

EXAMINING THE PROCESS OF
INTRODUCING THE FIXED-DO SYSTEM

by

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A thesis submitted in partial fulfillment
of the requirements for the degree

of

Master of Education

in

Education

MONTANA STATE UNIVERSITY
Bozeman, Montana

April 2011

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April 2011

ACKNOWLEDGEMENTS

This opportunity is taken to thank those special people who have helped make my thesis a reality.

To my committee members, Dr. Jayne Downey, Dr. Carrie Myers and Dr. Gregory Young for their expertise, wisdom, guidance, and dedication.

To the music faculty members at Rocky Mountain University, who kindly took my interviews and shared their thoughts of music.

To the participants, who spent so many hours with me for this study.

To my English teachers, who have taught me English and the American cultures since I moved to the United States.

To my mother and husband, who have supported me every step of the way.

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ABSTRACT

The purpose of this case study was to explore how music education majors who already know how to use the Moveable-Do system reacted to the mechanics and the practicality of the Fixed-Do system. Participants included ten music education majors who took two to four semesters of aural skills classes and learned the Moveable-Do system at Rocky Mountain University. I asked participants to attend six workshop sessions on “How to Use Fixed-Do” and asked them to write journals each session. Through this workshop, the participants not only learned the values of the Fixed-Do system, but also re-thought the importance of the Moveable-Do system as well. By learning both systems, they learned the different values of each system, and they learned how important solfège is.

CHAPTER I - INTRODUCTION

IntroductionBackground for the Study

Music surrounds us and has surrounded us for thousands of years starting with the sounds of nature. Looking back 3500 years, the Egyptians (in the Old Kingdom) considered music to be of sacred origin. They employed largely instrumental music in the services of their religion, and together with astronomy, regarded music in a philosophic way with ideas fluctuating between the mystical and the scientific. Most of the instruments consisted of harps and flutes.

It is fascinating to think that the Egyptians and Greeks designed their instruments and musical compositions according to specific influences of the time. However, it is not that different from how we in the 21st century design and create new musical instruments. In our busy and complicated world, we cannot survive one single day without hearing some kind of musical sounds or tones. In fact, we still use such phrases as, “Music heals the soul”, “It is music to my ears” or “The harmony of the spheres,” quotes from the period of Ancient Greeks and Romans.

Music permeates many facets of life from emotions to politics. We tend to lean to music when we are happy, and we often lean to music when we are sad. In short, many agree that music is the language of the emotions. For example, Johannes Brahms wrote some of his most notable music dedicated to his secret girlfriend, Clara (Wiek). Dimitri Shostakovich wrote his “political” symphonies reflecting the tyranny of his oppressors, Joseph Stalin and Vladimir Lenin. John Lennon (of the rock group – The Beatles) in the

1960-70s' often reflected on the malaise of Western European current events using the power of music to convey his political views. Indeed, music is powerful and has transferred from generation to generation. Folk songs in particular have been a single commonality in carrying on the tradition of culture and social harmony, identifying who we are amongst all humans.

Music has become such a staple in our lives; however, we still have difficulty determining what is worthy of teaching or essential to our young children and posterity and what can be discarded. So many choices exist in our current world that we may now have too many choices – including making choices about music and music education. Easily, our current world has more than 100 genres of music compared to only one genre 2000 years ago. However, because music is so broad and diverse, the music education system in the 21st Century often struggles with what to teach, how to teach and how much to teach.

The Current Context

On a global level, the current state of music education is highly varied. Even after 2000 years of formalized music and documented music education in general, we are still defining the importance of music, music education, and the arts. The key questions framing the discussion include How do we perceive music and how do we teach it? What is the best way to teach music? Is music important? How does music relate and affect our everyday lives?

Music education around the world struggles with many issues including how to address the concept of solfège. There are many different systems used to read music, and

each system comes with its own merits as well as demerits. Ever since Guido of Arezzo invented the system of pitch notation in the 11th century, music educators continue searching, debating, and struggling for a mutual resolution or compromise ('Solmization' n.d.).

The Solfège System

Solfège is a system of designating musical notes by syllable names, such as *do*, *re*, and *mi*. It is an important tool for singing music, and musicians read and sing in solfège everyday. In classes, it is mainly used in chorus and aural skills class to teach singing, sight-singing, and ear-training (dictation).

Two major solfège systems are used today: the Fixed-Do system and the Moveable-Do system. In the Fixed-Do system, the syllables 'Do-Re-Mi' are permanently fixed where the syllable-to-note-name associations stay the same in any song or in any key. On the other hand, the syllable-to-scale-degree relations of the Movable-Do system always move depending on the key and/or tonal center. In the Fixed-Do system, each syllable corresponds to a note-name. The syllable 'Do' pertains to the note 'C' in English (English notation was given alphabet letter names); 'Re' means D; Mi is E; 'Fa' is F; 'Sol' is G, 'La' is A; and 'Si' is B. The syllable, Do=C, will never change in any key, whether using the major keys or minor keys (See Table 1).

Table 1: C major scale

Scale-degree	1	2	3	4	5	6	7
Note Name	C	D	E	F	G	A	B
Moveable-Do	Do	Re	Mi	Fa	Sol	La	Ti
Fixed-Do	Do	Re	Mi	Fa	Sol	La	Ti

Thus, in the G major scale using the fixed-do system, G,A,B,C,D,E,F#, G, will be sung as ‘Sol La Ti Do Re Mi Fa Sol’ (See Table 2).

Table 2: G major scale

Scale Degree	1	2	3	4	5	6	7
Note Name	A	B	C#	D	E	F#	G#
Moveable-Do	Do	Re	Mi	Fa	Sol	La	Ti
Fixed-Do	La	Ti	Do	Re	Mi	Fa	Sol

The Fixed-Do system is used in Spain Portugal, France, Italy, Belgium, Romania, Latin American countries, China, Russia, Serbia, Ukraine, Bulgaria, Greece, Iran, Lebanon, Israel, French-speaking Canada, and Japan. On the other hand, the Moveable-Do system corresponds to scale degrees, such as the first degree of a major scale is always sung as ‘Do’ the second degree as ‘Re’, the third degree as ‘Mi’ and so forth (See Table 1). For example, in G major, G will be sung as ‘Do’ in Moveable-Do, thus, G major scale, G,A,B,C,D,E,F,G will become ‘Do’, ‘Re Mi Fa Sol La Ti’ (See Table 2). This system is used in Australia, Ireland, the United Kingdom, the United States, Hong

Kong, and English-speaking Canada.

Adding to the confusions are the two different usages for both the Moveable-Do and Fixed-Do systems. Fixed-Do has two different kinds - Seven Notes Fixed-Do (Table 3) and Chromatic Fixed-Do (Table 4). For Seven Note Fixed-Do, modifiers such as sharps and flats are omitted. On the other hand, Chromatic Fixed-Do has different names for every note including notes with modifiers.

Table 3: Seven Notes Fixed-Do

Cb	C	C#	Db	D	D#	Eb	E	E#	Fb	F	F#	Gb	G	G#	Ab	A	A#	Bb	B	B#
Do			Re			Mi			Fa			Sol			La			Ti		

Table 4: Chromatic Fixed-Do

Cb	C	C#	Db	D	D#	Eb	E	E#	Fb	F	F#	Gb	G	G#	Ab	A	A#	Bb	B	B#
---	Do	Di	Ra	Re	Ri	Me	Mi	---	---	Fa	Fi	Se	Sol	Si	Le	La	Li	Te	Ti	---

Moveable-Do also has two different ways to sing minor keys: La-based Minor and Do-based Minor (Table 5).

Table 5 : A Minor Scale

Scale-degree	1	2	3	4	5	6	7
Note Name	A	B	C	D	E	F	G
La-based Moveable-Do	La	Ti	Do	Re	Mi	Fa	Sol
Do-based Moveable-Do	Do	Re	Me	Fa	Sol	Le	Te

Current Views of Solfège Systems

In a previous study, I interviewed eight professors at Rocky Mountain University in the northwestern United States to understand their views toward these two solfège systems.

During the interview, a professor of the aural skills at RMU spoke about the confusing issues dealing with the two different solfège systems:

I am not sure what the best way but this is something that we talk about all the time. Before I taught here, they used moveable-do, the la-based minor; I thought ‘Why are we using that? It will totally confuse the students.’ So, when I moved here, I changed to do-based minor. People have done different things here. There are so many different methods, it is confusing. (Komiya, 2009, p.19).

Because the United States relies predominately on the Movable-Do system, music students in the United States have very little experience with the Fixed-Do system. This limited experience may make it difficult for these students if they go abroad to study music or work in music conservatories that rely on the Fixed-Do system. The Movable-Do system is well known as the “easier system” to teach to younger students. Unlike the Fixed-Do system in which the syllable ‘Do’ has the fixed pitch of ‘C’, the Moveable-Do system can move the syllables (Do, Re, Me...) to whichever key one wishes in order to accommodate for one’s voice range. Although the Moveable-Do system is easier to learn and teach, several difficulties may arise once students begin learning higher levels of music which may have no key or tonal center. First, the Moveable-Do system is useful only if the music clearly has a key center (major key or minor key). If the music happens to modulate (move to another tonal-center within the same piece of music), the solfège

needs to change as well; according to Siler (1967) this will take time to re-configure. In addition, Taddie (2006) stated it is not feasible to use this method if the music does not have a major or minor key or tonal center, such as atonal music (which means, “without a key-center - 12-tone technique”) or modal music (which is based on the ancient Roman Gregorian Chants). Finally, it would be extremely difficult for students who learn the Movable-Do method to suddenly move to a country that advocates Fixed-Do. For example, the professor of violin studio at RMU remarked:

I think the students from here will have a very difficult time to change to the Fixed-Do if they decide to attend conservatories. If you already have learned Fixed-Do, method, it is much easier to change to Moveable-Do because one then just needs to transpose the pitches to accommodate the Movable-Do system. It will be much harder to learn the Moveable-Do first, and then to change to ‘Fixed-Do’ later. Oh, well, it’s like a driving a ‘stick shift’ (automobile). If you know how to drive ‘a stick shift,’ then you can also drive ‘an automatic.’ But if you only know how to drive ‘an automatic,’ you can’t drive ‘a stick.’ It’s really hard. (Komiya, 2009, p.19).

The problem is exacerbated by the fact that very few music educators in the United States teach using the Fixed-Do system, even when they are familiar with both systems. This study attempts to shed light on the issues of teaching music using the two different systems.

Purpose of the Proposed Study

The purpose of this case study was to explore how music education majors who already know how to use the Moveable-Do system would react to the mechanics and the practicality of the Fixed-Do system. This study consisted of six workshop sessions

entitled, “How to Use Fixed-Do”. It also explored the advantages and disadvantages of learning, using and teaching both the Moveable-Do and Fixed-Do systems. The results of this study could identify the most circumstances for each system which could ultimately be the logical step in the globalization of aural skills issues amongst the international community of musicians and music educators.

This study was guided by the following research questions:

- 1) What are students’ beliefs and skills regarding the Fixed-Do and the Movable-Do system before participating in the “How to Use Fixed-Do” workshops?
- 2) How do students describe their experience of learning Fixed-Do system?
- 3) What are students’ beliefs about Fixed-Do and Movable-Do solfège after participating in a Fixed-Do workshop?
- 4) What are students’ concerns associated with using Fixed-Do in their teaching and performing in the future?

In order to address these research questions, I offered the Fixed-Do system workshop to ten music education majors from Rocky Mountain University. The participants had previously taken an aural skills class at RMU and knew how to use the Moveable-Do system. The study collected data from workshop sessions, pre and post interviews, observations, participant journals, and skills tests to explicate the progress and participants’ experiences.

Delimitations and Limitations

The participants had completed two to four semesters of studying the Moveable-Do system in the aural skill class at RMU. Moreover, most of them had some experiences using the Moveable-Do system before they enrolled at RMU, but none of the students had studied the Fixed-Do system prior to this study. The participants learned the Fixed-Do system for only six sessions over the period of approximately two months. The difference of time spent on learning each system will be the limitation of this study.

The professor of the aural skills class at Rocky Mountain University recommended all the participants for this study. Thus, the participants' singing skills and listening skills are average, or above average at RMU. Even though students at RMU actually have some experiences with singing or ear training prior to attending the university, the majority of the students are not well trained, and their sight-singing level is low compared to the top 1% of the music conservatory students around the United States.

Definition of Terms and Variables

Solfège (also called solfeggio, sol-fa, or solfa) -- is a pedagogical technique for teaching *sight singing* skills using special syllables: 'Do, Re, Mi, Fa, Sol, La, Ti'. There are two main types of solfege: the Fixed-Do system and the Moveable-Do system.

The Moveable-Do system (also called solfa, or tonic solfa) – is one of the teaching techniques for sight-singing, sight-reading, and ear training. Each syllable corresponds to a scale degree. The first degree of a major scale is always

sung as ‘Do’, the second as ‘Re’ and the third as ‘Mi’.

The Fixed-Do system – is one of the teaching techniques for sight-singing, sight-reading, and ear training. Each syllable corresponds to a note-name. The syllables ‘Do, Re, Mi, Fa, Sol, La, and Si’ are used to name notes the same way that the letters C, D, E, F, G, A, and B are used to name notes in English.

Perfect pitch (also called “absolute pitch”) – The natural ability to identify pitches.

Relative pitch -- the musician's ability to identify the intervals between given tones.

Sight-singing – to sing musical notation at first sight.

Twelve tone music (also called atonal music) -- the method of composition invented by Arnold Schoenberg around 1920 in which all 12 notes of the chromatic scale are arranged in a order of the composer’s choice without repeating any of the notes. This method is often used in 20th- 21st century contemporary music.

Rocky Mountain University (RMU) -- is a university in a town with about 40,000 people located in the northwestern United States. The music department has approximately 140 music majors.

Aural Skills Course at RMU -- one of the courses required for all music majors. Students learn sight-singing, sight-reading, and ear training (dictation) in the course.

Conservatoire in the United States (also know as a conservatory) -- These

institutions have retained an emphasis on performance, often outside the main academic structure.

Significance of the Study

Although the Moveable-Do is easy to teach and learn, and is widely used in the most universities in the United States, there are problems with using only the Moveable-Do system. Since the emergence of twelve-tone music of Arnold Schoenberg, Anton Webern and Alben Berg of the Second Viennese School in the early 20th Century, there have been debates addressing the impracticality of the Movable-Do system. Therefore, the Fixed-Do system is regaining its earlier popularity, and may be used more often in the future. Recently, one of the best conservatories in the United States switched to the use of Fixed-Do (L.Hart, personal communication, September.10, 2010).

