

Original Research

A Case Report on the Impact of Feldenkrais Method® with Experienced Pianists

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Abstract

The aim of this case study was to investigate the efficacy of the Feldenkrais Method on piano playing through learning Awareness Through Movement® lessons. This eight-week long qualitative research study collected the results of participant-chosen movement explorations and their sensorial, first-person experiences gathered through the use of participant diaries and pre- and post- interviews for measurement. These findings suggested positive improvements in music production skills, such as: technique, auditory perception, musical phrasing, tone quality, memorization, interpretation and overall control. The musician participants also reported enhancement of their experience of relaxation, posture, and bodily awareness in practice and performance. Future research may extend the time of experiment or apply more varieties of measurements for the benefits of musical performance and musician health.

Keywords

Feldenkrais Method, piano, piano playing, musicians, movement, kinesthetic sense, awareness, musician's health, Awareness Through Movement

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The first purpose of this qualitative research study was to discover if the Feldenkrais Method® of Somatic Education may impact piano playing. More precisely, how an increased awareness of the quality of movement developed through learning Awareness Through Movement® of the Feldenkrais Method may affect someone's piano playing abilities. Although some journal articles and books (Cole 2014; Fraser 2010 and 2011; Lee 2018; McCrea 1997; Peterson 2008; Smith 2015; Spire and Baniel 1989; Weinberger 1999) have explored how Feldenkrais Method may be applied to the piano playing or its relevance for musicians, no research study has been undertaken exploring the application of the Feldenkrais Method exclusively and directly to piano playing. This study asked participants to observe their playing abilities before and after their Feldenkrais Method experience, specifically, to monitor their improvements and assess if, and their perception of how, learning the Feldenkrais Method applies to the advancement in their abilities.

The second purpose was to argue that research into the Feldenkrais Method's efficacy include the approaches in the design of lessons which make use of learners' experience leading to greater success in learning. The Feldenkrais Method calls for a learner using their sensory system (visual, auditory, or kinesthetic) to facilitate their movement and improve their patterns of motor organization. Feldenkrais (2019: 117) believed that "this type of learning must proceed at its own pace." Studies using objective measurements have shown evidence of benefits of the Feldenkrais Method for a number of physical abilities and health conditions (Stephens, Davis, DeRosa, et al 2006; Hillier and Worley 2015; Hopper, Kolt and McConville 1999; Ohman, Anström, and Malmgren-Olsson 2011; Wong 2015). Learning music is also a subjective experience which heavily relies on sensory perception to (a) assess and develop the technical skill (Uszler, Gordon and Mach 1991: 52-55; Klingenstein 2009: 203-208), (b) enhance the tone quality (Rollin cited in Lyle, Haydon, and Rollin 2011: 357-358), (c) learn musical phrasing (auditory perception) (Klingenstein 2009: 234-236), or (d) aid memorization (combination of auditory, visual, and kinesthetic) (Haydon cited in Lyke, Haydon, and Rollin 2011: 417-425). Therefore, this study used the participants' sensorial, first-person experiences as data to assess the benefit of the Feldenkrais Method for music learners.

The Feldenkrais Method

The Feldenkrais Method is an approach to somatic education developed by Moshe Feldenkrais beginning in the 1940s (Feldenkrais 1990; 2019). He thought “the nervous circuits involved in movement and action could actually be altered if people learned to refine their awareness of how they moved” (cited in Doidge, 2007: xiv). The Method posits that self-awareness, developed through such strategies as doing novel movements, and developing an understanding how one uses one’s self habitually or non-habitually, promotes learning through improved sensory-motor organization.

Each individual perceives various sensory qualities and patterns influenced by how one moves spontaneously, or chooses to move in performance and as a result of training. Therefore, the Feldenkrais Method emphasizes the first person and subjective experience in one’s process and environment to develop an own kinesthetic sense. There are two modalities of the Feldenkrais Method: Awareness Through Movement and Functional Integration®. Awareness Through Movement lessons are primarily done on the floor in various positions, and verbally guided by a Feldenkrais Method practitioner. Functional Integration is a non-invasive and generally non-verbal method. It is theorized that the practitioner’s touch and movement of the client can help the person more precisely sense their movement preferences and possible limitations, creating the possibility for the client to draw on this input and respond to the movement possibilities afforded by the interaction with the practitioner.

Methods and Materials

Participants

Experienced pianists can develop a refined capacity to sense changes in their playing, both in terms of bodily sensation, and sound production, compared for example to new players. As experienced players are more likely to be able to detect changes in bodily sensation and performance, it was decided that study participants should have at least ten years of piano playing experience, and actively perform or regularly practice two to three hours a day. Additionally, participants were required to possess fluent English skills, and be adults between 18 to 65 years of age. There were no criteria regarding gender or ethnicity. Potentially vulnerable participants, for example who had a chronic pain or medical condition, were excluded from the study, as such participants may have required personal attention and individual guidance that would have changed the nature of the intervention, therefore possibly affecting the results of the study. This research study received Institutional Review Board (IEB) approval and was conducted in October-December 2018, funded by the College of Arts and Letters, Northern Arizona University.

