

# Chapter 1

## Introduction

### Background and rationale

For non musicians it is quite impressive how a trained musician, in only a few seconds, is able to correctly recognize chord progressions. The fact of being able to correctly translate a given chord into musical notation is part of a complex process which needs to be educated. A theoretical music background is definitely needed in order to successfully do aural recognition of chords and chord sequences.

Ear training is usually taught in combination with basic music theory and harmony. They should complement each other because ear training is the practical application of the music theory.

Harmonic dictation is a big challenge for music students. That recognizing chords and chord progressions is more difficult is not surprising because more frequencies are involved at the same time and our brain needs to recognize all these frequencies and translate them into musical meaning.

According to Levitin the problem is that our brain has limits on how much information they can actively keep track of. "...the working memory is severely limited, generally to nine pieces of information. (Levitin, 2006) Levitin (2006) states that musicians use a process called 'chunking'. "Chunking refers to the process of tying units of information into groups and remember the group as a whole rather than the individual pieces. First, musicians encode in memory an entire chord, rather than the individual notes...second, musicians tend to encode sequences of chords, rather than isolated chords. "Plagal cadence", "twelve bar blues" or "turnaround" are shorthand labels that musicians use to describe sequences of varying lengths. ...allows them to recall big chunks of information from a single memory entry."

The motivation for this thesis grew out of my own experience as a music teacher, teaching both ear training and harmony. Harmonic ear training is part of every serious music education program and it is agreed among music educators that ear training in specialized music programs is essential for success. (Deutsch, 1971)

I decided to do a pilot study to collect more details on the problem that would allow me to analyze it better. The study was composed of elementary harmonic ear training tests: ten harmonic intervals, twenty chord quality exercises and thirty chord progressions.

The pilot study confirmed the problem and showed weaknesses in harmonic ear training exercises, with an average score of 57%.

David Salisbury (1990) points out that "recent research on cognitive learning suggests that the role of drill and practice in learning may be more important than has previously been realized." Furthermore the drill technique is a time efficient method especially where subskills are involved.

In ear training subskills are used extensively. For example practicing hearing chord qualities is a subskill that needs to be addressed first to be able to proceed to a more difficult task, hearing chord progressions because chord progressions are build from chords.

Most music educators essentially agree that the fundamental ear training material to be used for music majors should have its roots in the music literature coming from the common practice period. (Klonoski, 2006, Choksky, 1986, Salzer, 1962)

The music of the common period is enormous and the harmonic material presented is vast. We need a way to present the essence of the music of this period in a visual way in order to derive exercises from that material.

Root motion theory is a practical approach that promises that each chord's characteristics can be explained by a shared set of allowable root motions. (Tymoczko, 2000) Bach mentioned the concept of root motion already in his few theoretical writings (Michelson, 2006) but it was Rameau who was the first to put these ideas into words in his book 'Traité de l'harmonie' (Rameau, 1722). It was further developed by educators such as Schoenberg (1969), Meeus (2000) and others.

Schoenberg (1911) writes that the principle aim of harmony instruction is to connect chords with an ear to their individualities, to arrange them in such progressions as will produce an effect suitable for the task at hand; and to achieve this aim, not much skill in voice leading is required. The title that is necessary to deal with forbidden parallels and dissonances and the like can be mastered rather easily. The realization of thorough bass may have had value formerly, when it was still the keyboard player's task to accompany from figured basses. To teach it today, when no musician needs it anymore, serves no purpose and is a waste of time, hinders more important work and fails above all to make the pupil self reliant. (Schoenberg, 1911)

Music educators emphasize the interrelationship between thinking and listening in the study of music theory: "the more thinking that takes place, the more there is to hear; the more listening that takes place the more there is to ponder". Rodgers states that learning how to hear a sound in its contextual relationship and knowing its meaning is crucial. It is even more important even than getting the right note. Right answers can even be irrelevant or harmful if these are heard without the appropriate listening habits.

