Are we living in a 'Yellow Submarine'?
The Attitude and mood creation with The Beatles' Music

Estamos vivendo em um 'Yellow Submarine'?
A criação de atitude e humor com a música dos Beatles

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ABSTRACT: The presented article deals with the aspect of attitudes towards the selected songs as well as the moods it brings with the help of Thayer mood model. The aim of the presented article is (1) to investigate the attitudes towards the selected Beatles album, (2) to investigate the effect of songs on mood using the Mood model, and (3) to investigate the effect of selected demographic factors (age and gender) on the attitude towards the songs and the mood created by the songs from the album 'Yellow Submarine' in Slovak conditions. The results indicate that there is a significant link between the cognitive and affective components of attitudes within the selected album. It has also been shown that, in terms of moods, the album brings considerable variety. The results can be used both in the fields of musicology and psychology and as an introduction to the study of audio marketing.
KEYWORDS: 'Yellow Submarine'; Music attitudes; mood model; Thayer mood model; Cognitive and affective component.

RESUMO: O artigo apresentado trata do aspecto das atitudes em relação às músicas selecionadas, bem como dos estados de espírito que elas trazem com a ajuda do modelo de humor de Thayer. O objetivo do artigo apresentado é (1) investigar as atitudes em relação ao álbum dos Beatles selecionado, (2) investigar o efeito das músicas no humor usando o modelo Mood, e (3) investigar o efeito de fatores demográficos selecionados (idade e gender) sobre a atitude em relação às músicas e o clima criado pelas músicas do álbum 'Yellow Submarine' nas condições eslovacas. Os resultados indicam que existe uma ligação significativa entre os componentes cognitivos e afetivos das atitudes dentro do álbum selecionado. Também foi demonstrado que, em termos de humor, o álbum traz uma variedade considerável. Os resultados podem ser utilizados tanto nas áreas de musicologia e psicologia quanto como introdução ao estudo do marketing de áudio.
PALAVRAS-CHAVE: 'Yellow Submarine'; Atitudes musicais; modelo de humor; modelo de humor de Thayer; Componente cognitivo e afetivo.

1. Introduction

The world has changed after the COVID-19 pandemic, and it has brought with it several challenges. One of the challenges is the deteriorating mental health of people (Xiang *et al*., 2020). Ancient nations already used music for healing (White, 2000). In a generic sense, music can be understood as 'the science or art of ordering tones or sounds in succession, combination, and temporal relationships to produce a composition having unity, and continuity' (Merriam - Webster, n.d.).

Several scientific studies talk about the health benefits of music, while music can also be a means of expressing emotions (Jonas-Simpson, 1997; Stewart *et al*., 2019). Research shows that when choosing music, we consider not only preferences (for example, the name of the artist), but also the topic (celebration, punishment), focus or influence on mood (happy, sad) (Lee and Bownie, 2004; Bischoff *et al*., 2008, 2009), which only emphasises the aspect of regulation, modification, or gradation of moods.

Many researches indicate that music on the defensive level represents an important regulator of moods and emotions (Thayer *et al*., 1994), while acting on the defensive level can be a key reason for listening to music (North *et al.*, 2000; Juslin and Sloboda, 2001) and even an element of therapy (Deliege and Sloboda, 2004; Ruud, 1997; Sloboda, 1992; Juslin and Sloboda, 2001), for example in mental disorders such as depression (Parker and Brown, 1982; Rippere, 1977; Chan *et al*., 2011). The use of music for mood regulation presupposes the selection of appropriate music in the context of the mood (Markov and Matsu, 2014).

In this context, music therapy can be mentioned as an important area, which represents an important area in research and therapeutic posts, while it can help in the treatment of oncological patients (Martí-Augé *et al*., 2015), in the therapy of patients with dementia (Lam *et al*., 2020), as a tool for therapy with autistic children (Sharda *et al*., 2019), but also for stress reduction (de Witte *et al*., 2022). For proper use and application in practice, it is necessary to study the impact of music in order to fulfill the goal of improving the quality of life.