This study invited three test subjects to participate. The participants' ages ranged from 21 to 58, one male and two females, including one professional pianist and two piano-major college students.

Intervention

Awareness Through Movement lessons

The Awareness through Movement lessons used in this study were selected and structured by the investigator drawing on suggestions from Feldenkrais Method Trainer, Alan Questel. The lessons in this study were chosen on the basis that they focused on the development of a sense of skeletal connection throughout the entire body, and involved movements of flexion, extension, rotation, and lateral bending of the trunk. The lessons promote spinal movement and increase the mobility of the whole person. (The order and the objectives of the lessons are included in the Appendix I.)

The investigator taught her versions of lessons based on recorded versions of these lessons by Alan Questel. The investigator taught the Awareness Through Movement lessons to the participants and recorded the instructions live. This approach involved elements of Awareness Through Movement teaching such as monitoring the participants' movements during the lessons; helping the participants understand the learning approach; guiding them with a language used in teaching the Awareness Through Movement lessons – such as how to sense and think skeletally; and move gently to identify sensations in a way that aims to give a sense of safety.

Participant-chosen movement explorations

After each Awareness Thorough Movement class, each participant identified a brief movement and awareness sequence to include their practice. Participants were free to use any brief movement activity or sequence learned in the Awareness Thorough Movement lesson, to apply in their practice, and then to observe the outcome/effect for that purpose, which could be a technical challenge, tone production, or simply feeling easier while playing.

Independent piano practice

The investigator did not offer any suggestions regarding how to apply the movement in their own piano playing. Outside participating in Awareness Through Movement lessons, participants worked alone and were entirely independent of the piano experiments, and were free in how to apply their awareness of sensory experience or anything they may have learned from doing the Awareness Through Movement lessons.

Recorded Awareness Through Movement lessons for self-paced review and practice

During the time of the study, participants received a total of eight Awareness Through Movement lessons every five to seven days. After each lesson, the participants received the recording to review and practice on their own. Participants were encouraged to review the Awareness Through Movement lessons at least two to three times per week. They chose which recorded lessons to practice with the provided recordings and, if practiced, to log the lessons on the provided sheet per week. The log records were collected each week. During the study, two participants practiced with each recorded lesson throughout the entire process weekly; while the third participant only used what they remembered in some of the weeks in the study.

Data Collection

Since this study focused on the participants' individual experience during the process of learning the Awareness Through Movement lessons of the Feldenkrais Method, qualitative research methods were used to identify and document their experience. The primary data of the study was compiled from the pre-surveys, journals, post-study interviews, and post-surveys.

Part I: Participant journals

Participants were required to provide a journal entry every day. They were also required to do two small participant-chosen movement explorations related to the piano playing each day. The entry could be anything from a reflection on the body sensation, for instance, or an observation on the movement explorations to piano practice or their daily life. If they did not practice, they indicated, 'I did not practice.' At the end of each week, the investigator collected the journals, made the copies, and returned on the same day.

Part II: Interviews and surveys

Pre-study: At the beginning of the study, participants completed a pre-survey prepared by the investigator (see Appendix II) regarding the general background information of their piano playing and practicing habits, their perception of their self-awareness or understandings of aspects of movement and body sensation. Pre-study the participants also make a video recording of their performance of a musical piece their choice.

Post-study: At the end of the eight weeks of the study, the investigator scheduled a day with each participant to separately video record their performance of the same musical piece as they had recorded at the beginning of the study. This was followed by an individual interview to answer the preset questions (see Appendix III) prepared by the investigator.

Next the participant and the investigator watched the video performances together. After viewing, certain questions especially taken from the pre-surveys were asked again to see if the participants had altered their views in relation to the themes in the questions.

Finally, each participant completed the post-survey (see Appendix IV) alone in the room. The entire process took approximately three hours.

Results

Findings from Participant Journals

In this section is a description of participants outlining their level of participation, some information about the lessons they focused on in their self-directed practice, and some key observations they made about their experience. The process of finding the themes and examples of texts was done by the investigator through repeated readings of the data. This checking and rechecking of perceptions and assumptions had the aim to reduce bias and ensure the reported results stayed close to the meanings inherent in the participant data.

The researcher found it most interesting that each participant's timing and choice of application through the movement was entirely different from one to another.

Participant 001

During the time of the study, Participant 001 mostly practiced the fragments of the movement lessons from what they remembered without using the recordings. The average spent time on each practice was 20-30 minutes. Prior to the sixth lesson, most of time this participant did not feel noticeable differences and mostly only applied breathing and pelvic clock movement in his piano practice or daily activities such as running. After the sixth lesson, this participant began to mention thinking about moving with "skeletal approach; picturing my bone doing the movement. I felt more gravity pushing the legs."