The level of success in the Music Department at RMU continues to improve rapidly, and the students will soon have the need to use the Fixed-Do system. Moreover, with the increase of the accessibility and the availability of information at our fingertips, the globalization of the education system is inevitable – as the globalization of the business industry has already been attained. Furthermore, having guest conductors or guest musicians who use the Fixed-Do system as well as studying music abroad, acquiring terminal degrees and studying and/or teaching “twelve-tone” technique would surely influence students in the need to learn the Fixed-Do system.

This study will help music educators and music education major students as well as future music educators better understand the issues associated with teaching the two differing solfege systems. By introducing the Fixed-Do system to them, this study will

give RMU students a choice of which system to use, and which system to teach as future music educators.

CHAPTER II - REVIEW OF LITERATURE

Review of Literature

In order to provide a background context for the current study, this review of the literature will explore six key areas. The first section will provide historical background by exploring music education in the world and music education in the United States. The second section will provide an overview of the history of the solfege systems and examine the uses of the solfege systems in the United States. Finally, this review will summarize some of the key advantages and disadvantages of the Moveable-Do system as well as the advantages and disadvantages of the Fixed-Do system.

Music Education in the World

In the words of Howard (2001), “Fifty years ago, most of the performers, particularly the soloists and conductors, would have been Europeans with only a few American or women players and certainly no Asians. All that has changed worldwide” (p. 83). Young Asian musicians are incredibly active today including Chinese pianist, Li Yundi, the winner of the Chopin Competition 2000 (‘Chopin’ n.d.), and Lang Lang, the winner of International Tchaikovsky Competition for the Young Musicians in 1995 (‘Tchaikovsky, 1995, n.d.) and Japanese pianist, Ayako Uehara, the winner the International Tchaikovsky Competition 2002, (‘Tchaikovsky 2002,’ n.d.) . In one of the most well-known international competitions in Europe, Concours de Genève’s 2010, the 1st prize was a Japanese, Mami Hagiwara, and the 2nd prize was Korean, Hyo Joo Lee (‘Concours de Geneve,’ n.d.). The gold medals (tie) of Van Cliburn International Piano

Competition (Texas USA) in 2009 were given to two young Asian pianists: a blind Japanese pianist, Nobuyuki Tsujii, and Chinese pianist Haeochen Zhang ('Clibun' n.d.). They all started playing the piano at the age of two to four under a strong music education system in Asia. In Japan, many music schools such as Toho university music school for public ('Toho' n.d.) and Yamaha music school uses solfège to develop young students music skills at very young ages. Yamaha music schools start teaching solfège when their students are 2 years old. At the age of four, most of the students recognize the pitches by listening, and they sing back to the teachers with Fixed-Do solfège ('Yamaha' n.d.).

In Singapore, a music conservatory uses a state-of-the-art internet technology system for video conferencing. Students take lessons and engage in master classes from the greatest musicians from all over the world without having to travel great distances ('Yong Siew Toh,' n.d.). With the advent of this system, students can see, listen to and speak to the professor directly in real-time. However, there is no one best way to teach music. Every culture struggles with how and what to teach in music. For example, in Asia, music educators try too hard to meet the global (western) standards, thus endangering their own unique ethnicity and culture. Japanese educators are trying to bring back the traditional Japanese songs and instruments in the public schools. The problem stated by Ishii et al. (2005) is that the teaching of classical music in Japan has been in place for more than 100 years and it is difficult to re-integrate Japanese traditional music in the schools, as they have been globalized. Hong Kong music education also has often been criticized for being too Western in culture and its

imperialistic ideals. The teachers do feel uncomfortable teaching Chinese traditional music and the PRC national anthem may ultimately discourage students from developing a sense of nationalism (Ho, 2006).

Music Education in the United States

There are two main purposes to teach music to young students: 1) to help improve their “core” subjects (such as language and mathematics) and their social skills (work ethics and team-work), and 2) to simply develop students’ musical skills (a few may become music performers or music educators through interest and nurturing). In the United States, it is always a constant battle in accomplishing these tasks, even with the mandatory music education legislation passed by the United States Congress more than three decades ago. With budget cuts, inadequate facilities, non-support from school administrators (as well as many inadequately trained teachers), the U.S. music education system continues to fight for recognition of educational values and a better music curriculum as a whole (‘Music in the law’, 2002).

Over the years, students in the United States consistently have ranked below the industrialized countries such as Finland, Canada, Japan and at least a dozen other nations on international tests of mathematics, science, and reading. Ravitch and Cortese (2009) have suggested that students in those high-performing countries spend more time reading poetry and novels, doing experiments in chemistry, and making music while American students are spending hours and hours studying for the tests of basic reading and math skills.

Yukari Yano, professor of keyboard-skills in a Mid-Western University, addressed the lack of music education for growing our future music performers and music educators in the United States:

In the United States, however, due to the poor standard music education systems in the public schools, as well as due to the lack of a music societies such as YAMAHA music school in Japan, most people rely on independent local music teachers and the textbooks and the methods that their teachers select. There are wide varieties of method books to choose from, and they all have pros and cons but they all seem to be valid ways of teaching (Komiyama, 2009, p.19).

The music professors at RMU also see the problems of music education for young students in public schools. The professor of aural skill class at RMU stated her concern this way, “What I think is that the United States does not have consistency in the music education curriculum for young children. That is a problem. Maybe this country is too big and with too many methods,” (Komiyama, 2009, p.19).

While education in the United States, especially in the area of the arts, is lagging behind other countries, the number of American students who study music abroad is increasing (Fine, 2008). Many American music colleges and universities allow transfer of credits between countries such as Germany, Italy, Israel, and Morocco. Shafer Haiss, a student in Brooklyn, New York who went to study jazz in Brazil for five months in 2008, stated, “It has a real soul, a passion to it that has been lacking in the music schools in the United States in recent years.” He not only studied music there, but also received full semester’s worth of college credit from his university (Fine, 2008).

The Rocky Mountain University offers “Arts & Humanities Semester in Tuscany, Italy” every summer. The music majors travel to Italy for thirteen weeks. They will learn

not only the culture of Italy but also will take music instrumental lessons, music literature classes, and music appreciation classes in Italy for credit from RMU. In Italy, most of the musicians use the Fixed-Do system. Thus, the students from RMU have a new experience learning the Fixed-Do system. Some of them struggle with the unfamiliarity of the solfège system used in other countries.

History of the Solfège Systems

Guido of Arezzo, an Italian in the 11th Century invented the system of pitch notation (staff notation, using lines and spaces) and the solfège system (*solfeggio*) of singing syllables *ut, re, mi, fa, sol, la si*. As a Christian monk, he was a trainer for the city's choir, Arezzo's cathedral (Oxford Music Online). In those days, the pitches were already shown by pictures, and the singers already knew the passages well. Thus, the syllables were written just to remind the tunes for the singers (McNaught, 1893).

The Norwich music educator, Sarah Ann Glover (1785 – 1867) invented Tonic sol-fa (the Moveable-Do system) to teach young students, and John Curwen developed and popularized the system in the middle nineteenth century. By the end of the nineteenth century, the Tonic sol-fa (the Moveable-Do) was widespread in England and the United States (Stevens, 2010).

Solfège Systems in the United States

Even though there is much confusion regarding variations of the solfège system, a majority of primary and secondary schools as well as most universities in the United States prefer the Moveable-Do system over the Fixed-Do system (May, 1993; Smith,

1998; McClung, 2001; Pembroke, 1990). In the United States, nearly 80% of the universities use the Moveable-Do system and 20% use the Fixed-Do system (Rawlins, 2005/2006). For the past 100 years, the debate over using the Fixed-Do or the Moveable-Do has endured. Clement Autrobus Harris (1918) called this, “The war between fixed and moveable Doh” (p.184).

Pembroke (1990) conducted surveys in the U.S. universities and McClung (2001) surveyed U.S. high schools asking how instructors determine their methods of teaching sight-singing or aural skills. Data from their surveys interestingly showed that there were many variables in the respondents and their responses. For instance, some used only one system and some used both, but the usages were not consistent even within the department of the same school.

At Rocky Mountain University (RMU), the music department employs the Moveable-Do system in the aural skills class and the chorus. Previous research found that almost half of the music faculty members mentioned the struggle between the Moveable-Do and the Fixed-Do system (Komiyama, 2009).

The Advantages and Disadvantages of the Moveable-Do System

Advantages: First, users of the Moveable-Do system can experience tonal relationships and a deeper understanding of what they are singing (Smith, 1991). As a second advantage Bentley (1959) suggested that the Moveable-Do system is much easier because one can simply forget the key signature, once the key is established and ‘Do’ has been located. Furthermore, when more information is needed, such as for music

educational purposes, Moveable-Do is much more precise and easy to understand, systematically (Smith, 1991). Previous research also found that seven out of eight faculty members in the RMU music department agreed that Moveable-Do is easier to use. As an example, one professor of music theory at RMU stated, “I think moveable-do is much easier to learn compared to Fixed-Do. That’s why in public schools in the US, they teach Moveable-Do (Komiya 2009, p.15).

Disadvantages: The conflict of using Moveable-Do versus Fixed-Do has been discussed since the middle 1950s. Siler (1956) argued for the Moveable-Do system saying, “In modulations, where there is continual shifting from one key note to another, those using it fail far behind from those using Fixed-Do” (p.40). On the other hand, the advocates of Fixed-Do are concerned by the limitations put forth by the Moveable-Do system as applied in atonal music as twelve-tone music which lacks the perception of pitch and tonal center (Smith, 1991). Moveable-Do abandons any sense of perfect pitch achievers and only serves the relative pitch ears (Rawlins 2005/2006). Moreover, Moveable-Do could only be expressed by scales progressing from tonic to tonic, and is limited to two modes, Major and minor, and it is designed simply to name the whole steps and half steps in proper order, irrespective of the key or mode (Taddie, 1996) Also, previous research found that five out of eight professors admitted the limitations of using Moveable-Do. For example, the professor of Choir at RMU said,

“By the way, I don’t use solfege when I teach a minor piece (because there are two different ways to sing minor keys in the Moveable-Do system: the La-based minor and the Do-based minor). I use solfege only when I teach in a major key piece. It is limited.” (Komiya, 2009, p.16).

The Advantages and Disadvantages of the Fixed-Do System

Advantages: Although the Fixed-Do system only provides partial information, it is useful because it can be easily employed (Smith,1991). Subsequently, Siler's (1956) suggestive system, which is all based from the Fixed-Do system, employs monosyllabic terminology that is psychologically and acoustically suggestive for any possible interval of standard music. Conductors use Fixed-Do throughout the world because when there are numerous "keys centers" found in a large scale work, there is no way for a conductor to sing and make instant determination of the key designation (Rawlins, 2005). Another advantage of Fixed-Do is that it encourages a sense of perfect pitch since whenever the Fixed-Do system is employed, one is constantly reminded of exactly where pitches sound, no matter where the tonal center lies (Rawlins, 2005, Aoki Y., Saitou, M. & Seiguchi, H.2001). The students who have perfect-pitch (who naturally know the correct pitches) would have a very difficult time moving the 'Do' each time the key-center is changed. These students (only a small percentage of students have perfect pitch) can only learn the music after they make sense of the "correct" pitches (Rawlins, 2005/2006).

As the professor of keyboard-skills at the Mid-Western University said,

My Fixed-do is completely tied with the perfect pitch, as well as with my 'synesthetic' phenomenon. I recognize a pitch without relating to any other note. I also see (or have an image of) a particular color associated with a particular tonality or a note. Therefore, if all the major keys were in 'Do-Re-Mi' and minor keys were in 'La- Ti-Do', I would be terribly confused or have to loose my perfect pitch and sense of color. (Komiya, 2009, p.17)

Disadvantages: One of the disadvantages of using the Fixed-Do system is the lack of the tonal relationships between notes, as it gives only part-information (Smith, 1991). Moreover, using Fixed-Do system is more difficult than the Moveable-Do system because musicians must remember all the sharps and flats in the key signature at all times. For instance, when a musician must sing a song with seven sharps, the musician has to focus on all the sharps to sing correctly with Fixed-Do. Thus, using the Fixed-Do system makes it harder for the musician to sing the song, and defeats the point of using the solfège system. (Bentley, 1959). A professor of composition at RMU also noted, “If one were to see the series of pitches in extreme intervallic configuration and try to figure them out by interval, the result would be mathematical and unmusical“ (Komiya, 2009, p.19).

There is no best way to teach music. Every culture has struggled to figure out the most effective and affective ways to teach for centuries. The solfège issue is a good example of our global dysfunctionality in the concepts and philosophies of what is good for everyone. Each system has its advantages and disadvantages, and it is almost impossible to choose only one system to use around the world. As future music performers and music educators, RMU music education majors should be aware that people use different solfège systems, especially in the United States. They should also know the merits and demerits of those systems. If the music education majors had the chance to learn both major solfège systems, and if they were familiar with both systems equally well, they would be able to choose depending on the situation.

CHAPTER III - METHODOLOGY

Methodology

In order to explain the methodology of this study, this chapter explores three major areas:

The first key area will provide the research design which includes research context, my musical background, methodology, participants, and pilot study. The second section will provide the data collection which includes data collection procedures, structure of the workshop, workshop plan, and data collection. The last section provides data analysis strategies, and credibility and authenticity of design.

Research Context

Rocky Mountain University (RMU) is located in the northwestern United States. The population of the town is about 40,000. The town is growing rapidly as the population has increased 43% since year 2000. Rocky Mountain University has approximately 12,700 students enrolled. Twenty-five faculty members teach in the music department at RMU, and one hundred-forty-six students are currently enrolled as music majors. Sixty-seven of them study music technology, fifty-one of them major in music education, and twenty-eight students are enrolled as Bachelor of Arts majors.

My Musical Background

I am a musician who also conducts keyboard skills classes at RMU. I began learning the piano at three years old. Like everyone else in Japan, I worked with the

Fixed-Do system for nineteen years. After receiving my bachelor's degree in piano performance in Tokyo Japan, I taught piano at a university in Bangkok, Thailand. The education of classical music in Thailand is just now starting to improve, having taken some twenty years to develop. Music teachers from all over the world bring their knowledge and share with the students, young and old, to Thailand. However, due to the lack of uniformity in the teachings of solfège, the mixture of using the Fixed-Do system and the Moveable-Do system often creates tremendous confusion in areas such as Thailand. In 2006, I moved to the northwestern United States. I am a prime example of someone having a difficult time shifting from the Fixed-Do system to the Moveable-Do system since all of my students use Moveable-do system.

