy and keep all informational confidential before, during, and after assessment.
- **Please save each journal entry using all your initials and the journal entry number.** Example: MSCW 1, MSCW 2, MSCW 3, MSCW 4, MSCW 5, etc....
- Do not write your name or others' names in your journal entries
- You must complete your journal entries immediately after the practice session of a piece.
- Please limit content of the journal entries to how you are learning your piece
- If you choose to type up hand-written entries at a later date, **do not alter the text in any way.**

- The content of each journal entry is completely up to you so long as they are about the piece you have chosen.
- Spend about **5 minutes** writing each journal entry
- Keep all journal entries in a folder until further instructions.
- Do not discuss this project with peers over the four weeks.

Please do not hesitate to contact me should you have any questions. **It is very important that you regularly check your e-mail for messages from me.** I will be e-mailing you again shortly.

Good luck with the project, and have fun!

Sincerely,

Meganne Woronchak

Instructional e-mail to Reflective training Participants

To (Bcc): Reflective training Participants

Subject: Piano Pedagogy Thesis Project Instructions Part 2

Attachment: Reflective Journal Procedure for Piano Students doc.

Dear Piano Student,

This is part 2 of the instructions for the Journal Project. Please read this document carefully. It is a procedure for completing reflective journals to assist with your piano practice. Use this procedure to help you complete your reflective journal entries for this week (week 3) and next week (week 4). Please continue writing four entries per week for a grand total of 16 entries. After you have completed 16 entries, please ensure that all your entries are individually typed in word format. Please send all the files to me.

Thank you in advance for your participation and I look forward to hearing from you again soon. Once again, please contact me if you have any questions.

Sincerely,

Meganne Woronchak

Instructional e-mail to Members of the Control Group

To (Bcc) Members of the control group

Subject: Piano Pedagogy Thesis Project Instructions Part 2

Dear Piano Student,

At this point in the study you should have completed eight journal entries about your practice sessions of a new piano piece. Please continue to write four entries this week, and four entries next week. At the end of the fourth week you will have a total of 16 entries. After you have completed 16 entries, please ensure that all entries are individually saved in word documents. Send all the documents to me.

Thank you in advance for your participation and I look forward to hearing from you again soon. Once again, please contact me if you have any questions.

Sincerely,

Meganne Woronchak

D3. Debriefing E-mails

E-mail to Piano Student Participants in Reflective training Group

To (Bcc) Reflective training participants

Attachments: General Comments Survey doc.

Subject: Piano Pedagogy Thesis Project Instructions Part 3

Dear Piano Student,

Thank you for participating in my project, I hope you enjoyed the experience. Attached to this document is a follow-up survey. I request that you fill this out (either typed, printed/scanned) and e-mail it back to me. Please know that all of your information is confidential and will not be judged. Your comments give you an opportunity to let me know to what extent my project is useful to you and could be useful to others.

My thesis project that you have participated in is measuring the development of reflection in undergraduate piano student practice journals. Please let me know if you have any general comments about your experience. Once again, thank you for your participation and I hope you have enjoyed the experience.

Sincerely,
Meganne Woronchak

E-mail to Piano Student Participants in the Control Group
To (Bcc) Control Group
Subject: Piano Pedagogy Thesis Project Instructions Part 3

Dear Piano Student,

Thank you for participating in my project, I hope you enjoyed the experience. My thesis project that you have participated in is measuring the development of reflection in undergraduate piano student practice journals. Please let me know if you have any general comments about your experience.

Once again, thank you for your participation and I hope you have enjoyed the experience.