Following are some additional significant observations recorded in their journal:

I didn't think much about the lessons or the movement today, but occasionally the movement from the bone came to mind. As I walked my legs felt heavier and a little freer. My shoulders felt heavier and went heavier in my back. It was a pleasant feeling for the most part.

At the piano, thinking of my bones as main force in all the movements, felt more stable and produced a deeper tone overall.

As I looked at the music, thought of the clock concept around the page of music, and also noticing my head clockwise and counterclockwise.

In general, I felt my body a little lighter, and when playing the piano the only thing that came to my mind was my awareness of breathing and the skeletal thoughts in my movements. (Participant 001 journal)

Towards the end of experience, Participant 001 began to experiment with an idea learned from the Awareness Through Movement lessons: “When playing the piano applies the clock movements on my feet, especially on the right one. Tried to see if this had an effect on my use of the pedal.”

Participant 002

During the time of the study, Participant 002 practiced the entire eight lessons at least twice per week with the recordings but particularly practiced more on the #4 Paradoxical Breathing lesson wherever and whenever they could. Also, they practiced the #7 Freeing the Head lesson more than the others.

In the first week, Participant 002 reported that they had strong sensations and awareness towards the movement and posture. In the second week, Participant 002 began to be aware of feeling the movement of their feet touching the pedal and found the link between the second Awareness Through Movement lesson and the music piece that they were studying at that moment: “There’s a part in the Rachmaninov where my arms have to be at opposite sides of the piano. I felt a very fluid motion in a way kind of like the arm movement we used in the lesson.” (Participant 002 journal)

In the pre-survey, Participant 002 stated their concern about shoulder tension. In the journal, they recorded many thoughts and applied the participant-chosen movement explorations regarding this aspect. After 15 days of the study, Participant 002 began to gradually discover the cause of shoulder tension might not be directly from the shoulders only. For example, they wrote:

I am starting to also notice that some of my pelvis movement is making me notice shoulder tension. This could also be because of stress. But the fact that I am becoming more aware of my tension is a start.

Between doing the pelvic clock and the breathing exercises, I am starting to notice points in my shoulders that hold tension.

I went back and practiced the lesson #4 on breathing... My shoulders stayed down and my breathing became slower and less frantic. I am starting to find myself using this lesson often while preparing for a performance.

I was experimenting [with] my elbow movement on the piano bench, whenever I lift my elbow, my shoulder blade was suddenly lifted and kind of tense. Before, I wasn’t that aware of my shoulder tension, I knew something was going on but I couldn’t pinpoint the source of the problem. (Participant 002 journal)

Participant 002 also spent a great deal of time observing and working eye and head relationship while at the piano and on the floor doing Awareness Through Movement lessons. Moreover,

Participant 002 noticed a tendency of moving too quickly before their intentional action. Through this project, this participant reported constantly playing with the idea of “thinking before reacting,” and noted that the ‘Freeing the Head’ lesson “especially helped with thinking before doing a movement.”

Participant 003

Like Participant 002, Participant 003 practiced multiple lessons at least four days each week. Participant 003 was the only one who had slight knowledge about another somatic education approach, the Alexander Technique. In the pre-survey, the participant noted their tension in the upper back and shoulders, and had previously experienced brief tendonitis but which was not chronic.

Differing from Participant 002’s approach however, who applied the learned movement patterns in the practice, Participant 003 used the sensations of relaxation and feeling connected they felt in the Awareness Through Movement lessons as guidance to be more aware of where the cause of tension might be. They reported using this focus for problem-solving at the piano or in the daily life “from walking to holding a backpack.” Below was one of their observations about holding tension:

I am feeling more connection throughout the body. I noticed this after practicing Lesson 2. It is helping me think about where each motion originates, and that it’s not always where I think. For example, my fingers are controlling the pen that is writing this journal entry, but my fingers are not the only body part involved in this motion. I think this connection is important. Placing too much emphasis on one point of contact rather than the whole (fingers vs the arm) can create stress and tension. (Participant 003 journal)

At the piano, this participant’s awareness gained from learning the Awareness Through Movement lessons also focused on being ‘slow’ when practicing. They reported discovering that they frequently held their breath which caused tension. This participant also noticed that “I can loosen my neck tension if I focus less on my fingers and shoulders and more about my whole body” and that they “tried to apply a sort of ‘clock’ rotation to my head and neck while I was playing.” Furthermore, Participant 003 noticed the excessive movements in some virtuosic passages after the fifth Awareness Through Movement lesson and was able to distinguish that the Classic repertoire should minimize the movements whereas the Romantic repertoire involves wider range or quick jumps on the keyboard that demands “moving from one side of the piano to the next very quickly.”

Like Participant 001, Participant 003 also made mention of the quality of sound production, noting “The full body motion and connection definitely improved the sound and helped ease my playing.”