In order to be able to determine the effect on mood, it is possible to use the classification of moods based on the music of the psychological model (Thayer, 1990; Thayer *et al*., 1994). The model records emotional states with the help of two variables, which are oriented towards the energy that results from the music and the positivity or negativity referred to as stress. The model can be recorded on the coordinate axis, creating four dimensions of influence on mood, namely: exuberance, anxiety, frustration, contentment, and depression (Bhat *et al*., 2014). Equally important is the overall perception of music and the creation of an attitude. Within attitudes, it is appropriate to examine the conative component (a measure of knowledge) and the affective component (a measure of emotional reaction) of attitudes (Ajzen and Fishbein, 1975), while these components can also be used in the examination of attitudes to music (Čvirik, 2022).

In our paper, we focus on the music of the Beatles, specifically the 'Yellow Submarine' album (The Beatles, 2009a, 2009b). The Beatles were an English rock band formed in Liverpool in England, comprising John Lennon, Paul McCartney, George Harrison and Ringo Starr (who replaced Pete Best). The Beatles represent an icon in culture (Tessler and Long, 2022) and it is no exaggeration to say that they influenced the whole world (Collins, 2020). In addition to being a world cultural icon (Lemonnier, 2016), the Beatles are an element of cultural heritage and an important element of tourism in Liverpool (Kinsella and Peters, 2022) and even an object of scientific and study interest (Howard, 2022).

Yellow Submarine is the sixth studio album released in 1969. At the same time, furthermore there is an animated film and series that use music from the album. The album contains 13 songs with a total length of 39 minutes and 13 seconds. It is necessary to note that in the case of the influence of music on the creation of mood as well as on attitudes towards music, demographic factors (mainly age and gender) can represent a significant influence (Robazza *et al.*, 1994). The reason for the effect of gender can be inferred from the higher level of emotional expression in women than in men (Fernald, 1989). Based on neurological research Sergeant and Himonides (2014) concluded that gender does not represent a significant factor of difference in the perception of music. Considering the phenomenon of the Beatles, it is appropriate to examine these possible factors of influence on both attitudes and costs.

The aim of the presented article is (1) to investigate the attitudes towards the selected Beatles album, (2) to investigate the effect of songs on mood using the Mood model, and (3) to investigate the effect of selected demographic factors (age and gender) on the attitude towards the songs and the mood created by the songs from the album 'Yellow Submarine' in Slovak conditions.

Based on the objective and professional literature, we created the following research questions:

RQ1: How can one evaluate the attitude towards music by the Beatles from the album 'Yellow Submarine'?

RQ2: How the effect of the Beatles' music from the album 'Yellow Submarine' can be evaluated in the context of The Thayer's mood model?

RQ3: How do selected demographic factors (age and gender) influence consumers' perceptions of the chosen music?

2. Methodology

In the article, we use several methods and methodological procedures. Considering the set aim, it is necessary to note that it is not possible to include the entire population. Therefore, we conduct primary research on a population sample and with the help of statistical methods, try to generalize to the entire population. For a better understanding of the investigated elements in the sample we use the elements of descriptive statistics. The variables have the character of predominantly ordinal data with a longer measurement scale. We use measures of position (arithmetic mean) and variability (standard deviation). The arithmetic mean indicates the middle value. Given the nature of the data, it is suitable, as extreme values cannot be expected. The standard deviation indicates the variability in the data. It can simply be stated that the lower the value of the standard deviation, the more consistent the respondents' answers were. At the same time, we use graphic tools (usually a scatter plot). For generalizing to the population, we apply elements of inferential statistics. Due to the nature of the data, it was necessary to use non-parametric tests. We use the Mann-Whitney test (for two compared groups) and the Kruskal-Wallis test (for more than two compared groups) to determine statistical significance. At the same time, we also use substantive significance testing (Eta Squared), which helps us better understand the effect of the investigated indicators in the population. Furthermore, we utilize Kendall's tau-b correlation coefficient to investigate the linearity of the relationship between two variables. It is typical for this coefficient to reach values from -1 to 1. Within the coefficient, it is necessary to monitor whether the coefficient is negative or positive and how close the value is to 1 (or -1). We retest the result of the correlation coefficient so that the results can be generalized to the population.