Sincerely,
Meganne Woronchak

Appendix E: Checklist

To be used by the researcher

Table 18 *Rating Checklist for Reflective Journals: Plack and colleagues (2005, p. 206)*

Levels	Stage/Categories	Elements
Level 1: Words, Sentences, & Paragraphs	Stage dependent	<ul style="list-style-type: none"> • Reflection in action (R-I-A) • Reflection on action (R-O-A) • Reflection for action (R-F-A)
	Content dependent	<ul style="list-style-type: none"> • Content (CON) • Process (PROC) • Premise (PREM)
	Time dependent	<ul style="list-style-type: none"> • Returns to experience (RETRN) • Attends to feelings (ATTEND) • Reevaluates (RE-EVAL)
Level 2: The Journal	<ul style="list-style-type: none"> • Nonreflection (NR) • Reflection (R) • Critical Reflection (CR) 	

Appendix F: Ethics Certificate of Approval

File Number: 05-15-27

Date (mm/dd/yyyy): 06/22/2015



Université d'Ottawa **University of Ottawa**
 Bureau d'éthique et d'intégrité de la recherche Office of Research Ethics and Integrity

Certificate of Ethics Approval

Social Science and Humanities REB

Principal Investigator / Supervisor / Co-investigator(s) / Student(s)

<u>First Name</u>	<u>Last Name</u>	<u>Affiliation</u>	<u>Role</u>
Gilles	Comeau	Arts / Music	Supervisor
Meganne	Woronchak	Arts / Music	Student Researcher

File Number: 05-15-27

Type of Project: Master's Thesis

Title: Reflective journaling: Preparing undergraduate piano students for professions in music

<u>Approval Date (mm/dd/yyyy)</u>	<u>Expiry Date (mm/dd/yyyy)</u>	<u>Approval Type</u>
06/22/2015	06/21/2016	Ia

(Ia: Approval, Ib: Approval for initial stage only)

Special Conditions / Comments:

N/A

File Number: 05-15-27

Date (mm/dd/yyyy): 06/22/2015



Université d'Ottawa
Bureau d'éthique et d'intégrité de la recherche

University of Ottawa
Office of Research Ethics and Integrity

This is to confirm that the University of Ottawa Research Ethics Board identified above, which operates in accordance with the Tri-Council Policy Statement and other applicable laws and regulations in Ontario, has examined and approved the application for ethical approval for the above named research project as of the Ethics Approval Date indicated for the period above and subject to the conditions listed the section above entitled "Special Conditions / Comments".

During the course of the study the protocol may not be modified without prior written approval from the REB except when necessary to remove participants from immediate endangerment or when the modification(s) pertain to only administrative or logistical components of the study (e.g. change of telephone number). Investigators must also promptly alert the REB of any changes which increase the risk to participant(s), any changes which considerably affect the conduct of the project, all unanticipated and harmful events that occur, and new information that may negatively affect the conduct of the project and safety of the participant(s). Modifications to the project, information/consent documentation, and/or recruitment documentation, should be submitted to this office for approval using the "Modification to research project" form available at: <http://recherche.uottawa.ca/deontologie/submissions-and-reviews>.

Please submit an annual status report to the Protocol Officer 4 weeks before the above-referenced expiry date to either close the file or request a renewal of ethics approval. This document can be found at: <http://recherche.uottawa.ca/deontologie/submissions-and-reviews>.

If you have any questions, please do not hesitate to contact the Ethics Office at extension 5387 or by e-mail at: ethics@uOttawa.ca.

Germain Zongo
Protocol Officer for Research Ethics
For Dr. Barbara Graves, Chair of the Social Sciences and Humanities REB

2

Appendix G: Consent Form

Title of the study: *The effects of journaling during piano practice*

Name of researcher: Meganne Woronchak

Affiliation: MA Music Student, School of Music, Faculty of Arts, University of Ottawa

Name of supervisor: Dr. Gilles Comeau

Affiliation: School of Music; Member of the Faculty of Graduate and Postdoctoral Studies;
Director of the Piano Pedagogy Research Laboratory, University of Ottawa

Invitation to Participate: I am invited to participate in the abovementioned research study conducted by Meganne Woronchak under the direction of her supervisor, Dr. Gilles Comeau.