Towards the end of study, Participant 003 realized their piano at home “was adding to my tension” and “it’s difficult to ‘fight’ the piano and play in a relaxed manner. Instead of trying to reproduce the sound of a grand piano, I decided to focus on how my fingers felt... I just focused on relaxation.” Also, this participant seemed to be more affected by the stress as the performance season was approaching and reported that it was not as easy to apply Awareness Through Movement during a live performance as in practicing privately.

Some commonalities

All three participants reported ‘Pelvic Clock’ and ‘Paradoxical Breathing’ lessons as being very helpful – using the movements from both lessons very frequently to greatly relieve the tension in the body and move or shift weight on the bench when playing the piano. This may be a significant outcome from this study that deserves further exploration and research.

Findings from Post-Interviews, including Reviewing of Performance Videos

The purpose of the interview was to give the participants an opportunity to self-evaluate learning outcomes from the study. The investigator asked the participants to answer the questions as directly as possible so that they could be directly quoted as textual data for this research. Their answers were considered as a type of data through subjective experience. The interview questions (see Appendix II) were preset and included asking again some of the questions from some questions in the pre-surveys to find out if there was any impact of the Feldenkrais Method on their piano playing. Reviewing the pre- and post-performance videos was also part of this process.

The first question asked the participants to share their thoughts from the experience. This question was asked again after they viewed their video recordings of their pre- and post-performances.

Before viewing their video recordings, Participant 001 felt “a little more flexible physically than before” and “gained more independence of the movements at different parts of [the] body... [and was] more aware of how movements could impact how you feel and how you can handle them successfully... even [when] they are not perfect.” Participant 002 reported that they “learned a lot about [their] self’s body movement” and thought just thinking about movement made playing piano much easier. Participant 003 thought the beginning of the experience was “something [they were] not used to,” but realized that participating in the study and doing the Feldenkrais Method practice was helping a lot not “just [in] piano playing but also in life.” This experience changed Participant 003’s perspective of practicing from just thinking about notes or marks on the score, to always thinking how to move better. In day-to-day life, Participant 003 was able to “actively reduce stress and tension,” instead of just accepting the discomfort.

Prior to the study, the participants were asked in the pre-survey what area they hoped to improve. The researcher reminded them of their answers during the interview and asked them

to evaluate the outcome after the study. The following are their answers in the pre-survey and the reflections after the study:

Participant 001

To gain more control of stage fright and of concentration while playing in public

“I think going through this project has helped me gain more control. I have noticed that those distractions have not bothered me. I think that [what] benefited me most was to be able to handle different movements at the same time without causing trouble at the piano, it gives me more endurance or more preparedness and not [to] be bothered by little distractions in myself.”

Participant 002

I hope to improve the way I approach the keys and to improve my posture, especially my shoulders. I am excited to try the Feldenkrais Method and to hopefully learn some new techniques for moving about the piano.

“I think when I am playing if I think more of the movements instead of everything else, I would have less shoulder tension... I just become more aware of what body movements are required to do certain passages... I was thinking with the method in mind, but not in a musical stand point but more of a movement stand point to make it easier... I think being aware of and sensing where the problem is has improved my playing.”

Participant 003

Most of all, I hope to improve my consistency of tone.

“My perception was that I think the movement can connect to the tone production... I wanted to expand my vocabulary... I think I am able to think about a piece of how do I want this piece to sound and actually think about how I can move to produce that sound... now I feel I can envision sound and I can go to the piano to experiment with my body and my touch to produce the sound that I hear in my head instead of only practicing one way forever... I am obviously making a physical motion, but at the same time, I am thinking deeply about it all the time adjusting it. I can connect motion to my tone, not just thinking about my notes. I feel like I am constantly progressing and improv(ing).”

Discussion of Role of Question Movement in Piano Playing

In the pre-survey, participants were asked to share their views of how the movement is connected to the piano playing and what they hoped to improve in their piano playing. The researcher shared their answers to that question with the participants again to help them self-evaluate their learning process and outcome.

Participant 001

Our body, elbows, wrists, hands, and fingers, all combined and moving efficiently are determined to a good quality piano playing.

“I sensed something has been different from my previous playing, but I can’t really identify the differences mechanically in my body... by combining different movements at the same time,

[which] are not what I have sensed before... my mind is connected more to the movements I have learned. Prior to the experience, I didn't think that my mind was connected in the way I felt after the experience. I think it's important to mention how these lessons affected the well-being of my mind."

Participant 002

I think that movement is very important when playing the piano. The way we play the piano, sit at the piano, or even approach the keys affects the sound we produce which is vital to good piano playing. Whenever I watch a pianist, if I see tension coming from the shoulders, the performance becomes very uncomfortable to watch.

Before the study, "sometimes I sit at the piano, I forget to adjust the distance, sometimes it does affect my playing but I just wasn't thinking about it nor was it ever my concern... I discover that I need to slow down when doing basically every movement...sounds basic but I guess just think through the movement."

Participant 003

It is imperative for movement to be incredibly relaxed in order to prevent injury and to create the best possible tone quality. If one is not aware of movement, it is easy for tension to build. This makes it hard, if not impossible, to improve technique or play difficult pieces.

