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# Personality Based Song (Indian) Suggestions

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Abstract: Songs play a very important role in living beings. Dr. Jagdish Chandra Bose, the pioneer of music impact on plant growth had experimented & shown the results that even plants respond positively to the nice music. We, the people generally tend to hear only the trending songs & listen to sings under peer influence. But people should hear right kind of music suitable to their personality traits in order to bear the musical health benefits. An experiment was carried out where participants were asked to answer personality related questionnaire & were asked about their music preferences. The study shows that among the five traits each trait has got to do something with the Indian music genres. The App has been tested over 70 people. Till date, we knew music has some impact but with this study which music/ song genres are suitable to what kind of personalities has been attempted

Keywords: Personality, Music preferences, Big Five Traits, Text Analytics, Close Ended.

I.

# INTRODUCTION

Our body is a pharmacy that gives out various chemicals depending upon the situation. Research has revealed that music holds the keys to your body's pharmacy, and can promote or suppress the release of these chemicals [2]. For example, loud and rhythmic music can increase your adrenaline levels, which will help to keep you awake during a long, boring drive. But in the case of insomnia, relaxing music can help you drop off to sleep by reducing the amount of the 'vigilance chemical' Noradrenaline in your system. Just half an hour of calming classical music at bedtime can help you to re-establish a healthy sleep pattern [2]. Beye (1975) and Confucius (1979) said that man could be enhanced by the arts especially through music. The theme of the paper is identifying the characteristic traits of a person from his writing (text written by the user in describing himself/ herself) and through some questions which will trigger the required traits out of the user and suggesting him/her the Indian song genres. As to which song genres to be suggested to what type of traits has been found out from a survey conducted by 328 people. The fact that makes it interesting & important is that we know we are judged by our handwriting style, in today's age we rarely find people writing with a pen & paper; all of us can be found texting to someone or jotting down points on our mobiles or posting on social media. All these come from texts. Therefore analyzing texts and finding out the personality from it has become a deserving attention. This is totally a novel concept wherein a person can be found out, associating it to the song genres, & then having it to enhance one's personality.

Art has a good impact on one's personality having short term & long term effects on them. Such type of effects would be difficult to study in the laboratory, but what can be studied are the necessary (not sufficient) conditions for these types of changes to take effect. The preparations that went into making the App were taking the survey of nearly 328 people asking them music preferences and personality related questions without them knowing the traits and music association behind it. Music choices reflect the listener's personality. When the App was developed and tested over them, the songs suggested to them were from the survey; meaning that what song genres to be suggested to what type of character traits is on the basis of the survey done by 328 participants. On testing the App, received a whopping 85 % positive feedback and with few others did not like the song suggestions indicating the scope for improvements.

# II. RELATED WORK

One of the facts about the operation of the mind that is not known to everyone is that everything that you hear or see programs your mind. The child who was constantly being called names like dumb or fools grows up thinking that he really is dumb [1]

A person who was told that he can't succeed, whether by other people or himself, will never succeed and a person who always watches comedy movies will tend to be more optimistic [1]. You listen to music or song when you are busy doing something. The

song goes directly into your subconscious mind without first being filtered by the conscious mind! This means that if you listened to a song containing 5 negative messages 10 times a day then you will be exposing yourself to 50 negative messages every day [1]. So the effort is to make the user listen to right kind of music suitable to the real personality of him/her.

Rentfrow and Gosling (2003) have worked intensively on examining the landscape of music preferences. They laid the groundwork for a theory of music preferences. However, Rentfrow and Gosling (2003) challenged for examining the structure of music preferences and to get a finer picture of the effects of personality on music preferences across continents, cultures and ethnic groups [8]

Definitions of preference include specific notions of temporality: 'a person's liking for one piece of music as compared with another at a given point in time', while the taste is held to reflect 'the overall patterning of an individual's preferences over longer time periods' [10]. In practice, short-term experiences of preference inform long-term judgments of taste and vice versa, in a cycle of reciprocal feedback [12]

For most of us, the importance of music as a leisure time activity can hardly be overestimated [17].

This knowledge has led to the growth of the field of music therapy in mental & health settings. Music has been used as an effective therapeutic tool for a number of mental health issues, including anxiety [4], chronic pain [7], behavioral concerns in hospitalized children [19], depressive symptoms in persons with dementia [3], and negative symptoms of chronic schizophrenia [13]. Several theorists/researchers have presented frameworks for incorporating music into counseling and psychotherapy for a variety of problems including adjustment to divorce [9], grief [6], anxiety in surgery patients [20] and anger management [11].

According to Rentfrow and Gosling (2003), specific dimensions of personality like "openness" have been found to correlate with preferences in music selection. For example, participants who score high in "sensation-seeking" prefer styles of music like rock, heavy metal, and punk [17].