Method

The research questions that guided this study are as follows:

- 1) What are students' beliefs and skills regarding the Fixed-Do and the Movable-Do systems before participating in a "How to Use Fixed-Do" workshop?
- 2) How do students describe their experience of learning the Fixed-Do system?
- 3) What are students' beliefs about the Fixed-Do and the Movable-Do system after participating in a "How to Use Fixed-Do" workshop?
- 4) What are students' concerns associated with using the Fixed-Do system in their teaching and performing in the future?

These research questions required a qualitative approach. Learning a new solfege system through participating in an on-campus workshop might have resulted in a variety of participant responses including confusion, irritation, a sense of achievement, liking, and/or disliking. Some of them might have been motivated to learn the Fixed-Do system while others might have known the value of Fixed-Do but ultimately declined to learn a whole new system. I believed that a qualitative investigation with a small number of participants would provide a much deeper understanding of the participants' cognitive processes than would survey of hundreds of students simply collecting their general impressions.

Participants

Fifty-one music education majors at Rocky Mountain University served as the population for this study. I used criterion and purposeful sampling to gather the participants. First, from the list of fifty-one music education majors, the aural skills instructor recommended approximately fifteen students. The aural skills instructor selected the students who completed at least two years of aural skills courses with an average or an above average grade. From these students, I found those who would be willing to participate in this workshop, and determined their availability for participation. Finally, I chose ten students who could participate in all six sessions of a scheduled workshop for the duration of approximately two months.

Before the participants signed the consent form, all the participants received full information about this project such as the schedule and conditions. I gathered all the participants' contact information and reminded them via e-mails and phone calls prior to

each session. Since this Fixed-Do system is well known and well used in the world, I hoped that learning and practicing the Fixed-Do system throughout this workshop would give many advantages to the participants as future music teachers. The participants received a gift certificate and invitation to a party at the end of the workshop.

Table 6. Participant profiles

Participant	Sex	Year in University	Instruments	Aural Skills (semester)	Kind of Music he/she plays	Ensemble Experience
1	Female	Senior	Flute, Conducting	4	Classical	Orchestra, Band
2	Female	Senior	Voice, Violin, Conducting	4	Classical	Choir, Orchestra
3	Male	Junior	Guitar, Bass	4	Jazz	Jazz Band
4	Female	Junior	Violin	4	Classical	Orchestra
5	Female	Senior	Oboe, Bassoon, piano	4	Classical	Orchestra, Band
6	Female	Sophomore	French Horn, Trombone	3	Classical	Orchestra, Band
7	Female	Sophomore	Violin, French Horn	3	Classical	Choir, Orchestra
8	Male	Junior	Cello, Piano	4	Classical	Choir, Orchestra
9	Male	Sophomore	Violin, Composition	3	Classical	Orchestra
10	Male	Sophomore	Saxophone	3	Classical	Band

- Ms.1 is currently applying for her master's degree as a conducting major. "Fixed-Do is important for conductors. I am very excited to learn Fixed-Do," she said.
- Ms.2 is the only vocalist in this group of participants. "As a singer, I use Moveable-Do all the time," she said.

- Mr.3 is the only jazz musician in this group. “The only way that I am able to play jazz is using the Moveable-Do system,” he said.
- Ms.4 is a violinist. Her goal is to study violin pedagogy in her masters degree. “Learning solfège makes kids think abstractly. It is hard for them, but important” she said.
- Ms.5 started playing the piano when she was three. “I don’t think I learned solfège when I was little. I would imagine it would have helped more if we had done more” she said.
- Ms.6 plays many brass instruments that are tuned to different pitches such as Horn in F and Trumpet in B flat. Thus, she has the need to transpose most often in this group of participants.
- Because Ms.7’s parents are also musicians, she grew up being involved in choirs since she was very young. Her mother taught her solfège (Moveable-Do) as well.
- Mr.8 is also a talented musician who plays the cello, piano, sings in a choir, and studies conducting. “I haven’t really started using solfège yet, but I have started thinking about how to incorporate solfège with playing my instruments. I am sure I will find it useful,” he said.
- Even before he started learning Fixed-Do for the first time in this workshop, Mr.9 believed that Fixed-Do will be easier to learn than Moveable-Do if learned properly from the very beginning. “When I tried to explain Moveable-Do to my

students and friends, many of them became confused. I think Fixed-Do is a lot simpler.”

- Mr.10 found solfège least interesting, compared to the other participants. “I probably will not teach solfège except in choir. Just because I don’t remember learning it when I learned the saxophone. I don’t really find the importance of it,” he said.

Pilot Study

In order to evaluate possible problem areas in the study, I conducted a pilot study with one music major of senior standing. I asked him to participate in a “How to Use Fixed-Do” workshop. The workshop had six sessions. Each session took from thirty to forty-five minutes. I offered him some sessions on the same day depending on his availability. I interviewed and tested him before the first session and after the last session. I asked him to write a journal entry after each session.

As a result of the pilot study, I designed some changes to make the workshop more comprehensible, meaningful and valuable. For example, I removed some of the exercises offered in the initial Pilot Study, such as playing the piano while warming up because my pilot participant experienced great difficulty playing and singing at the same time. I also found that repeating the same exercises again and again until the participant felt comfortable was not as effective as trying new and different exercises. From this experience, I made changes in the content of three sessions of the workshop: 1) repeat the same warm up patterns every time, 2) repeat each song three times, and 3) ask the participants to practice at home as well as to memorize one challenging song.

Data Collection Procedures

I collected data by offering six workshop sessions on the theme of the Fixed-Do system. In this workshop, I decided to use the Seven Notes Fixed-Do, not the Chromatic Fixed-Do system. With the Seven Notes Fixed-Do system, the participants needed to learn only seven syllables compared to the seventeen syllables in Chromatic Fixed-Do system. Before the first workshop session, I interviewed each participant for approximately 30 minutes (see Appendix A). After the interview, I asked the participants to take two kinds of tests: One test using Moveable-Do system, and the other test using the Fixed-Do system. The exact same materials comprised both test 1 and test 2. For those tests, I asked the participants 1) to sing random notes to determine their perfect pitch and/or relative pitch ability, 2) to sing two songs: one easier and one more difficult to test their sight-singing skills, and 3) to sing broken chords in order to find their ability to sing with correct pitches (Appendix B).

The Structure of the Workshop

During the six workshop sessions, the participants worked on the theme of Fixed-Do. Each session took about one hour. I offered the first five sessions in one of the classrooms at RMU, and I invited them to come to my house for the last session. I asked the participants about their schedules, and we decided to meet every Sunday night. I used the following combination of materials in the workshop:

- a. Warm Up with the Fixed-Do system: Singing the same pattern again and again to help the participants to become familiar with singing the Fixed-Do comfortably and quickly.

b. Interval singing: Helped to develop perfect pitch and relative pitch. By working from the closer intervals (second) to wider intervals (seventh), the difficulty to sing in tune (on pitch) increased with each session.

c. Popular songs (such as Jingle Bells, For Elise): Sung in multiple keys. Since the participants knew the songs already, they did not have to concentrate on reading notes and counting rhythms. They could focus more on the singing with the Fixed-Do system.

d. Songs from Yamaha Solfege Textbook: Easy and lovely songs with piano accompaniments.

e. Songs from Chorubungen: One of the famous exercise text books for singing from Germany. I transposed some songs into non-C major to develop the Fixed-Do skills.

f. Dictations: Participants listened to the piano, and wrote down the notes and rhythms. Instead of writing notes on a music sheet, the participants wrote on a regular sheet of paper with the syllables ('Do, Re, Mi').

Workshop Plan

Session 1: During the first ten minutes I offered a brief lecture on the history of the two solfège systems, and current uses of the solfège systems in the United States. I included an introduction to the different kinds of solfège systems (Seven Note Fixed-Do, the Chromatic Fixed-Do, the La-based Minor Moveable-Do, and the Do-based Minor Moveable-Do). After a brief lecture, we played a card game. I prepared seven cards, and I wrote one syllable ('Do, Re, Mi') on each card. I played one or two notes on the piano

at a time, the participants listened and guessed what notes they were, then took the card. This game helped the participants familiarize themselves with the Fixed-Do system, and helped to develop their listening skills. After the game, the participants sang some warm up exercises, “Twinkle Twinkle Little Star” in various keys, and some second interval exercises and songs.

Session 2: We started with the same warm up as Session 1. Then I asked participants to sing “Jingle Bells” in different keys, songs from the Yamaha solfège textbook, and third interval exercises and songs.

Session 3: In addition to the warm up exercises, the group sang familiar songs in multiple keys, fourth interval exercises and songs, and complete singing with broken chords. This helped not only their pitch center, but also developed their perfect pitch and relative pitch. The participants sang a challenging song from Chorubungen (No.71). We sang this Chorubungen No.71 in every session. The goal was to memorize the song by the sixth session, and remember this song for a long time even after the workshop ended.

Session 4: In addition to the warm up exercises, familiar songs, and fifth intervals exercises and songs, and broken chords, the participants engaged in music dictation to get used to use their Fixed-Do skills of listening and finding the correct notes.

Session 5: In addition to the new songs and new intervals, the participants reviewed the songs that we practiced in the early sections. I believe that to sing the same songs and become more familiar with them is as effective as learning new songs.

Session 6: The goal of the session 6 was to memorize the Chorubungen No.71. In addition, the participants sang and responded to dictation of more “non-tonal music.” (Appendix B). An overview of the Workshop Sessions in Table 6, p.34.

After the sixth session, the participants took the post-test (test 3) (Appendix B). While the materials in test 1, 2, and 3 were the same, the third test used only the Fixed-Do system. By comparing test 2 (pre-test with Fixed-Do and the test 3 (post-test with Fixed-Do), I could see the participants’ improvement of the Fixed-Do system after the final session. The comparison between test 1 (pre-test with Moveable-Do) and test 3 (post-test with Fixed-Do) told me which system worked better for singing and listening (Appendix B).

Finally, I conducted the post-workshop group interview for one hour. The questions included the strengths and weaknesses of Fixed-Do, and the participants’ hopes as future music educators (Appendix A).

Table 7 Workshop Plan

Session 1	A brief lecture, Game, Warm up, Second Interval exercises and songs, “Twinkle Twinkle Little Star”
Session 2	Warm up, Third interval exercises and songs, “Jingle Bells”, Songs from YAMAHA solfege textbook
Session 3	Warm up, Fourth interval exercises and songs, “Wedding March”, Songs from YAMAHA solfege textbook and Chorubungen, Chorubungen No.71
Session 4	Warm up, Fifth interval exercises and songs, “Darth Vader’s Theme”, Songs from Chorubungen, Chorubungen No.71, Dictation
Session 5	Warm up, Sixth interval exercises and songs, “Für Elise”, Songs from Chorubungen, Chorubungen No.71
Session 6	Warm up, Seventh interval exercises and songs, “James Bond’s Theme”, Chorubungen No.71, Dictation

I designed this workshop with two elements in mind: 1) participants knowledge from the aural skills class using Moveable-Do in the past two years at RMU, and 2) my personal experience with Fixed-Do under the Japanese education system for over ten years. I met with the aural skills instructor at RMU, and borrowed her classroom text books, syllabi, and test materials. I asked her advice on what to disseminate and how to instruct the Movable-Do system. The instructor teaches the Moveable-Do system to the RMU music majors using the intervals and broken chords, and dictating using the syllabus. This method is very similar to instructing the Fixed-Do system. From Japan, I also brought back some textbooks for this workshop. The Yamaha Music School, a

globally renowned institution, has experienced much success in teaching Fixed-Do and the concept of perfect pitch to very young beginning students with the Yamaha solfège Textbooks. The German solfège textbook, Chorubungen, is well-known in Japan to intermediate and advanced students for improving their ear training skills, and its materials often appear in the entrance exams of many music colleges and conservatories in Japan. I tested the workshop plan not only in the Pilot Study, but also I asked three music professors at RMU including the aural skills instructor to review it.

Data Collection

Interview: I conducted two interviews, one before the first session and one after the last session. The first interview was done on an individual basis. I spent approximately thirty minutes with each participant. I conducted the last interview in an one hour group (Appendix A). I recorded the interviews.

Workshop: The workshop focused the topic of the Fixed-Do system. Each of the six sessions lasted for one hour. The participants experienced learning about the Fixed-Do system, and singing and listening with Fixed-Do. The workshops took place between the end of September and the beginning of October, 2010. I recorded and audio taped all the sessions.

Journal: The participants wrote in their journals after each session. In the journal, by using 1 to 10 scale, the participants self-evaluated level of difficulty, level of achievement, and concerning issues. I asked a few questions such as, Do you think it is

helpful to use this system when you teach and why? Do you see it is helpful when you play your instrument and how?

Observation: I not only conducted the workshops but also observed them. I made observation notes during and after each session.

Tests: I administered three tests. Test 1 was the pre-test with the Moveable-Do system. Test 2 was the pre-test with the Fixed-Do system, and test 3 was the post-test with the Fixed-Do system. I recorded all the tests.

Data Analysis Strategies

Pre-workshop data: I transcribed all pre-workshop interviews verbatim and analyzed them inductively to determine major themes in participants' responses. Data from Test 1 (Moveable-Do) and Test 2 (Fixed-Do) included recordings of the participants' singing and their written dictation response. I scored the recordings for the number of mistakes made in each task.

Workshop data: The data from the workshops included transcription of selected conversations between the participants and me during six sessions, the participants' journal entries composed and collected after each session, and my field notes.

Post-workshop data: I conducted, recorded, and transcribed verbatim the happenings of the post-workshop interviews. Data from Test 3 (Fixed-Do) included

recordings of the participants' singing and their written dictation response. I scored the recordings for the number of mistakes made in each task.

I analyzed the data inductively, as recommended by Lincoln & Guba (1985) in order to ensure that participants' perspectives showed in the results. The analysis process began with multiple readings of each participant's complete response to the interview questions. The purpose of the reading was to identify key points, common aspects, and unique or divergent statements in the form of margin notes as suggested by Creswell (1998). I used the common and distinct features to form a preliminary set of codes. Following that I created a working definition for each preliminary code in order to manage the data in a systematic fashion. Next, I segmented each participant's response into distinct units that could be meaningfully coded. These segments will be viewed as the unit of analysis. Finally, I organized the coded data into categories that accurately represented the complexity of the data and the best answers to the questions of the study.

Credibility and Authenticity of Design

The professors of aural skills at RMU recommended her strongest students for the project. Moreover, a large sample size of ten out of fifty-one music education majors at RMU participated in this project. Thus, the findings of this study may be able to show the general tendencies of the music education majors as a whole. Because all of the participants and I have known one another for at least two semesters, the participants felt comfortable and at ease in sharing their honest opinions. Three professors and three music professors reviewed this workshop plan. I recorded and asked all the participants to write in journals after each section.