"Before I would have heard from so many teachers talk about to be relaxed but I didn't know how to apply it but now I know that you are not really relaxed because you are doing action, but how you can make it as easy as possible for yourself. It's not just about flop and more just about making it easier as possible for yourself."

Reviewing of Performance Videos

After viewing the videos of their pre- and post- performances, Participant 001 observed a noticeable confidence in the after-video even though the movement itself was not much different but felt they "probably moved differently than move more." Participant 002 noticed the "movement just looked less jerking in the 'after' video than in the 'before' one." Also, they noted that "I noticed my pelvis was more active" but "the shoulder height was not what I imagined or thought of as tension from the shoulders." Participant 002 also concluded that the sound in the after-video was a lot freer and had "a lot to do with the movement" and believed "the [Awareness through Movement] lesson really helped with the sound and [was] less forced." Participant 003 was surprised to see how tense during playing they were in the before-video and "thought my posture was a lot better than what I saw from the video." In the after-video, "the movement looks more efficient overall... I could see how my pelvis moving, how I am picking up the body parts, how I was moving my head, it was more of my body connected throughout, which was the [Awareness through Movement] lessons that taught me."

Findings from post-surveys

The survey was divided into three parts: the general sensorial questions, piano-playing related questions, and daily life questions (see Appendix IV).

Part I: General sensorial questions

All participants reported that they felt the Awareness Through Movement lessons gave them a pleasurable or relaxed sensation. Some of the lessons may have felt strange or unknown, but overall, they still felt relaxed or pleasurable. All of them also agreed that these Awareness Through Movement lessons have helped them to identify where tension occurred in their body or how to relieve their tension when it occurred. As a result, these three participants thought the increased awareness towards the movement prepared them with more readiness to different situations from piano playing to daily life, and able to feel more confident and comfortable. Participant 003 reported the Awareness Through Movement lessons made them feel “more connected to themselves and to the piano.”

Part II: Piano-playing related questions

In the survey, all three participants expressed that there was a direct impact of the lessons on their piano playing. When asked to specify what aspect they experienced improvements in their piano playing, all three participants answered that they noticed development in their technique such as scales and arpeggios, tone quality, musical phrasing, interpretation, and memorization. Only one participant did not think their auditory perception skill was much improved. All three agreed that their overall control greatly improved after eight weeks of the Awareness Through Movement lessons.

The following table outlines the participants' direct comments of the Feldenkrais Method's impact on their piano playing. The categories shown below are standard assessments used in the field of music (Klingenstein 2009; Lyke et al 2011; Uszler, Gordon and Mach 1991) and were included in the piano-playing related questions of the end-surveys:

Technique		Tone Quality
participant 001	My technique has improved overall because my confidence and control make an instant impact on it.	I notice better control and less tension.
participant 002	Thinking about how to move my arms and pelvis first really helped in achieving good scale and arpeggio technique.	I think the ATM lessons really helped with the sound and less force.
participant 003	I am much more conscious of my tone with my scales. I can play faster, more controlled scales with a more even tone.	My tone is improved; I feel I don't just have one tone color now. I am able to adjust my movement to find a variety of colors.
Auditory Perception Skill		Memorization
participant 001	I feel more attentive to it.	I move with more confidence in general; confidence and control keep your memory stronger.
participant 002	I did not think the hearing was much improved.	Thinking about movement only distracted the part in my brain that was doubtful about memory, and I think this really helped improve in this area.
participant 003	My hearing has dramatically improved. I wasn't really aware of what I sounded like before Feldenkrais. Now, I am constantly aware of my sound, which helps me work to improve it.	I have always had a good memory, but because I am more relaxed at the piano, I have less memory slips now.
Musical Phrasing		Interpretation
participant 001	More confidence and fun in the process.	More freedom to express the music.
participant 002	I realized that if you don't have the movement down, you can't do anything else, you can't be musical, you can't do any phrasing without a basic understanding of movement.	Thinking about movement only prevents me from overthinking about how I need to do a certain passage or what needs to happen here.
participant 003	Before, I think my motion got in the way of phrasing. Stressful motion made phrasing less important. Now, I am more aware of phrasing and move in a way that will emphasize it.	I am finding movements that connect to interpretation rather those that inhibit it. It is much easier to think about interpretation using Feldenkrais.
Overall Control		
participant 001	This is the main benefit that I experience.	
participant 002	When I was thinking about movement during my playing and knowing exactly what I was going to do in a certain passage, I felt more in control as opposed to thinking about how I wanted something to be phrased or interpreted. For me, if I had control, the other aspects of piano playing came more naturally.	
participant 003	I feel much more in control of my motion. If I am not satisfied with something, I am able to experiment and try to adjust it. I feel more at ease at the piano which gives me a sense of control, even when playing difficult pieces.	