Purpose of the Study: The purpose of the study is to investigate the effects of journaling during piano practice

Participation: My participation will consist of completing four journal entries per week over a period of four weeks during practice sessions of a brand new piece at my grade level. Each journal entry will require 5 minutes to write. I will need to type up my entries at the end of the project. I will also be asked to check my e-mail inbox regularly to communicate with the researcher.

Risks: My participation in this study will entail that I volunteer information about how I learn, and this may cause me to address my attitudes towards learning. I have received assurance from the researcher that every effort will be made to minimize these risks. The researcher will guide the study through specific journal directions, and all data will be handled confidentially by the researcher. For data analysis, randomized identification codes will be used to protect anonymity.

Benefits: My participation in this study will allow me to try a learning tool that potentially can benefit my piano practice. My participation will contribute to the advancement of teaching techniques in piano pedagogy.

Confidentiality and anonymity: I have received assurance from the researcher that the information I will share will remain strictly confidential. I understand that the contents will be

used only for content analysis and that my confidentiality will be protected. The researcher will only access data in the Piano Pedagogy Research Laboratory at the University of Ottawa. The data will be stripped of all personal identifiers before being assessed.

Anonymity will be protected in the following manner. The researcher will assign codes to my journal entries before these entries are assessed.

Conservation of data: The data collected in submitted journal entries to the researcher in word processed format will remain in the Piano Pedagogy Research Laboratory at the University of Ottawa. Only the researcher will have access to this raw data. The data will be destroyed 5 years upon completion of the thesis.

Voluntary Participation: I am under no obligation to participate and if I choose to participate, I can withdraw from the study at any time and/or refuse to answer any questions, without suffering any negative consequences. If I choose to withdraw, all data gathered until the time of withdrawal will be destroyed and will not be included in the thesis.

Acceptance: I, _____ agree to participate in the above research study conducted by Meganne Woronchak of the School of Music, Faculty of Arts, University of Ottawa under the supervision of Dr. Gilles Comeau.

If I have any questions about the study, I may contact the researcher or her supervisor.

If I have any questions regarding the ethical conduct of this study, I may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5

Tel.: (613) 562-5387

Email: ethics@uottawa.ca

There are two copies of the consent form, one of which is mine to keep.

Participant's signature: *(Signature)* Date: *(Date)*



Université d'Ottawa | University of Ottawa

École de musique | School of Music

Faculté des Arts | Faculty of Arts



Researcher's signature:

(Signature)

Date: *(Date)*

Appendix H: Demographic Survey

Please fill out this demographic survey before you begin the project. Your responses will be kept confidential.

Sex/Gender:

Female

Male

You don't have an option that applies to me. I identify as _____

Class status:

First-year

Second-year

Third-year

Fourth-year

Age:

Under 18

18

19

20

21

22

23

24

25 and above

Appendix I: Debriefing Consent Form

Dear Participant,

Thank you for participating in my master thesis research project. The consent form you signed prior to beginning the study did not contain my research questions because any prior knowledge might have affected the content of the journal entries. All participants were divided randomly into two groups: reflective training and control. Students in the reflective training group received reflective training in the document for guidelines for piano practice. The questions that this master thesis research project addresses are:

- 1) Over a short period of time, can we see a development in reflective thinking skills in the journal entries of undergraduate piano students who have undergone reflective training compared to a control group?
- 2) Can undergraduate piano students who have undergone reflective training program perceive the following benefits after using a journal to assist with their practice;-- development of critical awareness and new perspective, problem-solving skills, and independent learning skills?

Given the partial disclosure at the beginning of the study, I would like to obtain your consent to use the data I collected from you. If you consent to the use of your data, sign and return this document through e-mail to Meganne Woronchak in PDF format.

Consent: I, _____ consent to the use of the data collected from me for the above research student conducted by Meganne Woronchak of the School of Music, Faculty of Arts, University of Ottawa under the supervision of Dr. Gilles Comeau.

If I have any questions about the study, I may contact the researcher or her supervisor.

If I have any questions regarding the ethical conduct of this study, I may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5

Tel.: (613) 562-5387

Email: ethics@uottawa.ca

There are two copies of the consent form, one of which is mine to keep.