I used a variety of data sources such as pretests/post tests, interviews and observations. All of these data sources provided deeper insights into the experiences of learning Fixed-Do. Furthermore, I collected data across time which allowed me to capture a quasi longitudinal perspective from the participants' experiences. In the quasi longitudinal sense, I was able to capture developmental process of learning a new method. This triangulation made the study strong, credible, and authentic in gathering concrete results and viable answers.

CHAPTER IV - RESULTS

Results

The Fixed-Do system and the Moveable-Do systems are the two main solfège systems that are used all over the world. Solfège is a system of designating musical notes by syllable names, such as *do*, *re*, and *mi*. In the Fixed-Do system, the syllables, ‘Do-Re-Mi’ are permanently fixed where the syllable - note - name associations stay the same in any song or in any key. For example, C is sung Do, and G is sung Sol all the time. On the other hand, the syllable to-scale-degree relation of the Movable-Do system always moves depending on the key and/or tonal center. For example, in G major, G is sung Do in Moveable-Do system.

The purpose of this study was to explore the degree to which music education majors who already know how to use the Moveable-Do system would be inquisitive or curious about the mechanics and the practicality of the Fixed-Do system. Participants included ten music education majors in the Rocky Mountain University who had taken at least two semesters of aural skills classes and learned the Moveable-Do system. I asked participants to attend six sessions of workshop “How to Use Fixed-Do” and to write journals each session. The participants took a short test before and after the workshop, held one face – to - face interview before the workshop, and participated in a group interview after the workshop. After the workshop, I transcribed all the interviews verbatim and analyzed them inductively to determine major themes in participants’ responses.

The following research questions guided the study:

- 1) What are students' beliefs and skills regarding the Fixed-Do and the Moveable-Do system before participating in a "How to Use Fixed-Do" workshop?
- 2) How do students describe their experience of learning Fixed-Do system?
- 3) What are students' beliefs about the Fixed-Do and the Moveable-Do system after participating in "How to Use Fixed-Do" workshop?
- 4) What are students' concerns associated with using Fixed-Do in their teaching and performing in the future?

This chapter is divided into four sections to explain the results of the workshop. In this chapter, the participants' beliefs about and skills in using the Fixed-Do system and the Moveable-Do system before and after the workshop "How to Use Fixed-Do" will be described. The first section shows results from pre-workshop; the second section describes results from the workshop; the third section reveals results after the workshop; and the last section is predictions for future uses.

Pre-Workshop Results

Past Experience: When I interviewed the ten participants individually before the workshop, I noticed that they felt that they did not get a lot of training of solfège until they took aural skills classes at Rocky Mountain University. Eight out of ten participants said they had learned no or little solfège until they came to college. The two participants who had more experience learning solfège were the musicians who used to sing in choirs. An individual said, "I would imagine it would help more if we had done more, but we didn't do much". Another individual said, "It's just music education in this

state is so slow. If I grew up in anywhere else, I would pick up right away.” Many participants seemed to regret the fact that they did not get enough training with solfège when they were younger, and some individuals pointed out the lack of music education system for younger students, especially in this state.

Even now, after the participants took two to four semester of solfège training, six out of ten participants felt they use no or little solfège outside the aural skills class. Three participants said they use solfège only in large ensemble settings. The only individual who uses Moveable-Do all the time was the jazz player. An individual said, “I haven’t really started using it, but I have started thinking about how to incorporate how to use solfège. Not much yet, but in the future, I am sure I will find it useful.” Even though participants know how to use the Moveable-Do system, they are having a hard time finding the importance of the skills, and many of the participants are not seeing the connection between what they have learned in the aural skills classes and their musical lives.

Beliefs: Importance of solfège. Six classical instrumental players out of ten participants answered that they often do not use solfège outside the aural skills class room. However, when I asked if the individuals think solfège is important for musicians, nine participants answered “yes.” At this point, no participants have learned the Fixed-Do system. Therefore, when individuals said “solfège”, they were referring to the Moveable-Do system. There were two important aspects of solfège (the Moveable-Do system) that participants mentioned: one is solfège helps to improve intonation skills when the participants sing and/or play their musical instruments, and the other is solfège

helps to improve their ensemble skills in orchestras, bands, and choirs. One participant explained how she uses solfège to improve her intonations when she plays violin. She said that if she has a big interval jump, she plays the interval with the piano, sings it and hears it with solfège before she plays the violin. She said “It is easier to hear in my head if I use solfège.” Often times, especially with large intervals such as sixths, it is easier for musicians to think with solfège (such as ‘La to Do’), instead of thinking with note names (such as ‘E flat to G flat’). Especially with the Moveable-Do system, musicians are able to think ‘La to Do’ with any sixth interval notes; thus, the musicians are able to play with right pitches.

Another participant who has had many years of experience playing in the band explained how she uses solfège in an ensemble by stating, “I use solfège to hear what other people are playing and what I am playing, and the relation to them. Hearing the chords and harmonies that go around what I am playing. Also, just to know where the melody going.” By thinking with solfège and using their knowledge of music theory, musicians are able to understand the structure of chords. For example, in ensemble, if there were moments that a flutist plays ‘Sol’ and a clarinetist plays ‘Mi’, and bassoonist plays ‘Do’ the chord structure could be discerned. The bassoonist may notice that he/she is the one playing the root note of the chord, so he/she may play stronger. The clarinetist and the flutist may listen to the bassoonist, and try to match the intonation. Musicians listen to each other in ensembles all the time, and see their individual roles as just a small part of whole ensemble to match with the other parts. Many participants mentioned that solfège helps musicians to find their roles in ensembles.

Impression of the Fixed-Do system: None of the participants had learned the Fixed-Do system before this workshop. However, all the participants had heard of the Fixed-Do system before, and they already knew the fact that ‘C’ is always ‘Do’ with the Fixed-Do system. Six out of ten participants imagined that the Fixed-Do system sounds difficult to use. As one participant said “The ‘Do’ sounds like a home-pitch to me. But with Fixed-Do, the Tonic (the first note in each scale) is not always ‘Do’ anymore. It is different, it is harder for me to think about.” Many participants feared getting confused between the Moveable-Do system and the Fixed-Do system.

On the other hand, there were two participants who thought that the concept of the Fixed-Do system seemed easier than the Moveable-Do system. For example, an individual said, “It’s just ‘C’ is always ‘Do’, right? ‘Re’ is always ‘D’. It is very simple concept. It sounds easier to me because you just have to follow the scale”. Three participants pointed out that the Fixed-Do system might help to develop the perfect pitch. “I imagine it must help developing the perfect pitch or even relative pitch. Because it’s always the same!!” said one participant.

After two years of the Moveable-Do training, some of the participants see some limitations of the Moveable-Do system. For example, in complicated songs with key changes in one song, musicians have to keep moving the ‘Do’ in the Moveable-Do system. A few participants mentioned that using the Fixed-Do system could solve these limitations that musicians find in the Moveable-Do system. Mr.9 said that he feels like Moveable-Do gets unnecessarily tricky when he works in minor keys, modulations and secondary keys centers. He thinks that modulation would be much easier with Fixed-Do.

Mr.9 did not learn solfège until he came to this university. Even now, he admits that he does not use it outside of his the aural skills classes. For musicians like Mr.9 who did not grow up with solfège may think Moveable-Do has many complicated rules, and in turn think Fixed-Do may seems simple to them. The participant who is the only jazz player stated, “I assume that A is 440 or whatever is the home-tone, and no matter what it never changes. Once you are good at it (with Fixed-Do), it will give you more freedom than Moveable-Do.”

With the Moveable-Do system, musicians need to keep thinking what key the musicians are playing / singing now. When the key signature changes, musicians need to move ‘Do’ every time. In much advanced level music such as sonatas and symphonies, often the key changes gradually, and sometimes, it is difficult to draw a line exactly where the modulation happened. Musicians occasionally meet pieces without key signatures in contemporary music that has been composed in twentieth century. A few individuals said that given all the complications found in larger music, the Fixed-Do system could give more freedom from worrying about key signatures and modulations.

Pre test results: Two kinds of tests were given individually following the first interview: Test 1 (pre test with the Moveable-Do system), Test 2 (pre test with the Fixed-Do system). These two tests helped me to see the participants’ Moveable-Do skills, as well as how the participants would do with the Fixed-Do system without any training. In test 1(pre test with the Moveable-Do system), I asked participants to sing four items: first, sing six individual notes with any syllables; second, sing a simple song in D major with Moveable-Do system; the third, sing a harder song in B flat major with the Moveable-Do

system; finally, sing two broken chords (an A major broken chord, and a G augmented broken chord with the Moveable-Do system). I conducted test 2 (pre test with the Fixed-Do system) right after the Test 1. After I explained briefly how to use the Seven Note Fixed-Do, I asked participants to try to sing the same two songs and same two broken chords as test 1, but this time, sing with the Fixed-Do system.

To score the tests, I counted the number of wrong notes that each individual made. When the participant sang a note with both wrong syllables and wrong pitch, I counted -1 point; when the participant sang the wrong syllables but right pitch, or wrong pitch but right syllables, I counted -0.5 point. From there, I calculated the percentage of notes each individual sang correctly. For those participants who were not able to sing the whole song due to their minimal solfège skills, I marked where the individuals stopped singing, and calculated the percent the individuals sang right in the section. Rhythm, smoothness, musical expressions were not counted on these tests.

Table 8. Pre tests results

Participants*	Pitch A	Six individual notes	First Song Test 1 (M.D.)	First Song Test 2 (F.D.)	Second Song Test 1 (M.D.)	Second Song Test 2 (F.D.)	Broken Chords Test 1 (M.D.)	Broken Chords Test 2 (F.D.)
1	Y	91%	86%	74%	59%	73%	90%	85%
2	N	66%	75%	78%	70%	77%	80%	62%
3	Y	83%	98%	87%	84%	73%	80%	72%
4	N	41%	75%	63%	64%	74%	95%	90%
5	N	50%	89%	60%	55%	30%	92%	65%
6	Y	91%	87%	80%	23%	55%	90%	90%
7	N	75%	95%	63%	93%	62%	85%	72%
8	N	50%	84%	87%	68%	0%**	80%	75%
9	N	50%	83%	71%	28%	0%**	87%	80%
10	N	68%	77%	71%	0%**	0%**	72%	72%
Average		68%	85%	73%	54%	44%	85%	76%

M.D.=Moveable-Do, F.D.=Fixed-Do

*Participants are not listed in the same order as in table 6 on p.31

**participants thought it was too hard to sing, and they refused to try

Before the test 1, I asked participants to sing the pitch ‘A’ without listening to the piano to test their perfect pitch skills. Three out of ten participants could sing ‘A’ with correct pitch, and seven did not. After they heard the correct pitch ‘A’ with the piano, the participants sang six additional individual notes. I allowed the individuals to sing them with any syllables since these six notes did not have key signatures. Next, participants sang the first song in D major. This first song was an easy song with simple melody and same pattern of rhythms. After the first song, I asked the participants to sing the second song. This song was written in B flat major, and it was harder song than the first song with a modulation and wide intervals for singing. Some of the participants refused to sing this song because they thought the song was too difficult. Finally, I asked the participants to sing two broken chords. One was A major broken chords, and the other was G augmented chord. I asked them to use Moveable-Do for the first test, and Fixed-Do for the second test. I asked these four items with Moveable-Do first (test 1), then I asked them to sing the same materials but with Fixed-Do next (test2) (See Appendix B).

Some individuals said “I am not good at singing!! It looks too hard for me,” or “I have not done solfège for a while, so I don’t remember.” Many participants told me they did not feel confident toward singing. Three of them refused to sing one of the songs because they thought it was too hard for them. For the second song (harder song), only five out of ten participants were able to sing till the end with the Moveable-Do system, and only one out of ten participants sang to the end with the Fixed-Do system. Since this was a difficult song for many of the participants, they sang very slowly, and they stopped to fix their mistakes many times. Some participants did not complete the singing because

they found it too hard. It was a big surprise to me that the second song was way too difficult for most of the participants. It was one of the songs that I learned in Japan when I was middle school, and it worked fine with the participant in the pilot study. Another surprise to me was that actually four out of five students did better with the Fixed-Do system than the Moveable-Do system with the harder song. Five participants felt that the Fixed-Do system was actually easier than they thought, and two out of five those participants thought the Fixed-Do system might be easier than the Moveable-Do system. For example, one participant said “Since this song is in D major, I just try to tell myself that ‘D’ is ‘Re’ all the time. And it kind of worked!”

Workshop Results

The first session: The first session of “How to Use Fixed-Do” was held on a Sunday night in September at one of classrooms at the Rocky Mountain University. I was relieved to see the friendly atmosphere in the classroom since all the participants knew each other; also the participants and I knew each other well. Each session took one hour. All the sessions were video taped and audio taped. I was able to write some observation notes during the sessions, and I wrote more after the each session while I was reviewing the videos. After the each session, all the participants were asked to write journal entries.

Knowledge of Fixed-Do: During the first session of “How to Use Fixed-Do” workshop, I spent the first ten minutes talking about solfège, and introduced the participants to the Fixed-Do system. In the short lecture, I talked about six key points of

the basic history of solfège and today's uses of the Fixed-Do system in the United States and in the world. The first key point was that the Moveable-Do system was started by a British educator to teach younger students. Also, some European countries tried to use Moveable-Do system but they went back to the Fixed-Do system because it did not work for them. Thirdly, I mentioned that the countries which use the Fixed-Do system do not use note names ('C,D,E'). I continued by making participants aware that there are two different Fixed-Do systems (Chromatic Fixed-Do and Seven notes Fixed-Do) and two different kind of Moveable-Do systems (Do-based minor and La-based minor). The final fact revealed that approximately twenty percent of music universities in the United State teach the Fixed-Do system. Many of these facts were new to the participants.

Participants showed their interest, and eight of the participants commented about my ten minute lecture in their first journal. "I did not realize that the divisions of training methods can often be drawn by country borders and language barriers" wrote one of the participants in his journal. In my observation journal, I wrote, "Giving a brief lecture about the Fixed-Do and the Moveable-Do system at the beginning of workshop was very effective way to start the workshop. The lecture opened their eyes and make the participants more excited about learning the Fixed-Do system."