In the field of music teaching, remaining 'relaxed' and maintaining a good 'posture' are two key concepts for successful playing. Questions about the participants' experience of injunctions to 'relax' and to attend to 'posture' were included in the pre- and post- interviews.

In comparing their understanding of 'relax' and 'posture' before and after the intervention, Participant 001 stated that their understanding was the same, but in practice, the impact was more positive on both aspects. Participant 002 thought that their understanding of 'relax' was mostly the same but "really knowing that your body is in its most comfortable place and that you can sense that you are relaxed" was more crucial. This experience clarified Participant 002's understanding about the 'posture' at the piano, and being "more aware of what is happening skeletally" learned from the Awareness Through Movement lessons indeed helped playing at the piano. Participant 003 preferred "to think of relaxing as finding an easier way to play" after the intervention and believed that "there is no 'right' posture," which "should depend on the person, and it can be flexible."

Part III: Questions about impact on daily life

The two participants who practiced Awareness Through Movement lessons throughout the entire process using the recordings, noticed changes in sitting, walking, and standing. The other participant, who practiced the movement mostly from memory, did not notice any difference in that aspect. The first two mentioned participants were also more aware of their daily activities, including ones as small as carrying a backpack or picking up an object. Overall, all participants reported that their sleep had improved, which they believed was due to reduced stress and tension from learning the Awareness Through Movement lessons of the Feldenkrais Method. In addition, one participant had a sweating problem before the study but this had disappeared during the study, while another participant reported that her Temporomandibular Joint Dysfunction (TMJ) condition/symptoms had dramatically improved after the experience.

Discussion

The findings of this study suggest that the Feldenkrais Method indeed could have a direct impact on piano playing. All three participants expressed an improvement under a self-guided kinesthetic learning process towards developing awareness through movement. They all reported that this experience had brought their understanding of playing the piano to a different level, and all believed that they would have a deeper understanding of their movement if they continued to practice it.

In this study, participants showed that individuals often have contrasting experiences when they learn the Feldenkrais Method. This suggests that what each person senses or their concerns determine how the development unfolds. One could realize the auditory perception skill was dramatically improved, for instance, while the other thought this skill was not much improved.

Should the result of 'improvement' be defined or evaluated by one's own internal senses or from an external opinion?

Strengths

Using personal sensorial information as primary data can be a powerful way of showing outcomes. In addition, the investigator videoing each participant's performance provided objective data upon which both the participants and research could reflect.

The research method in this study was suitable for the purposes of this study: the personal data can indicate the efficacy of the Feldenkrais Method for pianists.

Limitations

The participants believed their development would have led to more interesting results if they were given more time to explore. All three participants agreed to continue their journal about their movement experiment for a further 3 to 6 months after the study. Due to the funding and limited recruiting source in the area, this study only used three participants simply for the purpose of proving the usefulness of personal data for the study period of two months.

The investigator hopes this study could bring more interest to explore the possibility of a future study of a longer duration of somatic experience that combines both personal (first person) and external (second person and objective) evaluations in their findings. More participants, or including subjects with chronic pain, and a study over a longer period time could allow for a wider variety of evaluations or comparisons. For example, a group of at least three external evaluators could be invited to assess the before- and after-performances as part of data collection. The collection of internal sensory information could also be extended up to 6 months or longer along with the external evaluators' assessment every two months to monitor the progressive changes of how an experienced pianist would use the sensorial experience to piano playing and/or prevent from potential injuries.

Conclusion

The experience of this eight-week study allowed the participants to process the information offered through the Feldenkrais Method practice, to develop applications suitable for themselves, then perform experiments on the piano that allowed them to evaluate the efficacy of the Method for themselves.

The result of this study suggests a further conclusion to the investigator. The musicians generally learn how to perform their execution or playing through external feedback such as instructions or listening to the recordings. Since each of us has differences in our biological structures and history of habits, the external approach delivered through others' sensory processes, which can be interpreted as objective feedback, sometimes could lead to

performance injuries if care is not taken. The Feldenkrais Method's internal kinesthetic approach can be used as musicians' subjective feedback, especially for young musicians, to interpret and clarify the instructions they receive from their teachers or the sound they hear from the recordings. Teachers can also use the Feldenkrais Method to connect the 'missing dots' in the verbal communication, or even the physical demonstration, using somatic sensing to prevent the potential risks of injury.

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Author Biography

Pianist Janice Chenju Chiang, a native of Taiwan, has performed extensively throughout the United States as well as Taiwan and South Korea. Her collaborations included concerts with many esteemed artists, including: the violinist Fritz Gearhart, clarinetists Keith Lemmons and Dr. Jeremy Reynolds, soprano Faye Robinson, and the former concertmaster of the Phoenix Symphony Orchestra, Steven Moeckel. She also collaborated with the acclaimed photographer Shane McDermott and the installation artist Shawn Skabelund. The recital/installation project with Skabelund, *Composition for Forests*, won the Viola Award in 2017. Chiang has appeared in many festivals and conferences including The American Liszt Society Festival, Tucson Vocal Art Festival, Conference of North American Saxophone Alliance, International Alliance for Women in Music, and the 2012 CMS/NACWPI/ATMI/PKL National Conferences. Chiang was a piano faculty member at Northern Arizona University from 2007-2022. She is also an authorized Awareness Through Movement of the Feldenkrais Method® Teacher. She holds performance degrees from the University of Arizona (Doctor of Musical Arts), Fu-Jen Catholic University (Master of Music), and Soochow University (BA).