2.1. Sample

The article is supported by primary research. The research lasted from February 2022 to December 2022 due to the complexity of the research and the connection of qualitative and quantitative primary research, while the research was carried out by the author of the article himself. The population was defined as 'Slovak music consumers aged 15 and over who do not suffer from hearing impairment'. The reason for this age limit is both ethical and also that, at the age of 15, consumers acquire their own shopping habits, have their own financial means, and enter the juvenile phase, when certain general knowledge is also expected. Hearing impairment in the respondents would not allow the investigation of their perception of auditory stimuli. Of course, many studies (for example Bang, 2009; Darrow, 1989; Gfeller, 2016; Haguiara-Cervellini, 2003; Rodrigues, 2017) indicate that even handicapped (deaf) people have a relationship with music and can perceive it with other senses, therefore, from the point of view of the characteristics of the sample, it is only necessary to understand segmentation as a criterion for ensuring the objectivity and validity of the research. 162 respondents took part in the primary survey, with 42% men and 58% women. The average age of respondents was 33 years (age range of respondents: 15 to 89 years). The respondents took part in the research voluntarily, while their health and all rights were protected. Respondents were not remunerated to ensure the objectivity of the research. As part of the research, the anonymity of the respondents was ensured.

2.2. Research design

As part of the investigation of music perception, we focus on four characteristics. The characteristics of cheerfulness and energizing are based on Thayer's mood model (Thayer, 1990; Bhat *et al.*, 2014). The other two characteristics are focused on the overall conative component (a measure of knowledge) and the affective component (a measure of emotional reaction) of attitudes (Ajzen and Fishbein, 1975), while these components can be used in the investigation of attitudes towards music (Čvirik, 2022). Respondents react to the mentioned characteristics immediately after listening to the song on a seven-point bipolar scale. Within Thayer's mood model, it represents 0 - 'very sad', 6 - 'very happy' within the variable cheerfulness, and within the variable energetics, it represents 0 - 'very calm', 6 – 'very energetics'. Moreover, in terms of attitudes, it is a bipolar scale in the mentioned range. For the variable focused on the cognitive aspect, the level of knowledge is 0 - I definitely don't know, 6 - I definitely know. The affective component is a measure of emotional reaction, i.e., 0 - 'I don't like it at all' and 6 - 'I like it very much'.

3. Survey results

In the following part, we focus on answering the relevant research questions (RQ) for the needs of the comprehensive fulfilment of the goal.

RQ1: How can one evaluate the attitude towards music by the Beatles from the album 'Yellow Submarine'?

The investigation of attitudes was carried out on the basis of the cognitive and affective components of attitudes. We recorded the generic results in Tab. 1.

Tab. 1 – Average values and standard deviations in measuring attitudes

Song title	Code*	Attitude			
		Cognitive component		Affective component	
		Mean	St. dev.	Mean	St. dev.
'Yellow Submarine'	F1	3.14	1.24	2.98	1.84
'Only a Northern Song'	F2	2.04	1.30	1.43	1.37
'All Together Now'	F3	3.11	1.23	2.14	1.59
'Hey Bulldog'	F4	2.86	1.22	1.88	1.47
'It's All Too Much'	F5	2.21	1.29	1.35	1.30
'All You Need Is Love'	F6	3.43	1.27	3.73	1.52
'Pepperland''	O1	2.75	1.35	1.44	1.24
'Sea of Time'	O2	2.18	1.28	1.08	1.00
'Sea of Holes'	O3	1.69	1.21	0.91	0.94
'Sea of Monsters'	O4	1.93	1.28	1.02	1.03
'March of the Meanies'	O5	1.94	1.30	1.02	1.04
'Pepperland Laid Waste'	O6	1.52	1.23	0.84	0.98
'Yellow Submarine in Pepperland'	O7	3.13	1.44	2.51	1.71

Note: * F =Side one: Songs from the film, O = Side two: Orchestral film songs
Reference: own processing