Confusion between the Fixed-Do system and Moveable-Do system:. The first time participants started using the Fixed-Do system to sing several songs during the first session of the workshop, many of them confused and mixed up the Fixed-Do system and the Moveable-Do system. Especially, many of the participants felt uncomfortable not singing 'Do' at the end of each song. For example, one of the participants wrote, "Every

time we have cadence, I feel like we were supposed to end on ‘Do’. So I was constantly fighting to stay with Fixed-Do.” Cadence is any place (normally the ending of a piece) where the music has the feel of an ending point. In cadence, music ends on the tonic (the scale degree one of a key), which is always ‘Do’ in the Moveable-Do system. In aural skills classes at Rocky Mountain University, music students learn the pattern of cadence, and learn to feel and understand the ending of music by using the Moveable-Do system. Because the participants were so used to singing ‘Do’ at the end of songs with the Moveable-Do system, many individuals accidentally sang ‘Do’ at the end of songs even with the Fixed-Do system.

Chromatic Fixed-Do system versus Seven Note Fixed-Do system:. In the first session, I was surprised that six out of ten participants were interested and/or bothered by the differences between the Chromatic Fixed-Do and the Seven Note Fixed-Do system. There were a few participants who showed more interest in Chromatic Fixed-Do than the Seven Note Fixed-Do system. For example, one individual wrote “I think Chromatic Fixed-Do is interesting for me. I like the fact that ‘A’ is different from ‘A flat’ in Chromatic Fixed-Do because they do sound different. Also in more modern, atonal music, there will often be tone clusters and chromatic movement which can get confusing to explain without Chromatic Fixed-Do. ” In addition, there was one participant who kept singing chromatic syllables such as ‘Fi’ (‘F sharp’) and ‘Me’ (‘E flat’) when she saw the accidental sharps and flats, which are not the notes in a scale, and they are played half step higher or lower only in the bar. In the Moveable-Do system, musicians use chromatic syllables only for accidental sharps and flats. Therefore, one of

the participants who is comfortable using Moveable-Do from her long term choir experience became confused and sang chromatically when she saw the accidentals. In my journal, I wrote, “Does Chromatic Fixed-Do work better for her than Seven Note Fixed-Do? How about other participants? Was it a right choice to teach Seven Note Fixed-Do rather than Chromatic Fixed-Do?”

Problem:. One problem that I found in the first session was that when one participant sang louder than others, other participants tended to follow the loud voice that they could hear, instead of thinking by themselves. Only one voice major student was a participant among nine instrument players. Three of them used to sing in choirs, and seven of them have no or little experience singing besides the aural classes at this university. Participants who used to sing all the time sang a lot louder than others, and the others just followed her even if it was not right pitch. “This was something I didn’t think about when I did the pilot study with one student. I think this is one disadvantage of the group session. Maybe I should have chosen only students who play instruments, but not singers,” I wrote in my observation note.

Middle Sessions (session 2, session 3, and session 4): I held the second, the third, and the fourth sessions of the “How to Use Fixed-Do” workshop on Sunday night also. However, some of the participants could not attend all the sessions for different reasons such as sickness and other commitments. For the participants who could not attend that session, I offered an individual make-up session during the same week individually. It

was unfortunate that all the participants could not meet at the same time, but by offering those make up sessions, I was able to collect the data from all ten individuals.

Improvement: In his journal, one participant wrote that he was a little interested in how he was starting to feel more comfortable in Fixed-Do already. I was very fascinated to see the participants' improvement in such a short time. In their first journal, two participants already wrote that Fixed-Do was not as hard as they thought. After the second session, nine out of ten participants wrote that Fixed-Do was getting easier. In particular, three individuals thought singing the Fixed-Do system with right syllables got easier after the second session. After the third session, six participants wrote that singing the Fixed-Do system with correct pitches made it easier to compare to the first session. Three individuals noticed their improvement of identifying the pitches (when they listen to the notes) after the fourth session. Many participants were excited about their improvement with the Fixed-Do system. For example, one participant wrote "It was interesting to me how easy it was to adapt to the Fixed-Do from the Moveable-Do system," and another individual wrote, "I wonder why Americans do not use this. Once learned, it seems easy and then everyone can start singing without a starting pitch." In my third observation note, I wrote "Everyone's sight reading skills with the Fixed-Do system are improving rapidly. Maybe it will take a longer time to improve their listening skills and identifying pitches skills." In my fourth observation note, I wrote "It seems like listening and singing without music (singing back from what they hear) will take a longer time than to sing with music. But many participants started to feel more comfortable in listening as well. That means they can hear the pitches in their head

without reference notes.” Participants’ sight singing skills with the Fixed-Do system improved first, and their listening skills and ability to identify the pitches started to improve after the fourth session. I noticed that the participants could hear the pitches in their head a lot more than the first session. Many participants are starting gradually to have perfect pitch.

Minor key: A few participants found a challenge in singing songs written in minor keys rather than major keys. In the aural skills class, participants learn Do-based minor in the Moveable-Do system. In Do-based minor, the musicians sing ‘Do-Re-Me-Fa-Sol-Le-Te-Do’ for the minor scales. Therefore, the participants are used singing ‘Me’ instead of ‘Mi’ for the scale degree three, ‘Le’ instead of ‘La’ for the scale degree six, and ‘Te’ instead of ‘Ti’ for the seventh scale degree in minor keys. With the Fixed-Do system, musicians simply have to sing the actual notes whether in minor keys or major keys. However, some of the participants accidentally sang ‘Me’ instead of ‘Mi’ with the Fixed-Do system in minor keys, and sometimes participants had a hard time singing right pitch. Those participants who confused ‘Mi’ and ‘Me’ were mainly the students who have sung in choirs for a long time. They feel very comfortable singing minor keys with a Do-based minor in the Moveable-Do system, and their Do-based Moveable-Do skills distracted the participants from singing the minor songs with the Fixed-Do system.

According to the pre interviews and the faculty members’ interviews prior to this workshop, singing minor keys with the Moveable-Do can be confusing and inconsistent for many musicians. There are two ways to sing minor keys with Moveable-Do system: one is Do-based minor and the other is La-based minor. The choir director at the Rocky

Mountain University told me that he does not use solfège when the songs are in minor keys. Some of the students in the choir learned La-based minor in high schools, some learned Do-based minor, and some did not learn any solfège. Not everyone has taken an aural skills class at the university since not all of the singers are music majors. Thus, the choir director, in order not to confuse students, chose not to use solfège with minor keys. As one participant said, “I really enjoyed all the minor songs today. I noticed that for some reason minor keys were easier with Fixed-Do,” singing minor keys with the Fixed-Do system may solve the confusion that happens when they sing with the Moveable-Do system once they become used to using Fixed-Do.

Exception: Between the second, third, and fourth journals, nine out of ten participants wrote that their Fixed-Do skills improved compared to the first session. Two participants especially liked the Fixed-Do system, and they wrote that they are more comfortable using the Fixed-Do system than the Moveable-Do system. However, there was one participant who had a difficult time learning the Fixed-Do system. The particular participant saw totally different concepts between the Fixed-Do and the Moveable-Do systems: the Fixed-Do system is more focused on individual notes, and the Moveable-Do system is more focused on relationship with other notes. This particular participant uses the Moveable-Do system all the time, and he plays correct pitches by comparing notes to each other. Thus, he felt uneasy using the Fixed-Do system and finding individual pitch without comparing to others. He wrote in his journal that, “Playing guitar and playing jazz, it’s all about intervals. Actually, I am not thinking what note I am playing. I just feel the patterns and intervals. So Moveable-Do is easier

for me. Moveable-Do is more like guitar. Same pattern and you can play anything. The relationship is stronger between guitar and Moveable-Do than guitar and Fixed-Do.”

This participant has a unique music background compared to other participants. He is the only jazz player in this group of participants, and also he has the shortest experience in playing music. Because he plays jazz and improvises music, he does not read music as quickly as other participants. This individual has great listening skills, and he hears pitches, intervals, and harmonies in his head with the Moveable-Do system. When he tried to use the Fixed-Do system in this workshop, he had to go through a complicated process in his head. He heard notes with the Moveable-Do system first, then he had to translate every single note to the Fixed-Do system. The process confused him and he sang out of tune a lot more often than when he sang with the Moveable-Do system. Thus, he was having hard time to find the importance of using the Fixed-Do system. I started to doubt the value of using the Fixed-Do system for this student who is already successful with using the Moveable-Do system. In my journal I wondered if the Moveable-Do system would make more sense than the Fixed-Do system for playing guitar and bass without music, and improvising music. Perhaps the Fixed-Do system is best for classical music and the Moveable-Do system better for non classical music.

Switching between Fixed-Do and Moveable-Do system: During the fourth session, the participants were asked to sing one song in both the Fixed-Do system and the Moveable-do system for an experiment. Five of the participants found that it was easy to just switch back to the Moveable-Do system. “In my head, it’s like an actual switch to change between Moveable-Do and Fixed-Do. I didn’t have any problem going back,”

wrote one of the participants. On the other hand, there were four participants who thought it was challenging to sing with the Moveable-Do system after they had sung with the Fixed-Do system. An individual wrote in her journal that if she is not focused, she tends to be mixed-up between the two methods. Another wrote, “Since I am not taking aural skills class nor I am using the Moveable-Do much anymore, Fixed-Do is easier for me at this point. Going back to Moveable-Do is challenging.” It is very interesting to see how each individual feels differently about going back and forth between two solfège systems. Regardless of the participants’ Moveable-Do/Fixed-Do skills, some could easily switch between two systems, and some got confused.

Summary of the Middle Session: Four participants thought it was difficult to switch back and forth between Moveable-Do and Fixed-Do. The common reason was that it became confusing, especially at the cadences (the endings of songs or phrases). Five participants had no problem switching back and forth. Many of them told me that it is just like, “turning a switch on and off.” It seems like the participants who did not feel, think of, and use Moveable-Do in their general musical lives are more likely to feel better about switching back and forth between the two systems. The jazz player who was having a hard time using Fixed-Do, and the other participant who had a difficult time with singing minor keys with Fixed-Do use the Moveable-Do system more often than other participants. I see the trend of the participants using Moveable-Do more skillfully, as it is more difficult to use Fixed-Do system.

Final Sessions (session 5 and session 6) :The fifth and sixth sessions also occurred on Sunday evening. In the fifth session, some of the participants looked very tired, and less focused than previous sessions. Since it was the middle of semester, and a weekend night, many participants were busy with other studies and activities. Participants came to my house for the last session.

Three Challenges. Syllables, pitches, and listening. There were three different challenges of learning Fixed-Do system that participants mentioned throughout the workshop: singing with right syllables, singing with correct pitches, and listening and identifying pitches. The first few sessions, the participants' main challenge was to sing with right syllables. However, their challenge changed to singing with right pitches and identifying pitches more towards the last few sessions.

Unlike the first session where the six participants confused the Moveable-Do system and the Fixed-Do system, none of them mentioned problems between the two systems in their last two sessions. After the second session, three participants were already used to singing with the Fixed-Do syllables. Even though three participants continued to mention the challenges of singing with right syllables with the Fixed-Do system in the last two sessions of the workshop, their challenges were smaller than before. For example, one participant said, "Today I felt the syllables were finally much easier, but I still cannot sing fast enough." Another individual said that somehow, he just always mixed-up 'Fa' and 'La'. Singing with correct syllables with the Fixed-Do system was the largest challenge at first, but many participants improved rapidly.

On the other hand, more and more participants found difficulty singing on the correct pitches towards the last two sessions. This is because the participants were asked to sing wider intervals such as 6th and 7th, and finding correct pitches with wide intervals simply was harder than finding the pitch in narrow intervals. For an experiment, I asked the participants to sing a harder song with 6th and 7th intervals with both the Fixed-Do system but also the Moveable-Do system. As one participant wrote, “It was interesting that on the song that we tried in both Fixed-Do and Moveable-Do, I did not do particularly great in either method!! I think that I need to have much more consistent practice in both (or either) to be much good at any of it!” Participants made about the same mistakes with singing with the Moveable-Do and the Fixed-Do systems. “They are having a hard time with finding right pitches because they are singing harder songs than in the first few sessions” I wrote in my journal.

Most of the participants agreed that listening to the recordings and guessing the notes/the key signatures is harder than just singing with music. In the fifth session, I used ring tone melodies on my cell phone, listened to the songs a few times, and asked the participants to guess what key the song was and what the first note was. The participants hummed the notes many times, and compared with ‘La’ to find out the pitches. Throughout the workshop, I kept asking the participants to sing ‘La’ (note name A) many times without reference notes to see if they were able to improve their perfect pitch. At the last two sessions, many participants were able to memorize the pitch ‘La’ and were able to sing it without hearing the piano first. “I am getting better at finding ‘La’ without a reference note, which makes naming notes by ear is easier” wrote a participant. Another

participant wrote, "I found myself that I can hear 'Sol' in my head. I think because of my voice range, it is easier to find 'Sol' than 'La' for me. And from there, I can find other pitches." As three participants mentioned during the pre interview, they were very curious about the relationship between the Fixed-Do system and perfect pitch. Even though these listening exercises were challenging, the participants enjoyed practicing to improve their perfect pitch skills. "When they got the first pitch of songs without hearing the piano, they looked so happy and excited," I wrote in my observation note.

Post –Workshop Results

Right after the sixth session, we held a one-hour group interview. I invited all the participants to come to my house for the last session and the group interview. I was able to create a comfortable atmosphere to discuss participants' experiences from this workshop and their opinions toward the Fixed-Do and the Moveable-Do systems. The group interview was also video recorded and audio taped.

Achievements and Challenge: All of the participants felt that they improved their Fixed-Do skills in these six sessions of workshop. Four participants wrote in their last journals that singing the right syllables with the Fixed-Do system got much easier compared to the first session. Another four participants mentioned that this workshop helped to develop their perfect pitch skills. After the workshop, four out of ten participants thought that using the Fixed-Do system was more comfortable than the Moveable-Do system; one felt that both systems are equally comfortable to use, and five out of ten participants answered that the Moveable-Do system was still more comfortable

than the Fixed-Do system. Participants took two to four semesters of the Moveable-Do system training at university, and they just took six sessions, six hours of the Fixed-Do system training. Compared to the time that the participants spent to learn the Moveable-Do system, many participants improved their Fixed-Do skills in a short time. Eight participants thought that they would be fluent with the Fixed-Do system if they continued practicing for another two to three months. One individual said six months, and another individual said two years of training would achieve their fluency with the Fixed-Do system.

Two participants had hard time adapting to the Fixed-Do system from the beginning of this workshop, and they could not get over their challenges after the six sessions. One of them was the jazz guitar player. Since he uses the Moveable-Do system in his regular musical life all the time, he had the most trouble adapting to the Fixed-Do system. “Singing using the Fixed-Do syllables was that hardest thing for me. Throughout the workshop, I kept reverting to my Moveable-Do syllables” he stated. Yet, he found that the Fixed-Do system could be beneficial for him, and he showed his positive attitude. He said, “I still want to keep practicing Fixed-Do though. I want to be able to identify the exact pitch that other musicians are playing, and I think practicing Fixed-Do will definitely help me with that.”