Université d'Ottawa | University of Ottawa

École de musique | School of Music

Faculté des Arts | Faculty of Arts



Participant's signature: *(Signature)* Date: *(Date)*

Researcher's signature: *(Signature)* Date: *(Date)*

*Appendix J: Coding Schema*Table 19 *Coding Schema Used in NVivo 11*

NVivo 11 Codes		
Starter Categories	Starter Codes	Created Codes
Stage Dependent	Reflection-In-Action (R-I-A)	Add/ing Consider/ing Continue/ing Count/ing Enjoy/ing Envision/ing Experiment/ing Identify/ing Incorporate/ing Learn/ing Listen/ing Memorise/ing Notice/ing Note/ing/ing Play/ing Practice/ing Read/ing Recognise/ing Remind/ing Repeat/ing Require/ing Solidify/ing Start/ing Take/ing Try/ing Work/ing
	Reflection-On-Action (R-O-A)	Achieved Added Attempted Began Checked Concentrated Consolidated Continued Counted

Decided
Developed
Did
Enjoyed
Estimated
Experimented
Finished
Fixed
Changed
Corrected
Revised
Identified
Imagined
Isolated
Learned
Listened
Looked (for)
Made
Memorised
Observed
Noted
Noticed
Paid attention (to)
Pencilled
Played
Practised
Read
Recorded
Repeated
Required
Researched
Reviewed
Sang
Scanned
Stopped
Strived
Tried
Used
Watched
Worked

Reflection-For-Action (R-F-A)

Can
Future
Further
Going to

		Hopefully
		Looking forward
		Next
		Should
		Would
		Will
		Eventually
		Tomorrow
Content Dependent	Content Reflection (CON)	Ask
		Instruct
		Spoke
		Suggest
		Wanted
	Process Reflection (PROC)	
		Analysis
		Arpeggiated the chords
		Backwards practice
		Began with trouble spots
		Big sections
		Body movement (gen.)
		Closing eyes
		Counting aloud
		Drop technique
		Dynamic interplay
		Exaggeration
		Finger strength
		Focused on (x, y, z)
		Following the program/story
		Goal-setting
		Hands together
		Hands/voices separately
		Having a deadline
		Imagination
		Individual beat practice
		Journaling
		Listening
		List-making
		Looking at my hands
		Memorise (<i>as you go</i>)
		Memorise (<i>for a non-memorised study piece</i>)
		Memorise (<i>hands separately</i>)
		Mental practice
		Metronome

Morning practice
 Octave skip
 Play similar passages
 Practice immediately (*after lesson*)
 Preparation practice (*learn position changes*)
 Read-look ahead
 Recorded self
 Repetition
 Reviewed
 Rhythms (*practiced in*)
 Run-through
 Scales (*non-specified*)
 Singing
 Slow practice
 Small sections
 Smooth motion (*one underlying movement*)
 Stop and think
 Stretching
 Technical warm-up (gen.)
 Time management
 Timer-3-minute rule
 Variation (*of musical aspects*)
 Voice combinations
 Walrus landing (*preparation*)
 With the score
 Without pedal
 Wrist exercises
 Wrist rolls (*motion*)

Premise Reflection (PREM)

Assume
 Conclude
 Expect
 Guess
 Judge
 No longer
 Perhaps
 Question
 Questionable
 Think
 Uncertain
 Understand
 Vague

Time Dependent	Returns to experience (RETURN)	Wavering
		Appear Found Important Significant In the past Result Stop Took place
	Attends to feelings (ATTENDS)	Accomplished (<i>feeling</i>) Comfortable - at ease Confident Confused Determined Disappointed Dissatisfied Distracted Excited Feel Focused Frustrated Happy Impatient Inspired Encouraged Nervous Anxious Overwhelmed Prepared Proud Sad Satisfied Scared Thankful Tired Uncertain (<i>feeling</i>) Uncomfortable Unhappy Uninspired Weary
	Re-evaluates experience (RE-EVAL)	

Choice
Consideration
Difficult
Challenging
Struggle
Hindsight
I need to
Now, I
Previously
Realized
Reminds me (*of*)
Remember
Retrospect
Spent too (... *of something*)

Appendix K: Sample Coded Journal Entry

Below is an example of a journal entry coded using NVivo 11.