In terms of attitudes, we can see (Tab. 1) that the most famous song was 'All You Need Is Love' and the least famous was 'Pepperland Laid Waste'. Besides, the results indicate that respondents on average liked 'All You Need Is Love' the most and the orchestral piece 'Pepperland Laid Waste' the least. For clarity, we recorded the results graphically (see Figure 1).
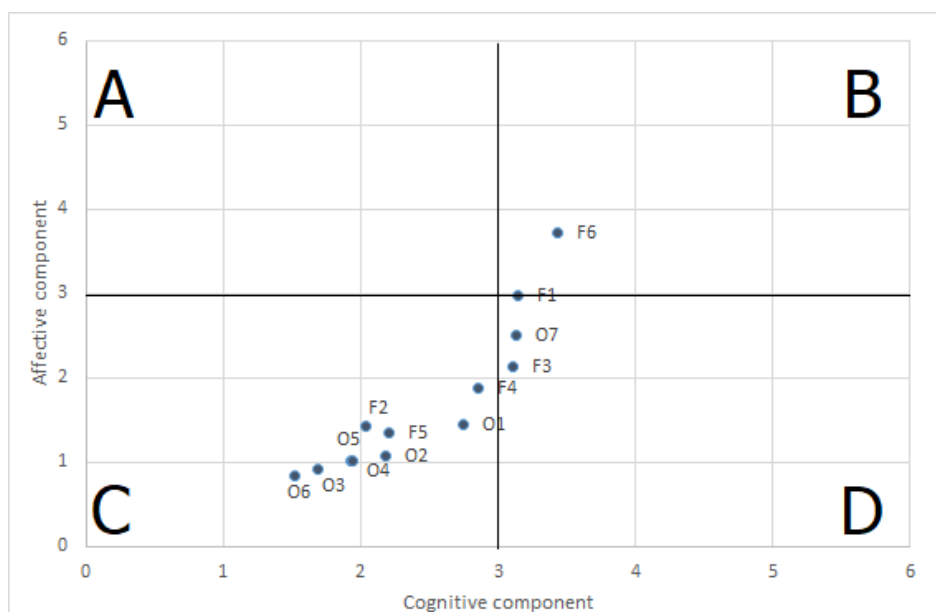

Figure 1 – Attitude towards the studied songs
Reference: own processing

The quadrants in Figure 1 can be identified as follows: Quadrant A represents music that the respondents know below average but like above average (we will refer to this quadrant as 'Beautiful novelty'); Quadrant B represents music that is above average known and above average liked by the respondents (we will refer to this quadrant as 'Love songs'); Quadrant C represents rather unknown songs that the respondents liked

below average (we will refer to this quadrant as 'Initial dislike'); and the last Quadrant D represents above-average well-known songs, but below-average liking (we will refer to this quadrant as 'Corny songs'). As from Figure 2, there is no song in quadrant A, quadrant B contains two songs (F6 and F1), as well quadrant D contains two songs (O7 and F3) and the other songs are in quadrant C.

From Figure 1, it is possible to visually identify a certain linear relationship between the variables. We therefore focused on investigating the relationship between these variables. To investigate the relationship, we used Kendall's tau-b correlation coefficient. We recorded the results in Tab. 2.

Tab. 2 – Results of the correlation analysis of the cognitive (CC) and affective (AC) component

Code	Kendall's tau b (AC, CC)	
	Correlation Coefficient	Sig. (2-tailed) *
F1	0.296	0.000
F2	0.309	0.000
F3	0.266	0.000
F4	0.323	0.000
F5	0.383	0.000
F6	0.425	0.000
O1	0.202	0.002
O2	0.176	0.008
O3	0.296	0.000
O4	0.251	0.000
O5	0.306	0.000
O6	0.372	0.000
O7	0.369	0.000

* Correlation is significant at the 0.01 level (2-tailed)
Source: own processing

The results in Table 2 indicate a moderately strong positive correlation, which can be expected even in populations. In other words, with a higher degree of cognition, a higher level of more emotionally positive evaluation can be expected.

RQ2: How the effect of the Beatles' music from the album 'Yellow Submarine' can be evaluated in the context of The Thayer's mood model?

Within the presented research design, we focus on the Thayes mood model. We recorded the generic parameters (average values and standard deviations) in Tab. 3.