Another individual actually doubted the value of the Seven Note Fixed-Do system. The individual felt strange about not changing syllables when she sang chromatics with the Seven Note Fixed-Do system. (For example, ‘A flat’, ‘A sharp’, and ‘A natural’, we all sing ‘La’ with Seven Note Fixed-Do) She mentioned the confusion of

chromatics in the first session, and she still felt the same way after the workshop. She wrote in her journal that the most challenging thing for her was the chromatics. Referring the same solfège to ‘C’ or ‘C sharp’ was really hard for her to “wrap her mind around.” Even though she was confused about chromatics, she still liked the simplicity of the Fixed-Do system in general. “Fixed-Do makes it a lot easier to remember the syllables. It also makes finding the pitches easier because I don’t have to worry about syllables but I can focus on pitches,” she commented. I am curious if she will like Chromatic Fixed-Do better than Seven Note Fixed-Do.

Various opinions towards the Fixed-Do and the Moveable-Do systems: When I did the first interviews before the workshop, I got the impression that most of the participants were not interested in solfège, and they did not think or feel solfège was useful. I was very relieved to hear so many positive opinions from each of the participants towards solfège after the workshop. When I asked the participants about advantages and disadvantages of both the Fixed-Do and the Moveable-Do systems, each individual gave me very unique opinions that differed from the individual’s pre interview before the workshop.

For example, one participant wrote, “With piano, I think Fixed-Do would be great use. However, for string instruments, I think Moveable-Do might actually be more useful for intonation and musicianship, since it is not constructed by equal-temperament or fixed-pitches”. Another individual said, “Singing in tune to Fixed-Do is a lot harder than singing in tune with Moveable-Do. However, remembering the syllables with Fixed-Do is much easier than Moveable-Do because it’s all the same.” Another individual offered,

“I learned that Fixed-Do is easier and more helpful for sight-singing for me, but Moveable-Do is more useful for better understanding songs that are more prepared.”

Yet another participant thought, “Moveable-Do is most helpful when learning simple melodies. Fixed-Do would be easier to use if the harmonics were not easy to analyze.”

During the six weeks of the workshop, each participant kept thinking about different benefits of the Fixed-Do and the Moveable-Do systems, tried to apply them to their musical lives, and came up with very different opinions (Table 9).

Table 9. Various advantages of the Fixed-Do and the Moveable-Do systems mentioned by participants during the workshop

<u>The Fixed-Do system helps</u>	<u>The Moveable-Do system helps</u>
<ul style="list-style-type: none"> • to improve perfect pitch (identify pitches) • to play in tune • to memorize music • to sight read/ sight sing • to sing minor keys • to sing/play harder songs (with modulations) • to explain for young students • to understand advanced theory • to understand the char actors of each keys • to do dictations 	<ul style="list-style-type: none"> • to feel harmonies, scales, intervals • to understand basic theory (analyze) • to sing / play simple melodies • to understand musicians role as an ensemble • to play in tune • to use for young students • to transpose • to read pieces with many sharps and flats on key signature

The Fixed-Do system and perfect pitch: The most common advantage of the Fixed-Do system mentioned over and over was the strong connection with identifying pitches. “Fixed-Do has definitely helped me with hearing actual pitches and finding notes. It helps me to play in tune,” said an individual. During the sessions, I kept asking the people to sing ‘La’ without a reference note. I asked the participants to listen to the piano and guess the notes. These exercises improved the participants’ perfect pitch skills. In the post test, six out of ten participants were able to sing ‘La’ without a reference note. This finding indicates that musicians’ perfect pitch skills could improve at any age if they practice. One individual said that by the end of the workshop, she learned how she could easily apply the Fixed-Do to her musical life. Especially when first learning a piece, participants found that perfect pitch skills help their musical lives in many ways.

The Moveable-Do system and harmonies: All the participants enjoyed the learning and the benefits of the Fixed-Do system. However, many participants agreed that the Moveable-Do system has different advantages from Fixed-Do system: the sense of harmonies, intervals and scales. “Especially when you are in a choir or in a band, it helps to understand the harmonies better as a group,” said an individual. Scales, harmonies, chord progressions, and intervals are patterns. Once musicians learned these patterns of music, the Moveable-Do allowed musicians to move easily the patterns to any keys. In large group setting such as a choir and a band, using Moveable-Do and thinking of patterns as a group helps to tighten the group as an ensemble.

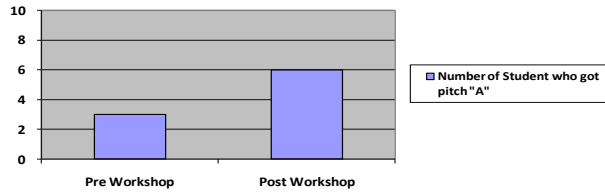
Participants' long-term interest in solfège after the workshop: Five months have passed since I held the “How to Use Fixed-Do” workshop, and yet participants still talk about the helpfulness of the workshop. Many of them still think about the Fixed-Do system, and some individuals continue to use it in their musical lives. Individuals come to talk to me, and share their Fixed-Do experiences. One of the participants found that it is required for her to sight sing a song with the Fixed-Do system for her graduate degree's entrance exams. “I am scared but excited to practice Fixed-Do more! You have to help me,” she said. Another participant told me that she is thinking of teaching the Fixed-Do system for her first private student. Another participant asked the aural skills instructor at the Rocky Mountain University if she can use the Fixed-Do system instead of the Moveable-Do system in the class. The participant found that Fixed-Do is easier for the advanced level aural skills. The aural skills instructor allowed her to use the Fixed-Do system. Two other participants also thought that it is easier to use Fixed-Do system in aural skills classes when the songs get more complicated with modulations. One participant is writing an article about her experiences of learning the Fixed-Do system and the Moveable-Do system for the state music education magazine. It was very interesting to switch our roles, as she interviewed me about my opinions toward the two solfège systems.

The feedback that I frequently receive from many of the participants includes their improvement of perfect pitch skills. For example, one participant said, “I found that I can guess “Sol” almost all the time!!! I figured it's the key of a song that I am working on right now!” There is one more participant who started to find pitches in her head

without a reference note. I also saw one of the participants using the Fixed-Do system to tune the violin, and another participant using her perfect pitch skill to find the first note to sing. It is truly exciting to see the growth of the Fixed-Do system that began with this workshop on the Rocky Mountain University campus.

Post Workshop Test Results and Comparisons with Pre Tests: All participants individually completed test 3 (post test) after the workshop. First, the participants were asked to sing pitch 'A' without listening to the piano to test their perfect pitch skills. Then, individuals were asked to sing six individual notes without syllables, sing two songs with the Fixed-Do system, (one, easy and one, harder), and sing two broken chords with Fixed-Do system. The exact same materials were used in test 1 (pre test with the Moveable-Do system), test 2 (pre test with Fixed-Do system), and test 3 (post test with the Fixed-Do system). As in test 1 and 2, I counted the number of mistakes they made: wrong pitch and wrong syllable = -1 point, wrong pitch but right syllable = - 0.5 point, and wrong syllable but right pitch = - 0.5 point. The scores were compared in two different ways: I compared test 1 (pre-test with Moveable-Do) and test 3 (the post test with Fixed-Do); then I compared test 2 (the pre-test with Fixed-Do) and test 3 (the post test Fixed-Do). In the post workshop, six out of ten participants were able to sing pitch 'A' without a reference note.

Figure 1. Number of Participants who got pitch “A”



After the workshop, twice as many individuals sang pitch ‘A’ without listening to the piano. This result suggests that the participants’ perfect pitch skills improved during the workshop.

1.Sing six individual notes. (without any syllables)

Table 10.Six Individual Notes / Comparison between Test 1 (Pre-Test) and Test 3 (Post Test)

	Individuals score (%)										Average
Test 1 Pre Test	91%	66%	83%	41%	50%	91%	91%	75%	50%	50%	68%
Test 3 Post Test	91%	83%	66%	66%	75%	91%	83%	58%	83%	83%	78%

Seven out of 10 participants produced the same or improved scores after the workshop.

2. First song (easier song)

Table 11. First Song /Comparison between Test 1 (the Pre-Test Moveable-Do) and Test 3 (the Post Test Fixed-Do)

	Individuals score (%)										Average
Test 1 Pre Test Moveable- Do	86%	75%	98%	75%	89%	87%	95%	84%	83%	77%	85%
Test 3 Post Test Fixed-Do	93%	84%	100%	93%	75%	80%	91%	98%	84%	95%	89%

Table 12. First Song/Comparison between Test 2 (the Pre-Test Fixed-Do) and Test 3 (the Post Test Fixed-Do)

	Individuals score (%)										Average
Test 1 Pre Test Moveable- Do	74%	78%	87%	63%	60%	80%	63%	87%	71%	71%	73%
Test 3 Post Test Fixed-Do	93%	84%	100%	93%	75%	80%	91%	98%	84%	95%	89%

The average score of singing an easier song in test 3 was higher than both test 1 and test

2. The participants sang more in tune with correct syllables than they did on tests 1 and

2. It is noteworthy that seven participants sang better with the Fixed-Do system after the workshop than with the Moveable-Do system before the workshop.

3. Second Song (harder song)

Table 13. Second Song / Comparison between Test 1 (the Pre-Test Moveable-Do) and Test 3 (the Post Test Fixed-Do)

	Individuals score (%)										Average
Test 1 Pre Test Moveable- Do	59%	70%	84%	64%	55%	23%	93%	68%	28%	0%*	54%
Test 3 Post Test Fixed-Do	89%	78%	80%	90%	77%	86%	84%	96%	77%	89%	85%

*participants thought it was too hard to sing, and they refused to try

Table 14. Second Song / Comparison between Test 2 (the Pre-Test Fixed-Do) and Test 3 (the Post Test Fixed-Do)

	Individuals score (%)										Average
Test 2 Pre Test Fixed-Do	73%	77%	73%	74%	30%	55%	62%	0%*	0%*	0%*	44%
Test 3 Post Test Fixed-Do	89%	78%	80%	90%	77%	86%	96%	84%	77%	89%	85%

*participants thought it was too hard to sing, and they refused to try

The participants showed the most progress with this harder song. Unlike test 1 and test 2, all ten participants were able to sing the whole song in test 3. They sang with a lot better intonation, right syllables, and better rhythms. “It is a lot better than pre test for sure,” said one of the participants with a big smile.

4. Two Broken Chords

Table 15. Two Broken Chords /Comparison between Test 1 (the Pre-Test Moveable-Do) and Test 3 (the Post Test Fixed-Do)

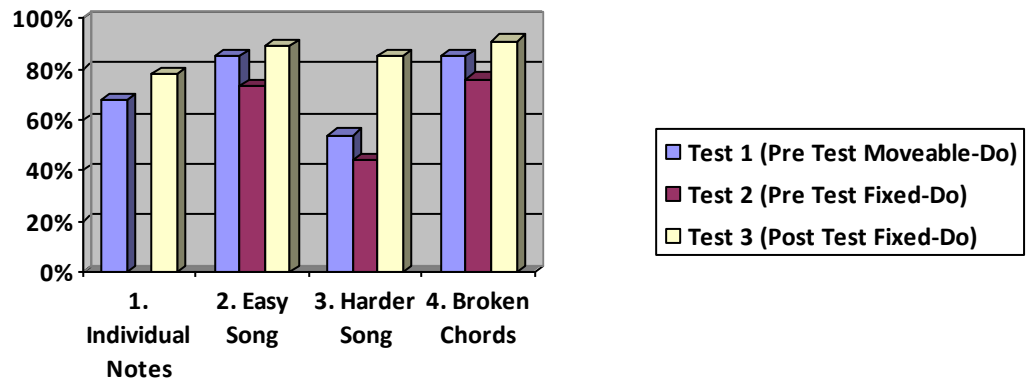
	Individuals score (%)										Average
Test 1 Pre Test Moveable- Do	90%	80%	80%	95%	92%	90%	85%	80%	87%	72%	85%
Test 3 Post Test Fixed-Do	92%	80%	97%	95%	92%	85%	95%	95%	90%	92%	91%

Table 16. Two Broken Chords /Comparison between Test 2 (the Pre-Test Fixed-Do) and Test 3 (the Post Test Fixed-Do)

	Individuals score (%)										Average
Test 2 Pre Test Fixed-Do	85%	62%	72%	90%	65%	90%	72%	75%	80%	72%	76%
Test 3 Post Test Fixed-Do	92%	80%	97%	95%	92%	85%	95%	95%	90%	92%	91%

Also with two broken chords, participants were able to sing in better pitches and correct syllables after the workshop. Especially, they made great progress compared to test 2 (pre test, Fixed-Do) and test 3 (Post test, Fixed-Do).

Figure 2. Test Scores (%) Averages



Predictions for Future Usage

In the last group interview, and also in the last journal, I asked participants if they thought teaching the Fixed-Do system to children in public school would be more helpful than the Moveable-Do system. Also, I asked if the Fixed-Do system would be more helpful than the Moveable-Do system for a performer. The last group interview was very interesting and full of unique opinions. The conversation flew into the discussion about poor music education programs in this state, and how important it is for music majors in universities to learn solfège.

Future usage of the fixed-do system as a performer: Most of the participants agreed that the Fixed-Do system was very helpful in improving their performing skills. Six individuals mentioned that the Fixed-Do system helps musicians to play in tune.

“Fixed-Do definitely improved perfect pitch. If I can hear in my head, I can play in tune,” said an individual. “To me, Fixed-Do works great when I play my instrument. Each pitch begins to have a certain feeling to it, and I’ve kind of started associating different colors with the different pitches. (F is green and A is red, etc),” said another participant during the last interview. Participants found that the Fixed-Do system was helpful for performers not only for pitches but also for sight reading skills, memorizing music, and playing advanced pieces. However, three participants had the opposite opinion, and they thought that Moveable-Do would help performers more than the Fixed-Do system. They believed that the Moveable-Do system helps musicians feel the intervals and harmonies; thus, they play in tune by comparing the note to others. The only jazz player also thought the Moveable-Do system helps to play jazz since jazz players often need to transpose at sight.

