MELODY ASSISTED WORD RECALL WITH HEALTHY TURKISH INDIVIDUALS

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Introduction
“Listening music” is for facilitating social responsiveness, verbal responding, relaxing and motivating. Musical memory refers to the ability to remember information contributed to melodic content, musical tone that attached to and the rhythm/patch attributes of that sound. Musical memory is encoded differently from language thus may constitute independent part of the phonological loop in the cortex; that is left and right MT lobes for melodic memory. Music, in principal, is non-verbal. Studies of naming have shown that providing patients with the first sound of a word is not an effective aid to retrieve the item all the time. The effects of phonemic cues used once lasted for a few minutes only. Thus patients’ naming is not permanently improved but is only better in the presence of a cue provided by clinician. Music and its elements such as rhythm, and melody is preserved in all ages may play a role for “semantic retrieval”. Figure 1 is one of the examples that researchers try to analyze why the memory for music, musical lyrics, rhythm as such longlast that of words.

Music, language and brain are in unity. Sturm et al (2014) indicated that “In general, at a dissociative level, the separation of the phonological and orthographic overlap patterns mirrors the correlation matrix of the music features in that they mainly document the independence of musical features rather than allowing to differentiate between processing of specific dimensions of music” (p.9).

Music & Brain
The left hemisphere of the brain expresses thoughts in words, while the right hemisphere of the brain controls actions, problem resolution, memory, and emotions. Most learners use the right hemisphere of the brain to process music, and because most instruction depends heavily on left-brain approaches, music opens an opportunity to learners who have a strong right brain orientation [2]. Guglielmino [4] stated, “Songs bridge the [brain’s] hemispheres, strengthening retention through a complementary function as the right hemisphere learns the melody, the left, the words” Antón [1] revealed that “when a learning activity combines both left and right hemispheres simultaneously engaged in a specific activity, an ideal learning situation is established and the most productive learning occurs”. This ideal learning situation facilitates flexible thinking and helps to explore new ways of expressing ideas. This would seem to indicate that music possesses an invaluable key to incorporate the whole brain in the learning process [2]. Recent studies focus on music and language dissociations.

Music & Memory
Recalling unfamiliar words can be troublesome to most learners; however, music may ease the process. Wallace [10] compared immediate and long-term recall of spoken texts to texts learned with music. Results of the study indicated that recall was significantly greater with music than for the spoken condition. On the other hand, when the music was too difficult or the melody remained unlearned, it impeded recall. The study suggests that simple musical song can transform ordinary text into information that is effectively retained and recalled when needed. In addition, melody provides sequential information, line and syllable length information, chunk linking, and rhythmic information that have the potential for making accurate reconstruction of the text. Wallace states that music’s power to facilitate text recall lies in the interrelations of the musical characteristics to the text. Further, when music and text are encoded together, some components of the melody will cue or echo the parallel component of the text. When comparing recall ability, Wallace found that spoken text was the least frequently recalled, followed by rhyming text, and melodic text being the easiest to remember. Prickett and Moore [7] assessed Alzheimer’s disease patients for recall of familiar and new musical material, both sung and spoken. Patients recalled the words to songs markedly better than they recalled spoken words, including rhymed speech or newly presented information. McEhnnery and Annett replicated Prickett and Moore’s study on a non-Alzheimer population[6]. Results showed that recall was significantly higher when the material was presented in the song format compared to the read-aloud format, suggesting that songs effectively aid recall.

Music & Recall
The music has an impact on recalling. Autobiographical information associated with musical melodies is evoked when we hear relevant music or when we are engaged in conversation about music or episodes and events in our life in which music has been important. Hearing music associated with our past often evokes a strong ‘feeling of knowing’.

We have this feeling for many songs without knowing the title or text of the songs. But it is stated that we are better at recalling the titles of the tunes we listen to (when the tunes are instrumental) than at remembering mereody by simply reading or hearing its title [5]. On the other hand, when remembering vocals The opposite pattern occurs, for which titles of the songs are much better cues than the melodies [3]. The finding of this link between text and music, which suggests that music is encoded in semantic memory like text, is especially important.

Purpose
This study aims to reveal the degree of rooted music on word recalling effect on healthy adults in two age groups (older and younger).

Method
Ages between 20-70 yrs old, 83 participants includ from different cities of Turkey with different educational levels. The Boston Naming Test Short Form (BNT-SF) (Goodglass and Kaplan, 1983) utilized to determine 20 target words. Plus 5 words chosen specific to Turkish language use (list gathered from the dictionary of frequent written words in Turkish) (BNT-TSF). After that, the 25 songs were selected that include the target words in the figure (Fig. 2). The participants listened to the riff of songs, they were asked to tell the words that they can recall from it. The purpose is to see how well they get close to the targeted words in given pictures. Each person took 30 minutes to complete the task.

Results
Below graphics (Figure 3) represents the responses of the participants in each group. The red columns represent the correct target vocabulary items tested in BNT-TSF. If the participant recall a semantically related word, the choices was represented with a [green] color and unrelated or off the task choices were in [purple] color.

When examined, the age group of 20-40 year-olds (N=80) the average of right evocation is 15.04%; the average of semantic evocation is 18.5%; the average of non-semantic evocation is 19%. Looking at the age group of 50-70 year-olds (N=31) the average of right evocation is 12.2%; the average of semantic evocation is 8.3%; and the average of non-semantic evocation is 10.55%.

The type of music that was selected also changes with ages. As the age gets older, the familiarity of type of music listened and sang is changed. The age group of 50-70 year-olds were good at recalling words with semantic cues. In addition to, the type of words that was recalled varied as well. The word “rosary” (praying beads) (22), and the word “bathos” (20) is higher recall for right evocation. For semantic evocation, the word “sea” (17) is higher. For non-semantic evocation, the word “harmonica” is higher (24). For Turkish, contrary to phonetic cues as in other languages such as English, semantic cues are more effective for recalling auditory individuals. And results showed that in Turkish, phonemic cues is less effective in word recalling.

These results are only for healthy persons, the further research will be conducted with individuals with diagnosis of dementia (and subtypes), degenerative diseases that effect mental processing such as MS and stroke (or other neurological disorders).

REFERENCES

Figure 1: Demotions of music in the brain.

Figure 2: Graphic representation of the task.

Figure 3: Top 10 Responses to the musical cues of BNT-Short form+5 added items.

On the 40-year-old participants the left hemisphere of the brain shows remarkable evocation. The right hemisphere of the brain shows remarkable evocation. On the 50 year-old participants the left hemisphere of the brain shows remarkable evocation. The right hemisphere of the brain shows remarkable evocation.