As shown in Tab.3, the song with the highest average cheerfulness was measured to be 'All Together Now' which achieved the highest average perceived vigour. The lowest average cheerfulness was measured for the song 'Pepperland Laid Waste'. The lowest energy was measured for the song 'Sea of Time'. If we were to evaluate the results based on the Thayes mood model, it would be appropriate to use a graphic display (see Figure 2).

Tab. 3 – Average values and standard deviations in the context of Thayer's mood model

Song title	Code*	The Thayer's model			
		Cheerfulness		Energetics	
		Mean	St. dev.	Mean	St. dev.
'Yellow Submarine'	F1	3.17	0.97	2.57	1.23
'Only a Northern Song'	F2	2.46	0.86	2.14	1.04
'All Together Now'	F3	3.94	0.77	3.70	0.89
'Hey Bulldog'	F4	3.22	0.91	3.38	0.93
'It's All Too Much'	F5	2.83	1.03	2.94	1.13
'All You Need Is Love'	F6	3.25	0.98	2.40	1.22
'Pepperland'	O1	2.63	1.04	2.15	1.26
'Sea of Time'	O2	2.22	0.96	1.91	1.11
'Sea of Holes'	O3	1.80	0.90	2.03	1.01
'Sea of Monsters'	O4	2.15	1.04	2.35	1.05
'March of the Meanies'	O5	2.10	0.98	3.25	1.04
'Pepperland Laid Waste'	O6	1.67	0.94	2.24	1.15
'Yellow Submarine in Pepperland'	O7	3.54	1.21	3.40	1.31

Note: * F =Side one: Songs from the film, O = Side two: Orchestral film songs
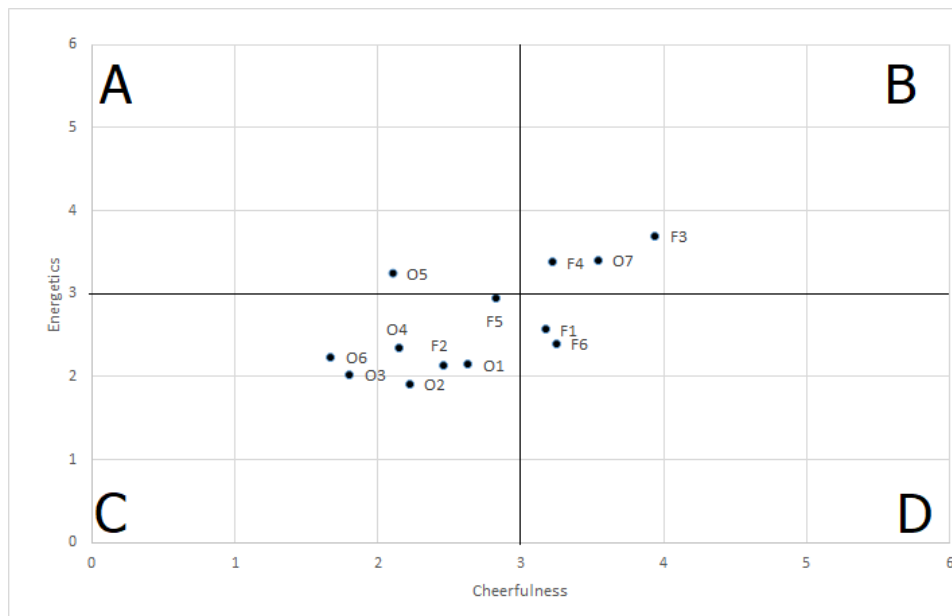**Source: own processing**

Figure 2 – Thayes mood model
Reference: own processing

Figure 2, we noted the dimensions of the Thayes mode model, which distinguishes 4 mood categories (recorded as quadrants). Quadrant A represents the anxious/frantic category, quadrant B represents exuberance; quadrant C is called depression, and quadrant D can be interpreted as contentment. As we can see, the album offers a connection between all categories of mood. Simultaneously, it is possible to identify which songs can be classified into which category (on average). The results suggest a certain link between energy and cheerfulness.

Again, a positive linear relationship can be observed in Figure 2. For a closer examination of this relationship, we used Kendall's tau b correlation coefficient and recorded the results in Tab. 4.