During the group interview, the participants discussed two more topics. First, they talked about whether the Seven Note Fixed-Do or the Chromatic Fixed-Do is most helpful to them. They also considered the value of studying both the Moveable-Do and the Fixed-Do systems. Many of the participants preferred Seven Note Fixed-Do because it was simple enough to memorize seven notes. On the other hand, a few students thought that Chromatic Fixed-Do may work better. For example, one participant said, “For more advanced level music, especially with modern atonal music, learning the Chromatic Fixed-Do will help to improve intonation skills better.” Participants agreed that all three methods (the Moveable-Do system, the Seven-Note Fixed-Do system, and the Chromatic Fixed-Do system) have different strengths. Participants discussed the

effect of learning many systems or staying with one system. Four participants noted that it was easy to switch between the Fixed-Do and the Moveable-Do systems. Therefore, the five participants thought that musicians should learn many systems, and use different systems depending on the pieces and occasions. Five of the participants thought that it was not easy to go back and forth between the Fixed-Do and the Moveable-Do systems. Although the five participants thought it was ideal to use different systems depending on the pieces, it would take a lot of practice to master all the systems.

Future Usages of the Fixed-Do system as a teacher in public schools: “Solfège is so important. I wish I learned more when I was younger,” commented one participant; many participants strongly agreed. After the workshop, all ten participants realized the importance of solfège, and they all agreed that they would use solfège to teach young students in public schools. However, participants had different thoughts about which system would be more effective to teach children. Five participants thought that music educators should teach the Moveable-Do system first to young students in public schools for two reasons. First, the five individuals believe that Moveable-Do is easier to apply to the simple songs that young students will learn in public schools, and second Moveable-Do helps children to understand theory. For example, one participant said “In American public school, Moveable-Do would be the preferred teaching standard because you can get students to use it quickly and effectively without much training. Fixed-Do, I feel, would require more time working on solfège and could lead to frustrated students, most of whom will not become musicians.”

On the other hand, three participants thought that they would teach the Fixed-Do system to children in public schools. For example, one participant said, “Moveable-Do can be confusing for children to think that pitch can move around, and any pitch can be ‘Do’.” Another individual said “I would prefer to start teaching with the Fixed-Do system so that my students could get comfortable with pitches always being the same syllables. But I would like to eventually teach them the Moveable-Do system as well because I think that both are useful musically.” Another two participants believed that it would not matter which system they use, but it is very important to teach only one system and not to mix it with other systems until the students completely master the one system. “I honestly think either method could produce equally fine musicians if the same method is used for a child from beginning to maturity” wrote a participant in his last journal.

Teaching solfège for music majors in universitie.: Almost all participants believed that music educators should teach both the Fixed-Do and the Moveable-Do systems in universities, especially the universities that offer both a music education major and a performance major. “Moveable-Do seems to represent the chord structure. Fixed-Do helps with pitch identification. I will work on both to try to get the benefits of each,” said a participant, and many other participants agreed. “In more advanced theory, like when we have to analyze symphonies and stuff, modulations are not simple enough to explain with Moveable-Do. And Fixed-Do will help you figure it out better” said another participant. Many participants agreed that there are different advantages in both the Fixed-Do and the Moveable-Do systems, so music majors should have experience in working with both systems. However, the participants had different opinions regarding

which system students should learn first. One participant said “I think Fixed-Do would help Moveable-Do more than the other way around”, and another individual added, “I think maybe we should learn Seven-Note Fixed-Do first, then Chromatic Fixed-Do next, then Moveable-Do last, each system per year or something.” Then, another participant disagreed and said “Really? I think Seven-Note Fixed-Do then Moveable-Do then Chromatic Fixed-Do because of the number of syllables that you have to memorize.” After that, one individual commented, “If you already know Fixed-Do, and if you already have perfect pitch, there is no need to learn Moveable-Do, right?” Moreover, another individual added, “Fixed-Do and Moveable-Do have totally different aspects. Maybe we could make up a third system that combines both advantages.” It was very interesting to hear all the different opinions from participants. I felt very good to see that all the participants were so excited to talk enthusiastically about solfège. The conversations did not have any conclusion, but I think that the discussion planted seeds of new ideas on how to teach music.

During the interview, two other topics were brought up and discussed: the importance of solfège, and the lack of music education in this state. At Rocky Mountain University, all the music majors are required to take aural skills classes twice a week for only four semesters. Since there are no entrance requirements to enter this department, many students have no experience learning solfège prior to taking aural skills classes in this university. “I think twice a week is not enough. We should have three or four hours,” said an individual. Others continued and said “And we should have more than two years because it’s so important.” Participants also discussed the importance of good

music education at early ages. “It’s like learning another language how it’s more difficult to learn when you’re older than when you’re a little kid” said a participant. When one individual said “I wish I learned solfège more when I was young,” all the participants agreed. Unlike the first interview before the workshop, each participant identified the importance of solfège, and they all learned that the more they improve their solfège skills, the more benefits come into their musical lives in many ways.

CHAPTER V - DISCUSSION

DiscussionIntroduction

In order to discuss and conclude this study, this chapter will explore four topics. In the first section, I will provide a brief summary of this study. For the second section, I will give my interpretation and comparisons to the review of literature, divided into four groups that will answer my four research questions. Next, I will discuss the limitations of this study. Finally, my recommendations for future research will conclude this chapter.

Summary of This Study

The purpose of this case study was to explore how music education majors who already know how to use the Moveable-Do system reacted to the mechanics and the practicality of the Fixed-Do system . Participants included ten music education majors who took two to four semesters of aural skills classes and learned the Moveable-Do system at Rocky Mountain University. I asked participants to attend six workshop sessions on “How to Use Fixed-Do” and asked them to write journals each session. The participants completed a short test before and after the workshop, participated in one face-to-face interview before the workshop, and engaged in a group interview after the workshop. After the workshop, I transcribed all the interviews verbatim and analyzed the data inductively to determine major themes in participants’ responses.

This study was guided by the following research questions.

- 1) What are students' beliefs and skills regarding the Fixed-Do and the Moveable-Do systems before participating in a "How to Use Fixed-Do" workshop?
- 2) How do students describe their experience of learning Fixed-Do system?
- 3) What are students' beliefs about the Fixed-Do and the Moveable-Do system after participating in "How to Use Fixed-Do" workshop?
- 4) What are students' concerns associated with using Fixed-Do in their teaching and performing in the future?

Interpretation and Contribution

Many articles discuss and compare the differences between the Fixed-Do and Moveable-Do systems (Harris, 1918, McClung, 2001, Pembroke, 1990). However, no research has included a case study like mine, to explore what music majors who use Moveable-Do think about the Fixed-Do system after they take "How to Use Fixed-Do" workshop. Therefore, this study is unique and valuable for music educators who want to appreciate the different solfège systems.

Research Question 1) Beliefs and Skills Before Participating a "How to Use Fixed-Do" Workshop: I was very shocked to hear that eight out of ten participants did not learn solfège prior to university study, and many of them were still having a hard time finding the importance of solfège before this workshop. In a previous study (Komiya, 2009), a professor at Rocky Mountain University and a professor at Mid-Western University also pointed out the lack of quality and consistency of early music education in the United States. The test results both from

test 1 (pre test with Moveable-Do) and test 2 (pre test from Fixed-Do) were lower than expected. For the harder song, which I actually learned when I was in middle school in Japan, many participants could not sing it to the end. In the future it will be interesting to study and compare how musicians learn solfège systems in different countries. Lack of solfège training for very young musicians in the United States could be a part of reason that this country's musicians are having a hard time competing with musicians from other countries at the international music competitions.

All participants were excited to learn the Fixed-Do system. Some of them were excited because they were very curious about the perfect pitch skills and they had heard that learning Fixed-Do could help musicians to improve perfect pitch. Other participants were excited to learn Fixed-Do because they thought that Fixed-Do could solve the limitations of the Moveable-Do system. I think this workshop was a great opportunity for the young, passionate music majors to have a chance to learn two major solfège systems used worldwide. After learning both systems, the participants have a choice to teach either solfège system, and to learn more about those systems. Being able to talk about their learning experience of both Fixed-Do and Moveable-Do was valuable for the participants. Moreover, being ready to meet and communicate with musicians from other countries who use Fixed-Do will be very valuable for the young musicians today because of the globalization of music (Fine, 2008, Howard, 2001).

Research Question 2) Their
Experiences of Learning Fixed-Do System: During the workshop, participants found the same or similar advantages and disadvantages for both the Fixed-Do and the

Moveable-Do systems as mentioned in research articles. For example, Rawlins (2005) wrote that the Fixed-Do system encourages a sense of perfect pitch; many participants actually noticed improvements of their perfect pitch skills during the workshop. Additionally, two participants felt that they tended to lose the sense of harmonies and intervals when they used the Fixed-Do system. This tendency matched with a few researchers such as Smith (1991) who mentioned, “One of the disadvantages of using the Fixed-Do system is the lack of the primary tonal relationships, as it gives only part-information”. In another example, Siler (1956) and Smith (1991) discussed one of the limitations of Moveable-Do that works only for major and minor, but does not work well with pieces with many modulations or with atonal pieces. Many participants experienced the limitations of the Moveable-Do system, and found the Fixed-Do system gives more freedom to musicians. Even though the literature explored benefits and concerns of the Fixed-Do and the Moveable-Do systems, not many musicians and researchers actually practiced and compared both systems on any point. In offering this workshop and giving students the chance to learn both the Fixed-Do and the Moveable-Do systems, this study helped to confirm the different characteristics of both the Fixed-Do and the Moveable-Do systems acknowledged by the existing literature.

Research Question 3) Beliefs and Skills after the Workshop: In their studies, Smith (1991), Siler (1956), and Rawlins (2005) wrote that the Fixed-Do system could employ any kind or level of music including hard and complicated music. The results of the post tests helped to support this point. The Fixed-Do worked better for singing a harder song with modulation. The participants’ average in singing a harder song with the

Fixed-Do system (test 3, post test) was 31 % higher than singing with the Moveable-Do system (test 1 pre test). Eight out of ten participants scored higher with the Fixed-Do system (test 3) than with the Moveable-Do system (test 1). I found that the participants sang significantly better in pitch, and most of them sang with correct syllables as well. Six participants also thought that the Fixed-Do system is more useful than the Moveable-Do system for performers because Fixed-Do helps to improve their pitch. However, as many existing articles showed, Moveable-Do is preferred by a majority of the teachers in any level of schools in the United States including in most universities (Rawlins 2005, May, 1993; Smith, 1998; McClung, 2001; Pembroke, 1990). I encourage professors in the United States to consider teaching the Fixed-Do system for music majors, especially performance majors, at university level.

Several articles (Crozier, 1997; Aoki, Saitou, & Sekiguchi, 2001; Alfred, 2000; Levitin & Zatorre, 2003; Crozier, 1997) showed what I often have heard from musicians: to acquire perfect pitch, the students need to train from a very early age. During the interview, two RMU professors also said that they teach Moveable-Do here because it is too late for the university students to learn Fixed-Do to improve their perfect pitch skills anyway (Komiya, 2009). A study by YAMAHA music school in Japan (('Yamaha, listening,' n.d.) also showed that children's listening skills improve rapidly until age 7. However, I learned from this workshop that it is never too late, and it is possible to improve perfect pitch at any ages. At the post test, six participants were able to guess 'A' without a reference note. Four participants felt that their perfect pitch skills improved in this workshop. Even now, participants come to talk to me about their improvements of

perfect pitch. The results of this study suggest that university students can improve their perfect pitch by practicing diligently.

I also learned from the participants that perfect pitch is not a case of you have it or you don't have it. There are so many levels of perfect pitch skills in between. With continued practice and attention, the participants started to be able to hear one pitch at a time in their heads. Soon after, they identified other pitches. Then, they began to identify the notes and harmonies when they listened to the simple songs. With more practice, they will be able to hear and identify more complicated music and harmonies in the future. With the participants' perfect pitch skills, they will be able to hear pitches in their heads before they play an instrument, they will be able to hear what notes other musicians are playing, and they will be able to start singing songs without a reference note. If they keep practicing the Fixed-Do system, the participants will find infinite uses for their perfect pitch skills.

Research Question 4) Concerns of

Fixed-Do in teaching and performing in the future: Pembroke (1990) pointed to the problem of inconsistency in American public schools with using solfège systems as he wrote, "some used only one system and some used both, but the usages were not consistent even within the department of the same school." Many participants also believe that young students should learn only one system until they completely master that system. Five participants thought that Moveable-Do would be more beneficial for young students in public schools. However, most participants thought a performer would most likely benefit from using Fixed-Do. This raises the issue of children who love

playing music and may want to become professional performers. These children may not even know the existence of the Fixed-Do system until they come to college, and may say, “I wish I studied Fixed-Do from the beginning,” as one participant in this study said. A professor at Mid-West University (Komiya, 2009), and also as a few participants mentioned that schools in the United States, especially in smaller cities, need stronger music education programs like special music schools for future musicians. If students who want to focus on music could learn the Fixed-Do system in the special music schools, they would be fluent using the Fixed-Do system when they attended universities as performance majors.

Four participants found that it was not hard to switch back and forth between the Moveable-Do and the Fixed-Do systems for them, and nine participants thought that it is important for music majors in universities, especially universities with music education majors and music performance majors, to learn both systems. Teaching both the Fixed-Do and the Moveable-Do systems for advanced level students is a new concept for music educators. I found no literature about teaching two solfège systems. I hope that this study will be the first of many future studies, and researchers in music field will keep studying about teaching / learning the two systems.

Limitations

The participants learned the Fixed-Do system in just six one-hour sessions in a workshop, “How to Use Fixed-Do.” On the other hand, the participants took two to four semesters of Moveable-Do training in aural skills classes at Rocky Mountain University. Comparing students who practiced the Fixed-Do system for only six hours with the same

students who trained for sixty hours with the Moveable-Do limits results. The time limit of the workshop was a major limitation of this study. It is hard to compare between the six hours of Fixed-Do and the four semesters of Moveable-Do. The results might have been different if I had more than six sessions of teaching “How to Use Fixed-Do.” According to the participants’ last journals, eight participants thought that they would be totally comfortable if they continued practicing the Fixed-Do system for three more months. It might give more accurate data if participants practiced at least one semester to learn a new system in future studies.

Also, 10 participants are not enough people for generalizing about all music education majors in this country or this state. The results would be different if I had done the same study at different universities, especially urban universities. I found that the participants held various opinions towards the Fixed-Do and the Moveable-Do systems after the workshop. It would be interesting to see if the results would be similar or more diverse with a larger number of participants.