Appendix I: Awareness Through Movement Lessons

1. Lifting your pelvis with more of yourself. Origin: Alan Questel; and Moshe Feldenkrais, Feldenkrais Professional Training Program, Amherst Massachusetts, 1980-1981 (Amherst)

Objective: Connect movement between the feet and pelvis and extend the movement towards arms lengthening, creating a diagonal connection through the torso for rotation (turning), flexion, and extension.

2. Rolling from the opposite hip. Origin: Alan Questel

Objective: Sense the movement in our joints including ankles, knees, hip joints, and shoulder joints, adding the movement of opening arms and chest, and eventually leads to rolling from one side to another side to activate the mobility in the chest and abdominal muscles.

3. Pelvic Clock. Origin: Feldenkrais Professional Training Program, Amherst Massachusetts, 1980-1981

Objective: Differentiation of the pelvic movements by means of an imaginary clock.

4. Paradoxical Breathing. Origin: Feldenkrais Professional Training Program, Amherst Massachusetts, 1980-1981

Objective: Learn see-saw movement to differentiate parts and functions in breathing, increasing the awareness towards your habitual breathing.

5. Falling Reversibly #1. Origin: Feldenkrais Professional Training Program, Amherst Massachusetts, 1980-1981

Objective: Arms in triangle position towards the ceiling with crossed legs moving in the same or opposite direction. Sense the spinal movement in the torso.

6. Falling Reversibly #2. Origin: Feldenkrais Professional Training Program, Amherst Massachusetts, 1980-1981

Objective: A continued lesson that uses the same position from above, adding eye and head movements in sync or opposite of arms and hands' direction.

7. Freeing the Head. Origin: Feldenkrais Professional Training Program, Amherst Massachusetts, 1980-1981

Objective: On prone position one arm up and the other arm down, both with 90 degrees in elbows and armpits. Move hand, bend wrist, and lift elbow to distinguish each part's movement in the arm, eventually involves whole self to change arms' directions.

8. In and Out of a Chair Reversibly. Origin: Alan Questel

Objective: A final lesson doing in the chair to help the participants integrate what they have learned from the previous 7 lessons of how to use the entire self in sitting. This lesson focuses on how to engage the muscles and pelvis to get in and out of the chair more easily as well as sensing the coordination of shoulders and chest when the torso is in an upright position.

Appendix II: Pre-Survey

Pre-Survey for the participants in the research project of “A Case Report on the Impact of Feldenkrais Method with Experienced Pianists,” Investigator: Dr. Janice ChenJu Chiang

Participant ID:

Participant's Profession, please also state your age:

1. What do you know about the Feldenkrais method? Are there other movement methods that you know about or familiar with? If so, have you done any ones that helped you?
2. How do you think our movement is connected to piano playing?
3. Please describe your piano playing experiences.
4. How much time do you play the piano average a day? If it's not every day, please describe how often do you play the piano a week?
5. How long do you sit at the piano each time you play the piano?
6. Do you have any kind of sensation, either comfortable or uncomfortable, when you play the piano? If so, on which part of your self and does it occur in the beginning, during, or after the playing?
7. Please tell us if there is anything you hope to improve in your piano playing.
8. Are there other activities you do besides playing the piano?
9. Have you had any injuries or surgeries before? Do you have any pain currently? If so, is it chronic or on and off? Please give more details if you can.

Appendix III: Post Study Interview Questions

A Case Report on the Impact of Feldenkrais Method with Experienced Pianists,”

Investigator: Dr. Janice ChenJu Chiang

Before viewing the pre- and post-performance videos

1. Please talk about your thoughts of experiencing the Feldenkrais Method® through this project.
2. What lessons did you practice most and why did you choose them?
3. In the pre-survey’s question No. 7: “Please tell us if there is anything you hope to improve in your piano playing,” you answered....., do you think the Feldenkrais Method® has helped you in this aspect?
4. In the pre-survey’s question No. 2: “How do you think our movement is connected to the piano playing?” you answered....., do you hold the same understanding or gain different information after the experience of the Feldenkrais Method®?