Tab. 4 – Results of the correlation analysis of the cognitive (CC) and affective (AC) component

Code*	Kendall's tau b (Cheerfulness, Energetics)	
	Correlation Coefficient	Sig. (2-tailed) *
F1	0.519	0.000
F2	0.427	0.000
F3	0.656	0.000
F4	0.437	0.000
F5	0.527	0.000
F6	0.418	0.000
O1	0.362	0.000
O2	0.381	0.000
O3	0.294	0.000
O4	0.256	0.000
O5	0.068	0.309
O6	0.314	0.000
O7	0.679	0.000

* Correlation is significant at the 0.01 level (2-tailed)
Source: own processing

As shown in Tab. 4, moderately strong positive correlations were identified, which can be expected even in populations, except for the case of O5 'March of the Meanies'. With this song, it is obvious that even if it is perceived as rather energetic, it is not perceived as cheerful.

RQ3: How do selected demographic factors (age and gender) influence consumers' perceptions of the chosen music?

We investigated gender and age as possible factors affecting the perception of the studied songs. Considering the characteristics of the variables, we apply the Mann-Whitney U test to investigate the influence of gender on individual variables, and the Kruskal-Wallis H test for age. Given the thirteen songs and the four researched factors, we verified each of the researched factors (age and gender) and created 52 tests. To clarify, we only present tests whose results were significant. Gender appeared as a significant factor in four observations (Tab. 5).

Tab. 5 – Mann-Whitney U test results for gender

Code	Sig.	alpha	Eta Squared
cognitive component song F2	0.0412	0.05	0.035
cognitive component song F5	0.0312	0.05	0.034
cheerfulness song F6	0.0499	0.05	0.023
affective component song O1	0.0017	0.05	0.067

Source: own processing

As can be seen from Tab. 5, four variables showed significance from the point of view of gender. Of course, this is a statistical significance, so we further verified the substantive significance on the basis of Eta Squared, while the results point to a very low substantive significance (roughly at the level of 2–7%). In general, it can be stated that gender does not have a significant effect from a substantive point of view. Considering the material significance as well as the median values for individual segments, it can be concluded that the

selected album, 'Yellow Submarine,' is evaluated on the basis of the examined parameters by both sexes roughly the same (there will be small differences in the populations).

Age appeared to be a significant factor in eighteen observations, and we recorded the key test results in Tab. 6.

Tab. 6 – Results of the Kruskal-Wallis H test for age

Code	Sig.	Alpha	Eta Squared
cognitive component song F1	0.0045	0.05	0.060
cognitive component song F2	0.0064	0.05	0.061
affective component song F3	0.0322	0.05	0.036
cognitive component song F3	0.0003	0.05	0.103
cognitive component song F4	0.0043	0.05	0.061
cognitive component song F5	0.0174	0.05	0.047
energetics song F6	0.0359	0.05	0.040
affective component song F6	0.0459	0.05	0.036
cognitive component song O1	0.0276	0.05	0.045
cheerfulness song O2	0.0225	0.05	0.051
cheerfulness song O3	0.0171	0.05	0.046
cognitive component song O3	0.0262	0.05	0.040
energetics song O5	0.0038	0.05	0.071
affective component song O5	0.0118	0.05	0.051
energetics song O6	0.0236	0.05	0.052
cheerfulness song O7	0.0322	0.05	0.058
affective component song O7	0.0005	0.05	0.088
cognitive component song O7	0.0115	0.05	0.052

Source: own processing

The results indicate statistical significance for several parameters. Interesting is that song No. 13 appears to be the most different in the context of inter-age assessment. Furthermore, we examined the results with the help of objective significance. It can be concluded that material significance was at a higher level (from 3.6% to 10.3%). In general, only small differences in perception based on age groups can be expected in the population.

3.1. Limits

It is necessary to note the limits of the study. The results can only be taken as indicative. The sample does not represent a representative sample, even if in certain aspects it is similar to the defined population. The results represent the measurement that the respondents reported themselves, so it is their conscious perception. Music as an expression of art is also perceived subconsciously, which is not captured by questionnaire research. Simultaneously, it was not possible to eliminate all external influences when listening to music. In the future, it would be appropriate to carry out the measurement with the help of neurological measurements. Henceforth, it would be appropriate to examine several albums as well as the influence of musical parameters and the success of individual songs.