The genres were rock, hip-hop, English songs, remix, and pop – genres that are full of energy and in which electric instruments are used – and this factor was named as Intense and Electronic[10].

Factor 2 was composed of folk, ghazal, bhajan, patriotic songs, Sufi, classical, Islamic songs and instrumental – genres which emphasize themes of devotion and love and belong to different cultures and religions – and was named as Devotional and Cultural [10].

Factor 3 consisted of Bollywood (sad) songs, melodious film songs, romantic songs, and soft music – genres which emphasize various emotions and are melodious – and was named Emotional and Melodious [10].

Factor 4 was represented by blues, new age, jazz, and trance – genres that seem to facilitate introspection, imagination etc. and which contain spiritual elements – and this factor was named Reflective and Spiritual [10].

Only two genres Punjabi and rap had higher loadings for factor 5 - genres loaded with rhythms and which are contemporary – and was named Contemporary and Rhythmic [10]. While taking the survey these music genres have been used.

# III. STUDY 1

# A. Participants:

Criteria for the participants were to have basic knowledge of English as questions were asked in English language. The survey was conducted in March 2017. A total of 328 people had participated from various age groups.



Fig .1 Age group of the participants in the survey

A percentage of 56.1 were of female participants & 43.9 % of the participants were male.

# B. Procedure:

All participants filled out a large package of 30 questionnaires which were designed using the Big Five Inventory [19] & with the help of medical Doctor Geeta Thombare, Pune). Demographic questions & choices of music/ songs were presented to them. According to Big Five theory (John et.al 1991), there are 5 factors to the personality of a man. To each of the five factors, there are 6 facets to each of them.

#### C. Instruments:

Music preference was asked to each participant to rate the music/ song they liked. Mostly/Highly preferable, Moderate, Least preferable were the choices given to the song genre. A total of 27 Indian song genres were included: Bollywood (sad), Melodious Film, Romantic (love), Soft, Folk, Ghazal, Bhajan, Patriotic, Sufi, Classical, Hip Hop, Rock, Party Songs, English, Remix, Rap, Film (90's songs), Evergreen film Songs, Devotional, Qawwali, New Age. At the end, a song of their choice was asked to enter by the user. The participant was asked to mention which of the following he/she was suffering from: Work/office/ submission tension; Obesity; Chest pain/acidity; Diabetes; Hypertension/ Blood Pressure; Lack of time problem; Heart problems, Asthma

#### D. Questionnaire measures:

Demographics questionnaire: In this questionnaire, participants were asked for their gender. Five categories for age groups were presented to them to choose one amongst them as people tend to choose their age groups over their actual age.

*E.* The Big Five Inventory (John et al., 1991):

The Big Five Inventory is a 44-item scale measuring the Big Five dimensions of personality— extraversion, conscientiousness, agreeableness, emotional stability/neuroticism, and openness. The survey uses 30 item scales. 6 questions for each of the five factors. In these items, participants were asked whether they see themselves as someone who, for example, "is reserved" or "tends to find fault with others." Responses are scored on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree, 3 = sometimes).

#### F. Results:

An association between character traits and song genres has been established from the survey. There are two filters to the following result. Persons who are high in the particular trait & those who have chosen highly preferable in the music preferences part.

Sr.	Trait	1 <sup>st</sup> Song genre	2 <sup>nd</sup> Song
No		preference	genre
			preference
1	Openness to	Party Songs	Sufi music
	Experiences(O)		
2	Conscientiousness	English songs	Rap
	(C)		
3	Extraversion(E)	Romantic	Melodious
			film songs
4	Agreeableness(A)	90's Film songs	Devotional
			songs
5	Neuroticism(N)	New Age	Qawwali

Table 1 Trait to Song mapping from the survey



Fig. 2 Approach in the implementation of the system

# **IV.STUDY 2**

# A. PROCEDURE

On taking the above considerations, App was developed. In this App, the user was asked to type text i.e. he/she was asked to describe himself/herself in as many lines as the user wants. Then the user was presented to set of 10 questions from Big Five Theory. As of now, there is 61.5 % female & 38.5 % male who have tested the App falling into the age group of 18 to 24 and 25 to 34 years of age. 95.83 % participants accessed the App from their mobiles, 2.65 % accessed through desktop, 1.52 % accessed through the tablet. Average time spent on the App by the user is around 10 minutes. Average Page Load time is 9.8 seconds, & average server response time is 0.68 seconds.

#### TEXT ANALYTICS

Text analysis is still in the developing stage but is very promising. It is estimated that as much as 80% of the world's data is unstructured, while most types of analysis only work with structured data. The first part in the App comes under Natural Language Processing. There is a pre-label set of training documents for the character traits. A bag of words approach is used for finding out the trait from the text. On scanning each of the words from the text, an overall valence is calculated, & thus personality traits are identified.