After viewing the pre- and post-performance videos

1. Please tell us your thoughts after viewing your video performances of before and after experiencing the Feldenkrais Method®.
2. After you viewed the video performances, may I ask you the same question again about your view of the connection between the movement and piano playing?
3. Do you think musicians can benefit from doing the Feldenkrais Method®? If so, to what degree or in what capacity?
4.
 - 1) Have you always practiced ATMs® with the recordings? If not, which ones were not on your log?
 - 2) Do you think practicing ATMs® with recordings help? How?
5. Since the Feldenkrais Method® emphasizes on learning how we learn, what do you think you have learned through this project so far?
6.
 - 1) Do you think you will continue practicing these 8 lessons?
 - 2) If the answer is yes---Because the Feldenkrais Method® also emphasizes the development of the process in learning, would you be willing to continue writing the journal, even not day to day, time to time and share with the investigator the learning outcome in 3 or 6 month time?

7. Do you have other questions?

Appendix IV: Post Study Survey

A Case Report on the Impact of Feldenkrais Method with Experienced Pianists – Post Study Survey

Investigator: Janice ChenJu Chiang

Participant ID:

General sensorial questions:

1. What kind of sensation did you receive after your first ATM lesson? Please check all that apply.

relax_____ pleasurable_____ strange_____ uncomfortable_____
unknown_____

2. What kind of sensation did you receive after receiving more than one ATM lesson?

relax_____ pleasurable_____ strange_____ uncomfortable_____
unknown_____

3. If you have sensed any tension in any part of yourself prior to receiving the ATM lessons, do you think the ATM lessons help you to identify where the tension is and how it occurred through your movement?

4. Where in yourself did you begin to feel a new sensation after receiving the first ATM lesson?

5. Where else in yourself did you feel more different kind of sensations after receiving multiple ATM lessons?

6. After receiving all 8 ATM lessons, do you have a different kind of understanding of how you have organized yourself before? Is it different from what you have thought before, or the same? Do you think it helps you in some way?

7. Do you have a different kind of image of yourself after receiving the ATM lessons? You may answer this in any way you like.

Piano-Playing related questions:

1. After experiencing all eight ATM lessons, do you think the Feldenkrais method has direct impact on your piano playing?

Yes_____ No_____

If your answer is yes, please continue the following questions. If your answer is no, you may stop here and jump to Daily life questions.

2. Based on what you have sensed, how has the Feldenkrais method influenced your piano playing?

a. Technique:

very much improved _____ much improved _____ somewhat improved _____
not much improved _____ no improved at all _____

b. Tone:

very much improved _____ much improved _____ somewhat improved _____
not much improved _____ no improved at all _____

c. Musical Phrasing:

very much improved _____ much improved _____ somewhat improved _____
not much improved _____ no improved at all _____

d. Hearing:

very much improved _____ much improved _____ somewhat improved _____
not much improved _____ no improved at all _____

e. Memory:

very much improved _____ much improved _____ somewhat improved _____
not much improved _____ no improved at all _____

f. Interpretation:

very much improved _____ much improved _____ somewhat improved _____
not much improved _____ no improved at all _____

g. Overall Control:

very much improved _____ much improved _____ somewhat improved _____
not much improved _____ no improved at all _____

Please continue the following question if there's any improvement with the above:

3. Please specify in what capacity in each category that you have felt the improvement because of the Feldenkrais method? Use technical terms if necessary, ex. Octaves, thirds, scales, etc.

- a. Technique:
- b. Tone Quality:
- c. Musical Phrasing:
- d. Hearing (Auditory Perception Skill):
- e. Memorization:
- f. Interpretation:
- g. Overall Control:

4. Do you think continue practicing each ATM playing a factor for your improvement?

Yes_____ No_____ If yes, please give the reason (s):

5. When did you begin to feel that the sensation you received from doing ATM was helping you to play the piano better? Please check one answer that applies below.

After 1____ 2____ 3____ 4____ 5____ 6____ 7____ 8____ lesson (s).

6. Which lesson (s) do you think help you most? Please also include the date that you received that lesson (s).

7. Comparing to prior to receiving these ATM lessons, was there constraint of movement in any part of yourself that you could not felt before but was able to feel after receiving the ATM lessons, which contributed to the improvement of your piano playing? For example, you may feel more flexible in certain movement in yourself than before the participation.

8. If you had a history of pain or had tension before that you think might be the contribution of the impediment with your piano playing, do you feel it's been improved after receiving the ATM lessons?

9. After receiving the ATM lessons, do you have different kind of understanding of what "relax" means at the piano? Does it help you more or less?

10. After receiving the ATM lessons, do you have different kind of understanding of what "posture" means at the piano? Does it help you more or less?

Daily Life questions:

1. Some people think their daily routine has been changed after receiving certain amount of ATM lessons.

Do you feel any change in your daily life? For instance, the quality of sleep or your diet.

2. After receiving the ATM lessons, do you feel the change in your walking, sitting, and standing? Please also describe the changes if any.

3. After receiving the ATM lessons, do you think the level of your awareness and attention is different?

Improved or worse?

4. After receiving the ATM lessons, do you feel that you are thinking your movement differently?

Does that help you to accomplish your tasks better or more efficiently in certain ways?

5. If you are willing, please share any other changes that you have after receiving the ATM lessons regardless it's sensorial or in your daily life.

Thank you for your participation