(PROVISIONAL MANUSCRIPT)

Tell Through Music

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A musical composition comprises a number of parameters. The main ones are melody, timbre (tone color), tonality, chord, basso, and rhythm. The goal of the method we will be presenting during the Tell through Music program is to indicate a series of artistic exercises which may help in improving the teaching of music with the emphasis on mentally challenged individuals who constitute our basic target group.

Exercise 1: Melody

Melody is the first parameter we will be examining. Melody stems from the succession of a series of notes. Learning to perform a musical composition relies on memorizing that series of notes and "mechanically" repeating them on a given musical instrument. By practicing steadfastly and repeating a musical composition, a musician acquires a practical mechanical-kinetic knowledge of the composition (memory skill) without retaining true (nominal) knowledge of those notes. In other words, on seeing a note, musicians don't think of its name: they know instantly where that note goes on the keyboard or the frets and how long that note lasts. In order to strengthen the solid knowledge of notes, especially at the learning stage, most music schools and teachers get their students to sing those notes by name, i.e., sing the solfège scale. At this stage, our chief notion was

to create a system on the basis of which and by functioning mechanically, i.e., by playing on a keyboard instrument, not only would we be able to hear the notes we are playing but also learn their names.

Given that technology is a well established part of our life and that we have been engaged in Midi technology activities for years on end, we decided to take advantage of that technology with a view to accomplishing our goal. Initially, we recorded separately a male and then a female voice each singing an octave which ran the gamut of each voice's vocal capacity. In that manner, we were able to secure two octaves, sufficient for the purposes of studying a song. For our recording needs, we used two (2) Shure directional microphones using the X-Y intensity stereophony technique. We did encounter a slight technical difficulty when we came upon the sharps (dieses) and the flats. For instance, Do sharp is the same note as Re flat. We

did resolve the problem by introducing five (5) new symbols: P (for Do sharp and Re flat); O (for Re sharp and Mi sharp); Q (for Fa sharp and Sol flat); R (for Sol sharp and La flat); and S (for La sharp and Si flat).

We matched the notes we had already recorded with the corresponding keys of an Akai Midi Keyboard LP-25 which covers only two (2) octaves. Thus, we accomplished our goal which entailed the creation of a system on the basis of which, by functioning mechanically, i.e., by playing a keyboard instrument, we could hear both the notes being played and those notes' names.

Scientific – Educational Approach

Our educational approach is anchored on five (5) stages which we will be presenting in detail below. However, at first glance, the diagram below gives us an initial view of that educational approach:

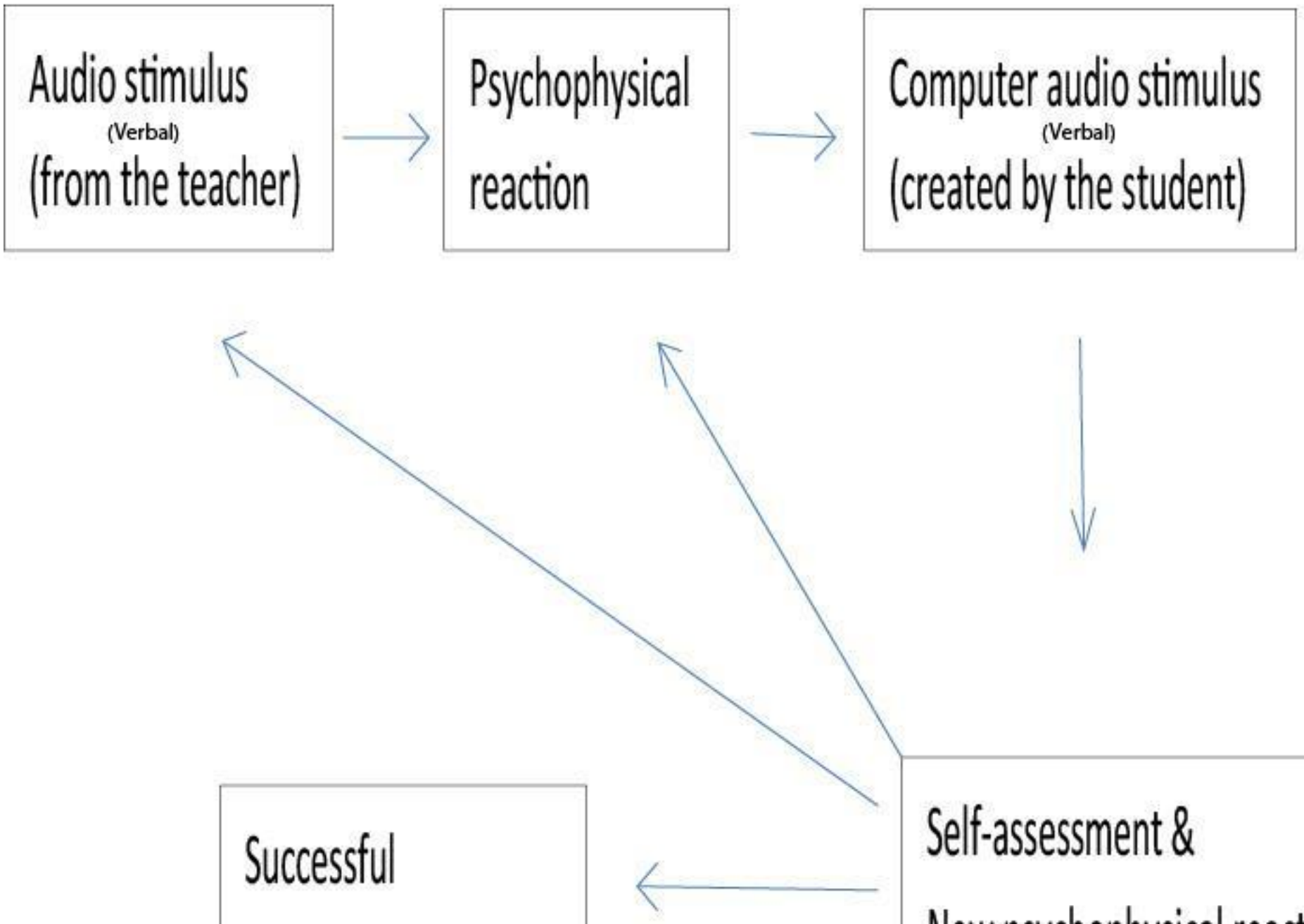
Drawing 1: Flow diagram

Stage One

Depending on the level of each student, the teacher sings out one (1) or more notes, during the first stage. For a beginner, the audio stimulus may comprise one single note. The same applies for a student who is visually or mentally challenged. What the student is required to do is to pinpoint where that note goes on the keyboard. At a more advanced level, the student is required to learn how to find two (2), three (3), or more notes with a view to ultimately memorizing an entire musical expression.

Stage Two

During the second stage, the student, who is already in possession of the information necessary for the task, enters the psychophysical process of reaction by playing the note (or series of notes) on the keyboard.


Audio stimulus
(Verbal)
(from the teacher)
Psychophysical
reaction
Computer audio stimulus
(Verbal)
(created by the student)
Self-assessment &
Successful

Stage Three

The third stage comprises the outcome of the psychophysical reaction of the student on the keyboard: generating the relevant audio stimulus (a computer- assisted process nowadays). In other words, hearing the note played by the student on the keyboard.

Stage Four

The fourth stage is governed by the law of psychophysiology: students make a comparison between the audio stimulus given by the teacher and the audio stimulus they created themselves via the keyboard. Based on that comparison, students enter a self-evaluation process.

Stage Five

The fifth (and last) stage depends on whether the audio stimulus created by the teacher is the same as or different from the audio stimulus created by the student. Should the teacher's audio stimulus prove the same with that of the student's then the student experiences satisfaction at having accomplished the task and is rewarded by the teacher. Should the audio stimulus created by the student prove different than that of the teacher's initial audio stimulus, then, the following two alternatives will constitute the student's reaction: in his attempt to find the right note, the student will have no choice but (a) to repeat the process all the while creating new audio stimuli via the keyboard; or (b) wait for the teacher to repeat the audio stimulus which actually also necessitates that the process be repeated.