#### *B.* Open Ended Evaluation

Natural Language Processing is used for openly ended evaluation i.e. text analysis. Inventories from [18] were used to provide a feature set to the word-frequency set. It processes multiple texts and returns a word- frequency distribution based on well-defined categories. It utilizes a combination of psychological and social dimensions which may overlap or aggregate. The hierarchy of categories begins with following dimensions: linguistic, psychological, relativity, and current concerns.

There have been around 7 inventories used for building the vocabulary for each of the five traits (Robert McCrae 1991). These dimensions are comprised of multiple categories, and words may belong to more than one category.

Following is the procedure adopted for text analytics of unstructured data:

- a) Cleaning the corpus
- b) Use regular expressions to remove at-tags and URLs
- c) Make each letter lowercase, remove white space, remove punctuation, remove English stop words & custom stopwords
- d) Stemming words
- e) Building a term-document matrix
- f) Comparing the text word by word with the dictionaries for each trait and counts into 5 categories of personality traits.
- g) Counting the frequency of the words for each trait
- h) Highest frequency for a particular trait is the personality trait orientation for the user

#### C. Close Ended Evaluation



Fig. 3 Screenshot of the App (Homepage)

Personality score for close ended questions i.e. multiple choice questions is calculated as [21]:

- a) Individual trait scores (O, C, E, A, N) are calculated from the questions by summing the score assigned to each question's options (Yes = 5, No = 1, Sometimes = 3).
- b) One question is asked in the straightway & other is reversed, so also its score too is reversed( BFI scoring pattern)
- c) Average = (Openness + Conscientiousness + Extraversion + Agreeableness + Neuroticism) /5
- d) Each average score compared with individual trait score.

#### For example,

If O\_score > (avg\_score + 2) then High in O\_trait

 $O\_score < (avg\_score - 2)$  then Low in  $O\_trait$ 

O\_score = (avg\_score+2) & (avg\_score-2) then Average

Whereas, +2 or -2 is considered as the threshold to decide the Average range

In this way, user is shown to be high, low or average in each of the trait. Then song suggestions are done based on this result of personality traits from close ended part. Songs cannot be suggested on the results of Open ended part because user may write a paragraph, a line or few words which is not a sufficient condition to predict its personality. So song suggested upon that few words entered by the user is not justified.

#### D. Results

Around 70 people have used the App. In the App, user has written lines to describe about himself/ herself. That text was analyzed using R language. The user was presented with a summary of his/her personality derived from the text entered by the user.



Fig. 4 Screenshot for the first tab displaying Personality traits from Text Analytics

In second tab, user was shown his character traits depending upon the questions answered by him/her.

▶ ▲ △ ■ 6:32
<ul> <li>No</li> </ul>
<ul> <li>Sometimes</li> </ul>
Submit
Text Analytics
Personality from Questionnaire
Music orientation
You are open minded & a practical pers
You seem to be disciplined as well as
You seem to be a combination of quiet
You are Trusting, empathetic, complian
You seems to be an average emotionally

Fig 5. Screenshot for second tab displaying personality traits

In the third tab, music orientation (genre) was shown to him. Songs were suggested to the user based on close ended evaluation.

<b>► M</b>	▼.	6:02		
Music orientation				
ly hear songs like \n The Humma Song!"				
sks \n Listen to	Rap God by Ei	minem"		
ble for romantic songs ld keep listening to romantic kind of s ou to hear Tum hi Ho				
You Have little interest in other people's problems ! Listen to Aati Kya Khandala!				
You are Very relaxed Bhar Do Jholi Meri from Bajrangi Bhaijaan!				
Did you like song suggestion? • Yes • No				
Submit Feedback				
$\bigtriangledown$	0			

Fig. 6 Screenshot for third tab displaying Song suggestions

A feedback question was asked to the user that did he/she like the song suggestion; to which 85% people liked the music suggestion some others did not like the songs suggested to them.

The user should not necessarily like the songs suggestions but user should keep listening to the song genres suggested as personality can enhance when one hears to right kind of music/ song. Because these song genres suggested were on the basis of the survey done over 328 people in Study 1



Fig. 7 Percentage of people who liked/not liked Song suggestion



Fig.8 Percentage of new & returning visitors to the App

# CONCLUSION

Songs have cultural, moral, emotional impact on one's life. The work over here is not a place to find fixes to your personality related problems but a place to find potent way backed by psychology. The key is to select your songs wisely because whatever you choose, programs your mind indirectly. This work is an effort to achieve the wonders of music on the traits suitability.

# **FUTURE WORK**

Taking the follow up of the people who have used the App & have got music suggestions. Also analyzing the text entered by the user even more efficiently by building stronger dictionaries.

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