The screenshot displays the NVivo 11 interface. The main window shows a journal entry titled "Thursday September 17th, 2015 9:03pm" with the following text:

Lesson yesterday with the Mozart went really well. Had an awesome practice last night but forgot to journal about it, practiced again today. After I went to the gym yesterday I was really warmed-up, my fingers felt effortless and smooth, and I tried to included all of the things my teacher and I talked about during my lesson. He complimented me on my choice of tempo because I played slow enough that I was able to play mostly correct notes; he agreed that the notes weren't necessarily difficult in nature but that the piece is more challenging in musicality. My two-note slurs should be like they are sighs, with more emphasis on the pick-up/first note than the second (even though the second note is on the downbeat). The piece has a 4 feel instead of 3/4 so it gets a little tricky. He suggested I omit the pedal, and let me try out the Mozart piano (even though it was very out of tune). That was pretty cool! Today was great too. I tried a new warm-up one of my percussionist friends told me about which I think could make a difference as well. He told me to stick my arms straight out (90 degrees to my body) and open and close my hands really fast for around 2 minutes, do some stretches, and shake out my arms a whole bunch to get the blood flowing to them quickly. After that I played some scales and started playing, and I think it made a big difference. I felt like my fingers were more relaxed and could play faster more effortlessly. The things I had practiced the night before were starting to come more naturally in my playing, but I tried my best to play with intention, and think about how I want each note to come out in the melody. I worked mostly on the second page.

On the left side of the interface, a table lists various nodes (themes) and their associated counts:

Name	Nodes	Referen
Antimon	34	123
Argon29	38	171
Arsenic2	31	138
Astatine	30	95
Berylliu	29	146
Bismuth	27	79
Bohrium	43	222
Brienne2	19	32
Bromine	34	155
Calcium	29	75
Chlorine	33	124
Chrysan	21	45
Cyllene1	29	109
Deimos3	28	276
Despina	32	93
Dubniu	40	191
Elara175	22	79
Epimeth	36	158
Erbium1	30	199
Erinome	23	62
Erriapo2	36	173
Euanthe	22	60
Farbauti	33	160
Fenrir12	37	111
Galatea2	45	185

The right side of the interface shows a coding density chart with various nodes represented by colored bars and labels such as "practiced", "tried", "suggested", "played", and "focused on x,y,z".

This exemplifies a typical journal entry. In the body of text, words and phrases are highlighted in yellow. On the left of the picture, one can find the journal entry's label, "Erbium181." Beside the name, the columns indicate how many nodes (themes) are present in the entry, and how many total references are present in the entry. On the far right, the coloured coding stripes show to which specific nodes (themes) the words and phrases were coded.

Appendix L: Reflective Growth over Time for Reflective Training Participants and Control Group

Table 20 Growth Over Time for Reflective Training Participants

	1. Stage Dependent			2. Content Dependent			3. Time Dependent		
	1.1. R-I- A	1.2. R-O- A	1.3. R-F- A	2.1. CON	2.2. PROC	2.3. PREM	3.1. RETRN	3.2. ATTEND	3.3. RE- EVAL
01-Weeks 1-2	0	29	6	0	41	3	7	0	1
01-Weeks 3-4	8	40	14	12	19	14	8	16	25
Difference +/-	8	11	8	12	-22	11	1	16	24
03-Weeks 1-2	3	5	8	0	11	12	4	0	7
03-Weeks 3-4	4	4	15	1	8	10	4	1	8
Difference +/-	1	-1	7	1	-3	-2	0	1	1
05-Weeks 1-2	1	26	2	3	12	3	3	2	11
05-Weeks 3-4	4	17	6	2	8	6	2	1	7
Difference +/-	3	-9	4	-1	-4	3	-1	-1	-4
07-Weeks 1-2	1	19	3	3	17	8	0	6	5
07-Weeks 3-4	0	8	6	2	6	14	0	11	14
Difference +/-	-1	-11	3	-1	-11	6	0	5	9
09-Weeks 1-2	4	16	4	6	22	10	1	3	8
09-Weeks 3-4	2	29	14	7	3	11	3	8	11
Difference +/-	-2	13	10	1	-19	1	2	5	3
11-Weeks 1-2	0	20	1	2	13	2	1	2	3
11-Weeks 3-4	2	20	3	2	23	2	0	2	5
Difference +/-	2	0	2	0	10	0	-1	0	2
13-Weeks 1-2	0	12	18	1	18	10	3	3	6