Finally, learning only the Seven Note Fixed-Do system but not learning the Chromatic Fixed-Do system could have limited the comparison between the Fixed-Do and the Moveable-Do systems. Further research will be needed to find out what percentage of musicians use the Chromatic Fixed-Do, and what percentage of musicians use Seven Note Fixed-Do. I choose to use the Seven Note Fixed-Do system because I thought it would be simpler to memorize the syllables compared to the Chromatic Fixed-Do. Seven Notes Fixed-Do actually worked well for this workshop, and many participants were able to memorize and use the Seven Note Fixed-Do system after six

sessions. However, many participants stated that they were curious to learn the Chromatic Fixed-Do in the future. Some of them wondered that whether or not the Chromatic Fixed-Do might be even better to improve the pitches precisely since each chromatic note has its own separate syllable. To add to this research, I would be interested to study both the Chromatic Fixed-Do and Seven Notes Fixed-Do systems, comparing the two Fixed-Do systems with the Moveable-Do system in the future.

Suggestions

For future research, I recommend a separate study for singers and for instrumentalists. One of the problems of this study was that when one participant sang louder than others, the other nine participants tended to follow the louder voice. When the louder voice was singing out of intonation, other participants often got confused and followed the wrong pitch. In this group of participants, a participant who is a vocal major and a few participants who used to sing in choirs sang significantly louder and clearer than others. In order to see each participant's individual improvement in each session, I recommend finding only singers or only instrumentalists to become participants for this kind of study of solfège. Also, normally singers have more experience using the Moveable-Do system, especially in choirs (Rowlins 2005, May, 1993; Smith, 1998; McClung, 2001; Pembroke, 1990). Thus, singers' opinions might differ from those of instrumentalists in preference for the Fixed-Do. For example, one of my participants who is a vocal major preferred to use the Moveable-Do system because she had used this system for years. In addition to comparing preferences of instrumentalists and singers, it would be interesting to separate the participants into jazz players and classical players.

Only one jazz player participated in this study. He found many connections between jazz and Moveable-Do, and he believes that Moveable-Do works better for jazz players. Jazz musicians improvise music by following harmonies and chord progressions of each song. Jazz musicians learn patterns of scales and arpeggios and use them in improvising. Playing in different keys also happens very often depending a musician's mood, or singer's vocal range. As a classical player, I can see how Moveable-Do works well with jazz music. However, I also know many jazz musicians who use Fixed-Do. The results might have been different if I had only jazz musicians in the group of participants in this workshop. In future studies, exploration of different opinions towards Fixed-Do and Moveable-Do between the classical musicians and jazz musicians would prove interesting.

Scheduling this workshop posed problems. The participants attended regular classes during the day and came to the workshop on weekends. Some participants experienced health problems, while others had to attend other important engagements. I offered make up sessions for these participants who could not attend the regular sessions. At times, I felt that some participants were not focused well because they were tired from doing other work. It might be better for everyone if this workshop were done during the summer. If not, I could offer to teach the Fixed-Do as an official course at the university. Thus, I would be able to meet the participants during the day and participants would be able to get credit by learning Fixed-Do.

Conclusions

Through exploring the Fixed-Do system with people who already know Moveable-Do, I have contributed new and meaningful information for both researchers and music educators. As a researcher, I think this study was very important, and it could be a first step of many other research studies. There are many articles where music researchers or music educators offer their opinions comparing the Fixed-Do and Moveable-Do systems, but there is no other literature like this study where participants actually practiced both systems to compare. The struggle between the Moveable-Do and the Fixed-Do systems has been discussed for over a hundred years. Yet, this is a still fresh and realistic problem that music educators and music students face every day. Especially in the United States, musicians and music educators have not settled on or decided which system to use uniformly throughout the country, and students struggle as they continue to change systems depending on the educators and schools. I believe that music educators in the United States should have a settled rule where teach all the same solfège system especially for young students in public schools. Moreover, I think that the significance of the Fixed-Do system has not been valued enough in this country. As many participants experienced in this workshop, the Fixed-Do system gives various benefits for musicians. More studies will be needed to firmly establish the values of the Fixed-Do system.

As a music educator, I recommend that other music educators, especially in universities, experiment with the tenets of the “How to Use Fixed-Do” workshops / classes for the students who have not learned Fixed-Do. Prior to my workshop, the

participants learned only one solfège system, Moveable-Do, in the aural skills class. They did not have a chance to take time to think about the importance of learning it, and about the connection between what they have learned in the aural skills classes and their musical lives. In this workshop, the participants not only learned the values of the Fixed-Do system, but also re-thought the importance of the Moveable-Do system as well. By learning both systems, they learned the different values of each system, and they learned how important solfège is. I was delighted when I read what one of the participants wrote in her journal, “I learned a lot about myself and my abilities as a musician through this workshop.” A few participants continue to practice the Fixed-Do system after the workshop, and one individual wrote an article about her learning experience with both systems. Now the participants know how valuable solfège is; thus, they will have confidence teaching it to the younger students in the future as well. This workshop was just a beginning of the participants’ Fixed-Do experiences. In the future, I anticipate the growth of musicians who experiment with and use the solfège systems in their performances and in their teaching.

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APPENDICES

APPENDIX A:

PROTOCOLS

Pre-Workshop Interview Questions.

1. When did you learn to use solfège? How old were you?
2. How did you learn to use solfège? What did the instructor do to help you learn solfège?
3. How comfortable are you using solfège today?
4. Do you think solfège is helpful when you play your instrument? Why?
5. Do you think solfège is helpful when you teach children? Why?
6. Have you heard of the Fixed-Do system? If so, please tell me what you understand it to be.

Post-Workshop Interview Questions.

1. Let's begin by talking a bit about your experiences in our workshop. What parts did you enjoy? Why?
2. What parts were difficult or challenging for you? What made them difficult?
3. How hard was it to shift from the Moveable-Do system to the Fixed-Do system? Were you confused?
4. In your opinion, what are the strengths and weaknesses of the Fixed-Do system?
5. In your opinion, what are the strengths and weaknesses of the Movable-Do system?
6. Do you think Fixed-do is harder to learn than Moveable-Do? Why?
7. Do you think Fixed-do is harder to use than Moveable-Do? Why?

8. In your opinion, how much practice would it take for you to be feel fluent with the Fixed-Do system?
9. Which system would work better for you when you play your instrument? Why?
10. Which system would work better when you teach children in public schools? Why?
11. Do you think it is useful to learn both the Fixed-do and the Moveable-Do systems? Why?

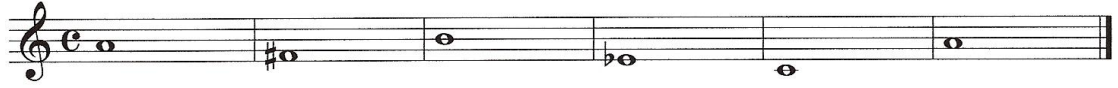
APPENDIX B:

TEST AND SESSIONS

Test

A. Komiyama

1. Please sing the notes



2. Please sing this song in Solfege



3. Please sing this song in Solfege





4. Please sing broken chords in solfege



Session 1

A. Komiyama



1. Warm Up (Sing with the "Fixed-Do")

1)   (Keep going up until the next C)



2. Interval (second)




3. Twinkle Twinkle Little Star

in D major  

in B major  

in E flat major  

4. Songs from YAMAHA solfege book and Chorubungen,

Session 2

A. Komiyama

1. Warm Up (sing with the Fixed-Do)

a)  (Keep going up until the next C)

b) 

2. Interval (third)



3. Jingle Bells

Dmajor 

F sharp major 

E flat major 

4. Listening and singing intervals

5. Songs from YAMAHA solfege book and Chorubungen

Session 3

A. Komiyama

1. Warm Up

a) Musical notation for exercise a) in 3/4 time, starting on C4. The melody consists of eighth notes: C4-D4-E4-F4-G4-A4-B4-C5, followed by a whole rest. The key signature changes to D major (two sharps) for the second measure: D4-E4-F#4-G4-A4-B4-C5, followed by a whole rest. The key signature changes to E major (three sharps) for the third measure: E4-F#4-G#4-A4-B4-C5, followed by a whole rest. The instruction "(Keep going up until the next C)" is written below the staff.

b) Musical notation for exercise b) in 3/4 time, starting on C4. The melody consists of eighth notes: C4-D4-E4-F4-G4-A4-B4-C5, followed by a whole rest. The key signature changes to D major (two sharps) for the second measure: D4-E4-F#4-G4-A4-B4-C5, followed by a whole rest. The key signature changes to E major (three sharps) for the third measure: E4-F#4-G#4-A4-B4-C5, followed by a whole rest.

2. Interval (fourth)

Musical notation for exercise 2, Interval (fourth), in 4/4 time. The first staff shows a sequence of intervals: C4-G4, A4-E5, B4-F#5, C5-G5, D5-A5, E5-B5, F#5-C6. The second staff shows a sequence of intervals: C4-F4, G4-D5, A4-E5, B4-F#5, C5-G5, D5-A5, E5-B5, F#5-C6.

3. Wedding March

Musical notation for exercise 3, Wedding March, in 4/4 time. The first staff is labeled "E flat major" and shows a sequence of intervals: C4-G4, A4-E5, B4-F#5, C5-G5, D5-A5, E5-B5, F#5-C6. The second staff is labeled "D major" and shows a sequence of intervals: C4-G4, A4-E5, B4-F#5, C5-G5, D5-A5, E5-B5, F#5-C6. The third staff is labeled "F major" and shows a sequence of intervals: C4-G4, A4-E5, B4-F#5, C5-G5, D5-A5, E5-B5, F#5-C6.

4. Listening and singing interval (fourth)

5. Songs from YAMAHA solfege book and Chorubungen

Session 4

A Komiya

1. Warm Up

a) Musical notation for exercise a) in 3/4 time, featuring a sequence of eighth-note runs in C major, C minor, and C major. The notation includes a treble clef, a 3/4 time signature, and a key signature change from C major to C minor and back to C major. The exercise consists of three measures of eighth-note runs, each followed by a whole rest. The first measure is in C major, the second in C minor, and the third in C major. The instruction "(Keep going up until the next C)" is written below the staff.

(Keep going up until the next C)

b) Musical notation for exercise b) in 3/4 time, featuring a sequence of eighth-note runs in C major, C minor, and C major. The notation includes a treble clef, a 3/4 time signature, and a key signature change from C major to C minor and back to C major. The exercise consists of three measures of eighth-note runs, each followed by a whole rest. The first measure is in C major, the second in C minor, and the third in C major.

2. Interval (fifth)

Musical notation for exercise 2, Interval (fifth), in 4/4 time. It consists of two staves. The first staff shows a sequence of notes: C4, G4, C5, F5, C5, G4, C4. The second staff shows a sequence of notes: C4, F4, C5, G4, C5, F4, C4. This exercise is designed to practice the interval of a fifth.

3. Darth Vader's Theme

C minor Musical notation for the first staff of the exercise, showing the theme in C minor. The notation includes a treble clef, a common time signature, and a key signature of two flats. The exercise consists of a sequence of notes: C4, E4, G4, C5, B4, A4, G4, F4, E4, C4.

E minor Musical notation for the second staff of the exercise, showing the theme in E minor. The notation includes a treble clef, a common time signature, and a key signature of one sharp. The exercise consists of a sequence of notes: E4, G4, B4, E5, D4, C4, B3, A3, G3, E4.

D minor Musical notation for the third staff of the exercise, showing the theme in D minor. The notation includes a treble clef, a common time signature, and a key signature of two sharps. The exercise consists of a sequence of notes: D4, F4, A4, D5, C4, B3, A3, G3, F3, D4.

4. Listening and Singing Interval (fifth)

5. Songs from YAMAHA solfege book and Chorubungen

Session 5

A. Komiya

1. Warm Up

a) (Keep going up until the next C)

Musical notation for exercise a) in 3/4 time, starting on C4 and ascending stepwise to C5. The key signature changes from C major to D major, then E major, and finally F major. The exercise ends with a whole rest on C5.

b)

Musical notation for exercise b) in 3/4 time, starting on C4 and ascending stepwise to C5. The key signature changes from C major to D major, then E major, and finally F major. The exercise ends with a whole rest on C5.

2. Interval (sixth)

Musical notation for interval exercise 2 in 2/4 time. The first staff shows a sequence of sixths: C4-G4, D4-A4, E4-B4, F4-C5, G4-D5, A4-E5. The second staff shows the corresponding descending intervals: G4-C4, F4-B3, E4-A3, D4-G3, C4-F3, B3-E3.

3. Fur Elise

A minor

Musical notation for the first staff of 'Für Elise' in A minor, 3/4 time. It begins with a treble clef, a key signature of one sharp (F#), and a common time signature.

E minor

Musical notation for the second staff of 'Für Elise' in E minor, 3/4 time. It begins with a treble clef, a key signature of two sharps (F# and C#), and a common time signature.

D minor

Musical notation for the third staff of 'Für Elise' in D minor, 3/4 time. It begins with a treble clef, a key signature of two flats (Bb and F), and a common time signature.

4. Listening and Singing Interval (sixth)

5. Songs from Chorubungen

Session 6

A Komiya

1. Warm Up

a) Musical notation for exercise a) in treble clef, 4/4 time. It consists of three measures of eighth-note runs. The first measure is in C major (C4-D4-E4-F4-G4-A4-B4-C5), the second in D major (D4-E4-F4-G4-A4-B4-C5), and the third in E major (E4-F4-G4-A4-B4-C5). Each measure ends with a whole rest.

b) Musical notation for exercise b) in treble clef, 4/4 time. It consists of three measures of eighth-note runs. The first measure is in C major (C4-D4-E4-F4-G4-A4-B4-C5), the second in D major (D4-E4-F4-G4-A4-B4-C5), and the third in E major (E4-F4-G4-A4-B4-C5). Each measure ends with a whole rest.

2. Interval (seventh)

Musical notation for the interval exercise in treble clef, 4/4 time. It consists of two staves. The first staff shows a sequence of notes: C4, D4, E4, F4, G4, A4, B4, C5, D5, E5, F5, G5, A5, B5, C6. The second staff shows a sequence of notes: C4, B3, A3, G3, F3, E3, D3, C3, B2, A2, G2, F2, E2, D2, C2. This represents a descending seventh interval.

3. James Bond's Theme

Musical notation for James Bond's Theme in treble clef, 4/4 time. It consists of three staves, each representing a different key signature: A minor, B minor, and C minor. Each staff shows the same melodic line: C4-D4-E4-F4-G4-A4-B4-C5, D4-E4-F4-G4-A4-B4-C5, E4-F4-G4-A4-B4-C5, D4-E4-F4-G4-A4-B4-C5, G4-A4-B4-C5, D4-E4-F4-G4-A4-B4-C5, D4-E4-F4-G4-A4-B4-C5, D4-E4-F4-G4-A4-B4-C5. Each staff ends with a double bar line and repeat dots.

4. Listening and singing Interval (Seventh)

5. Songs from Chorubungen

6. Chorubungen No.71