4. Conclusion

The aim of the presented article was (1) to investigate attitudes towards the selected Beatles album, (2) to investigate the influence of songs on mood using the mood model, and (3) to investigate the influence of selected demographic factors (age and gender) on attitudes towards songs and the mood created by the songs from the album 'Yellow Submarine'.

Based on the results supported by the primary survey, the aim can be considered as fulfilled. When investigating attitudes, we focused on two components that determine the attitude, namely the cognitive and affective components. The results indicate that there is a moderately strong positive relationship between the components. Moreover, it can be stated that the songs that are commercially more well-known were rated the best. Upon closer examination, it can be identified that the best rated songs were 'All You Need Is Love' and 'Yellow Submarine', while both of these songs were already released on previous albums ('All You Need Is Love' which was released as a non-album single in 1967, and 'Yellow Submarine', which was released on the album Revolver in 1966). Songs that were new, unknown to the respondents, scored lower. In this context, a certain element of repetition as well as an element of commerciality can be identified. Furthermore, it can be considered interesting that the song 'Yellow Submarine in Pepperland' (code O7) was placed as the best of the orchestral compositions, while many elements in this composition resemble those in 'Yellow Submarine'. It is possible that a certain similarity created an association in the minds of music consumers, whereby they considered the song more familiar and therefore more pleasant.

When investigating the effect of songs on mood, we used the Thayes mood model, which consists of two variables, cheerfulness and energetics. The results indicate a moderately strong positive relationship between the variables. At the same time, we identified the influence of individual songs on the mood based on the Thayes mood model classification, while a significant part is perceived as 'depression, which only emphasises a certain psychedelic quality.

The results clearly did not show the influence of age and gender on the evaluation of songs. It can therefore be assumed that these influences are negligible from a substantive point of view. The results point to the universality of the perception of songs. Concurrently, they point out differences in the perception of individual songs. This insight points to the album's complexity, as well as to a kind of balance in the context of its effect on the listener's mood.

4. References

Ajzen, Icek, and Martin Fishbein. 1975. "Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research. Reading". MA: Addison-Wesley Publishing Compan.

Bang, Claus. 2009. "A World of Sound and Music: Music Therapy for Deaf, HearingImpaired and Multi-Handicapped Children and Adolescents ". Approaches: Music Therapy & Special Music Education 1(2): 93–103.

Bhat, Aathreya S., V.S. Amith, Namrata S. Prasad and D. Murali Mohan. 2014. "An Efficient Classification Algorithm for Music Mood Detection in Western and Hindi Music Using Audio Feature Extraction". Fifth International Conference on Signal and Image Processing. 2014 Fifth International Conference on Signal and Image Processing (ICSIP), Bangalore, India, January 2014, 359–64. Available at: http://ieeexplore.ieee.org/document/6754902/ [accessed 1 Mar 2023].

Bischoff, Kerstin, Claudiu S. Firan, Wolfgang Nejdl and Raluca Paiu. 2008. "Can All Tags Be Used for Search?". Proceeding of the 17th ACM Conference on Information and Knowledge Mining - CIKM '08. Proceeding of the 17th ACM conference, Napa Valley, California, USA, 2008, 193, Available at: http://portal.acm.org/citation.cfm?doid=1458082.1458112 [accessed 23 Dec 2022].

Bischoff, Kerstin, Claudiu S. Firan, Wolfgang Nejdl, Raluca Paiu, Cyril Laurier and Mohamed Sordo. 2009. "Music mood and theme classsification – a hybrid approach". 10th iInternational Society for Music Information Retrieval Conference (ISMIR 2009): 657–662.

Chan, Moon Fai, Zi Yang Wong and N.V. Thayala. 2011. "The Effectiveness of Music Listening in Reducing Depressive Symptoms in Adults: A Systematic Review". Complementary Therapies in Medicine 19(6): 332–348.

Collins, Marcus. 2020. "The Beatles and Sixties Britain". Cambridge: Cambridge University Press.

Čvirik, Marián. 2022. "Audio Marketing: A Study of Music Perception in Students' Segment". Consumer Neuroscience - Innovative Approach to Optimizing Sustainable Business and Marketing Performance based on Modern Intelligent Systems: Proceedings of the Scientific: 95-104.