13-Weeks 3-4	8	10	19	1	25	9	1	7	5
Difference +/-	8	-2	1	0	7	-1	-2	4	-1
*15-Weeks 1-2	1	6	0	1	7	0	0	0	0
15-Weeks 3-4	10	2	2	1	18	10	1	2	0
Difference +/-	9	4	2	0	11	10	1	2	0
17-Weeks 1-2	6	16	18	4	11	12	8	3	10
17-Weeks 3-4	11	15	9	4	19	10	2	6	2
Difference +/-	5	-1	-9	0	8	-2	-6	3	-8

*It should be noted that participant 15 completed 6 entries in the first two weeks and 8 entries in the second two weeks.

Table 21 *Growth over Time for Control Group Participants*

	1. Stage Dependent			2. Content Dependent			3. Time Dependent		
	1.1. R-I-A	1.2. R-O-A	1.3. R-F-A	2.1. CON	2.2. PROC	PRE M	3.1. RETRN	3.2. ATTEND	3.3. RE-EVAL
02- Weeks 1 - 2	14	59	13	0	74	4	2	3	6
02 - Weeks 3-4	8	30	9	0	25	14	1	4	12
Difference +/-	-6	-29	-4	0	49	10	-1	1	6
04 - Weeks 1- 2	8	28	4	0	17	5	2	5	9
04- Weeks 3 - 4	0	21	3	0	9	6	0	3	7
Difference +/-	-8	-7	-1	0	-8	1	-2	-2	-2
06- Weeks 1 - 2	3	9	0	0	14	4	1	0	1
06- Weeks 3 - 4	3	2	2	0	9	3	3	0	5
Difference +/-	0	-7	2	0	-5	-1	2	0	4
08- Weeks 1 - 2	2	7	3	3	7	2	1	3	5
*08- Weeks 3 -	0	8	0	1	11	4	1	1	6

4									
Difference +/-	-2	1	-3	-2	4	2	0	-2	1
10- Weeks 1-2	0	12	1	0	48	1	0	0	0
10- Weeks 3- 4	0	16	0	0	19	2	1	2	0
Difference +/-	0	4	-1	0	-29	1	1	2	0
12- Weeks 1 - 2	3	16	4	1	22	9	2	1	7
12- Weeks 3 - 4	3	10	5	1	24	10	2	2	3
Difference +/-	0	6	1	0	2	1	0	1	-4
14- Weeks 3 - 4	0	2	2	0	9	11	2	2	5
14-Weeks 3 - 4	1	28	3	0	61	2	0	2	5
Difference +/-	1	26	1	0	52	-9	-2	0	0
16- Weeks 1 - 2	1	23	0	0	49	2	0	1	4
16- Weeks 3 - 4	6	10	3	0	20	8	0	2	6
Difference +/-	5	-13	3	0	29	6	0	1	2
18-Weeks 1 - 2	1	12	0	2	20	5	2	4	8
18-Weeks 3 - 4	6	10	3	0	20	8	0	2	6
Difference +/-	5	-2	3	-2	0	3	-2	-2	-2

*It should be noted that participant 8 completed 8 entries in the first two weeks and 6 entries in the second two weeks.