The method described above has had a pilot application in Special Education and has met with resounding success. A considerable percentage of that success involves the fact that the use of new technologies increases the interest exhibited by the students. Be that as it may, it is our firm belief that the main contributor to that success is Stage Four when the students themselves must compare the sound/audio stimulus given by the teacher with the sound/audio stimulus created by them on the computer at the time when both stimuli have acquired a verbal content. That is precisely what increases the interest of students in participating as well as their self- knowledge. By means of repetition and practicing, the individuals participating can help their memory skills develop further while working on their solfège scale practice.

The same method is equally successful when it comes to visually challenged students since the method gives teachers the ease to record a specific work which the visually challenged students can then hear in solfège and repeat on a monophonic musical instrument such as the flute.

The benefits of the method are: Students (1) learn how to find the notes; (2) learn to sing the notes they hear; (3) succeed in learning a musical phrase; and (4) learn an entire song. We will measure the development of competencies via data analysis from video and recordings.

Exercise 2: Rhythm

The second task involves the teaching of rhythm. The media employed to teach rhythm are the simplified phonetic system (Makris, 1998) and technology. The theoretical framework of that task relies on the generation of (a) verbal audio stimuli; and (b) visual stimuli. The visual stimuli are

based on the use of two geometric shapes, the square and the triangle with a view to providing a visual that will facilitate teaching the metrics of rhythm. The verbal audio stimuli are based on the use of two syllables, “dum” and “te”, taken from the phonetic system widely used in the Middle East in the teaching of ethnic percussion instruments.

Phonetic system:

The phonetic system, through a series of phonemes, helps us sing to the tempo (rhythm) giving us specific beats on a percussion instrument. The basic beats are:

Dum: A rap producing a beat in the center of the membrane (use of the left hand)

Te: A rap producing a beat at the edge of the membrane (using of the right hand)

Tek: A rap producing a beat at the edge of the membrane (use of the left hand)

Te–ke: A successive rap producing a beat at the edge of the membrane (use of first the left and then the right hand)

Te – ka: A successive rap generating a beat on the side of the membrane (use of first the right and then the left hand)

During that method’s first phase, we teach the simplified phonetic system which comprises the syllables “Dum” and “Te” adjusting to the degree of mobility and the learning potential of the target group. The rhythm learning process is accomplished through the parallel use of visual

stimuli: a square for Dum; and a triangle for Te. First, the student learns to match the shapes to the sounds and repeats that effort at matching several times, depending on the student's learning potential. Next, a rhythm is taught on the basis of the shapes and the target group learns that rhythm through the parallel use of those shapes.

During the second phase, students, once they have learned the musical phrases, play the rhythm by listening to it on a Loop Station and watching the corresponding changes in shapes.

The goal of the present task accomplished through visual shapes is for students to acquire knowledge of rhythm metrics as well as increase their degree of mobility and coordination with the rhythm assisted by verbal-audio stimuli. Results: (1) students learn the beats; (2) students coordinate with the rhythm; (3) students learn the rhythm; and (4) students link the rhythm with the geographical area of its origin. We will measure the development of competencies via data analysis from video and recordings.

Task 3: Timbre & Instrument

The initial goal of Task 3 is to get students to learn to recognize the timbres of the basic musical instruments in an orchestra. During that task and recording, we restrict ourselves to brass instruments. At this point, it should be stressed that what the children we work with listen to involve mostly Greek and Near East musical instruments (bouzouki, santur, baglama, kanun, lavta, etc). Still, we focused Task 3 on the musical instruments of a symphonic orchestra and the brass section in particular. The task's initial educational goal is for the children to be able to recognize an

instrument both visually and acoustically (audio), a goal that is not without its problems since we work with mentally challenged individuals. To that purpose, we made equal use of a variety of videos and special cards. Next, the children were requested to show their preference for one of the timbres, analyzing the reasons that led each to selecting that particular instrument or describing an image that sprang to mind when listening to that instrument.

During Task 3, the tools used are musical pieces available on YouTube, together with a series of cards which belong to our own educational materials and are often employed by teachers involved in pre-school education. The initial goal of Task 3 is to get students to understand and recognize a musical instrument. On a second and more advanced level, the task aims at having students recognize the meaning of sharpness (Soprano, Alto, Tenor, Bass). We will measure the development of competencies via data analysis from video and recordings.

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