A well-rounded ear-training program needs to include between sound events (requiring just ears) and musical events (requiring ears and minds). According to Rogers the first stage of ear training is concerned with the accurate perception and labeling of individual events: the quality of an interval or chord for example. The other stage involves the understanding of musical relationships and for teaching purposes implies--almost demands--a 'holistic

approach' as he calls it. "The distinction is between letting sound simply strike the ear drum and plugging that sound into conceptual frameworks." (Rogers, 1984).

My solution is to develop elementary harmonic ear training exercises using an approach based on root motion theory and drill technique to implement the exercises and up to today has not been used in an ear training class as an instructional tool.

The strategy I use is to complement the drill techniques with the root motion approach, in other words, adding the root motion approach in order to achieve a more complete and broader hearing experience. Complementing the drill technique with a root motion theory provides a holistic approach that allows the students to hear in a musical context.

Root motion provides a simple visual representation of harmonic movement because it classifies all progressions in three simple groups:

1. strong<sup>1</sup>
2. weak
3. superstrong

Schoenberg (1969) also called them ascending (strong), descending (weak) and superstrong, because he didn't like the sound of the words strong versus weak.

The fact that it is simple and visual is pedagogically relevant and stimulates learning. I therefore designed eight ear training lessons in harmonic exercises that apply root motion theory and use drill technique and will implement these lessons with a selected group of music majors and expect that the accuracy in harmonic ear training will be improved by implementing my method.

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<sup>1</sup> Meeus gives other names for the same classification being dominant (strong) and subdominant (weak) progressions.

## Objectives of the Study

1. To develop eight lessons of harmonic ear training exercises using root motion theory and drill technique in order to improve the student's accuracy in elementary harmonic ear training skills.
2. To investigate whether the method improved the accuracy of the subjects' ear training skills.

## Scope of the Study

This research addresses issues in the field of elementary harmonic dictation. The study focuses on the development of harmonic exercises and the implementation with a group of music major students that had already basic ear training and theoretical background (third and fourth year students)

1. Population  
The populations for this research are 64 music major students that met the following conditions:
  - 1.1. Music students that have basic knowledge of the following topics: general music notation, Roman numeral notation, elementary diatonic chords.
  - 1.2. Music students that had a basic training in aural skills: melodic intervals, rhythmic dictation, chord quality identification and basic chord progressions including cadences.
2. Screening of the population  
Students that successfully passed the music theory III course MU 211A and ear training III MU 211B of Payap University fulfill these requirements. (fig. 2)
3. Sample group  
A group of 17 volunteer music major students of the population has been used. All subjects have very similar conditions in terms of musical education, age, ethnography, race and language.
4. sampling method

To comply with the purpose of this study purposive sampling has been used meaning volunteers need to show a genuine interest in the study.

## Hypothesis

I expect that after implementing the eight lessons the level of accuracy of the subject's harmonic ear training skills will have improved in terms of chord progressions recognition.

The level of accuracy is acquired from a pre test (T1) and a post test (T2). For the hypothesis to hold true the value of T2 needs to be higher than the value of T1. ( $T2 - T1 > 0$ ) (Kiasuda, 2006)

## Delimitation of the Study

The framework of this research is limited to the development of exercises with the purpose of recognizing elementary harmonic progressions for music majors. This means that:

1. Only harmonies from the diatonic major scale were considered. Atonal music and contemporary music was not used through any of the ear training lessons.
2. The elementary harmony refers to the basic harmonies that are the result of building triads on the notes of a diatonic scale in root position, this results in the following chords:  
I ii iii IV V vi vii<sup>o</sup>
3. The diminished chord was not included because of its close theoretical relationship to the V<sup>7</sup> chord and its dissonant character.(tritone)
4. A chord progression consists out of a maximum of four chords and start and end on the I chord.
5. Aural recognition of non-harmonic tones (tensions) or modulations of any kind were not part of this project.
6. Recognition refers to the identification of sound fragments by symbol or label (P4, major triad, IV , ii, iii etc.) independently of written notation. (Rodger, 1984)
7. This research used volunteers from Payap University.

## Definitions of terms

**Ear training:** aural training (synonyms), the process of developing musical aural training. The goal of aural skills training is to provide students with critical listening skills that they will use routinely for the rest of their lives. (Klonoski, 2006)

**Harmony:** is the sound that results when two or more pitches are performed simultaneously. It is the vertical aspect of music, produced by the combination of the components of the horizontal aspect. (Kostka & Payne, 2000)

**Elementary harmony:** The basic chords that are the result of building triads on the notes of a diatonic scale in root position, this result in the following chords:

I ii iii IV V vi vii<sup>o</sup>

Bach's chorale harmonizations are typical examples of elementary diatonic harmony. (Tymoczko, A grammar for elementary tonal harmony, 2000)

**Harmonic ear training:** recognition of chords and chord progressions, also called harmonic aural perception.

**Root motion:** root progression (synonym), the movement of one chord to another from the view of their roots (expressed in intervals). For example Dm to F represents a root motion by a rising third. (third up)

**Drill technique:** drill method (synonym), a method that uses systematic training by multiple repetitions.

**Subskill:** an ability to something well that needs to be addressed before continuing to a more difficult task.

**Harmonic analysis:** the study of the individual chords or harmonies in a piece of music together with their use in succession to form larger units of phrases, sections or compositions.

**Chord progression:** a set of harmonies, a sequence of triads.

**Strong progression:** a succession of two functional chords where the root of the second chord is an interval of a fourth higher (perfect or augmented) or a third lower than the first chord.

For example: F to Bb or F to Dm are both strong progressions.

**Weak progression:** a succession of two functional chords where the root of the second chord is an interval of a fifth higher or a third higher than the first chord. E.g. F to C7 and F to Am are both weak progressions.

**Superstrong progressions:** a succession of two functional chords where the root of the second chord is an interval of a second higher or a second lower than the first chord, either may be major or minor. E. g. B Halfdim to C or Dm to Em

**Root of a chord:** that note which is the lowest note in a triad. The following figure shows three chords and their shared common root:



**Chord symbol:** a musical notation system that uses letters to represent triads.

**Roman numeral:** Chord naming by the root of the chord, where this note is described by its relationship to the predominant keynote. For example: I is the tonic chord (the chord on the first degree of the scale), II the supertonic chord (the chord on the second degree of the scale) and V the dominant (the chord on the fifth degree of the scale). Sometimes lower case

letters are used to denote minor chords and uppercase letters are used to denote major chords.

**Harmonic movement:** a succession of functional (or structural) chords.

**Recognition:** the identification of sound fragments by symbol or label (P4, major triad, etc.) independently of written notation. (Rodger, 1984)

**Static harmony:** music that is made up of the prolongation of one chord rather than a series of chord progressions.

**Dynamic harmony:** music that is made up of chord progressions rather than a prolongation of one harmony.

**Prolongation:** An elaboration of a chord usually by static harmony which is made up of the oscillation of the chord. Where the tonic or dominant chord is being oscillated the extended harmony forms a static syntactic element.

## Contributions of the study

1. This research will provide the music community with a set of harmonic ear training exercises for music major students that I will be able to use in the near future.
2. The selected students for this research will directly benefit from the training and from the results of the data because they will be informed about their weak areas in ear training.
3. The knowledge gained from this research will help improve academic standard of the music curriculum in terms of harmonic ear training at Payap University and will allow me and my colleagues to better coordinate the harmony classes and ear training classes.
4. The knowledge from this research will give us a more information about the student's errors and points of confusion in the field of harmonic ear training.
5. Knowledge of the movement of chords in general will improve the student's harmonic knowledge and will be useful in other subjects such as composition and harmony.