Darrow, Alice Ann. 1989. "Music Therapy in the Treatment of the Hearing-Impaired". Music Therapy Perspectives 6(1): 61–70.

De Witte, Martina, Ana Da Silva Pinho, Geert-Jan Stams, Xavier Moonen, Arjan E.R. Bos, and Susan Van Hooren. 2022. "Music Therapy for Stress Reduction: A Systematic Review and Meta-Analysis". Health Psychology Review 16(1): 134–159.

Deliege, Irene and John A. Sloboda. 2004. "Perception and Cognition Of Music". 1st ed. Abingdon, Oxon: Taylor and Francis.

Fernald, Anne. 1989. "Intonation and Communicative Intent in Mothers' Speech to Infants: Is the Melody the Message?". Child Development 60(6): 1497.

Gfeller, Kay. 2016. "Music-Based Training for Pediatric CI Recipients: A Systematic Analysis of Published Studies". European Annals of Otorhinolaryngology, Head and Neck Diseases 133 (Jun 2016): 50–56.

Haguiara-Cervellini, Nadir. 2003. "A musicalidade do surdo: representação e estigma". São Paulo, SP: Plexus, 2003.

Howard, Dori. 2022. "Learning and Teaching the Beatles: Experiences with Liverpool Hope's MA The Beatles, Popular Music and Society". Journal of Beatles Studies 2022(Autumn): 11–38.

Jonas-Simpson, Christine. 1997. "The Parse Research Method through Music" Nursing Science Quarterly 10(3): 112–4.

Juslin, Patrik N. and John A. Sloboda (eds.). 2001. "Music and Emotion: Theory and Research". Oxford; New York: Oxford University Press.

Kinsella, Clare and Eleanor Peters. 2022. "There Are Places I Remember: (Re)Constructions of the Beatles as a Liverpool Heritage Object". Journal of Beatles Studies 2022(Autumn): 39–65.

Lam, Hei Long, Wai Tak Victor Li, Ismail Laher, and Roger Y. Wong. 2020. "Effects of Music Therapy on Patients with Dementia—A Systematic Review". Geriatrics 5(4): 62.

Lee, Jin Ha and Stephen J. Downie. 2004. "Survey of music information needs, uses, and seeking behaviours: Preliminary findings". International Society for Music Information.

Lemonnier, Bertrand. 2016. "The Beatles, an object of History". Volume! 12(2): 45–53.

Markov, Konstantin and Tomoko Matsui. 2014. "Music Genre and Emotion Recognition Using Gaussian Processes". IEEE Access 2: 688–697.

Martí-Augé, Patricia, Melissa Mercadal-Brotons, and Carme Solé-Resano. 2015. "La musicoterapia en Oncología". Gaceta Mexicana de Oncología 14(6): 346–352.

Merriam-Webster. (n.d.). "Music definition and meaning. Merriam-Webster". Available at: https://www.merriam-webster.com/dictionary/music [accessed 26 Dec 2022].

North, Adrian C., David J. Hargreaves and Susan A. O'Neill. 2000. "The Importance of Music to Adolescents". British Journal of Educational Psychology 70(2): 255–72.

Parker, Gordon Barraclough and L. B. Brown. 1982. "Coping Behaviors That Mediate Between Life Events and Depression". Archives of General Psychiatry 39(12): 1386.

Rippere, Vicky. 1977. "What's the Thing to Do When You're Feeling Depressed? — A Pilot Study". Behaviour Research and Therapy 15(2): 185–91.

Robazza, Claudio, Cristina Macaluso and Valentina D'urso. 1994. "Emotional Reactions to Music by Gender, Age, and Expertise". Perceptual and Motor Skills 79(2): 939–44.

Rodrigues, Igor Ortega. 2017. "As cores do som: o potencial musical do surdo". São Paulo: Memnon.

Ruud, Even. 1997. "Music and the Quality of Life". Norsk Tidsskrift for Musikkterapi 6(2): 86–97.

Sergeant, Desmond C. and Evangelos Himonides. 2014. "Gender and the Performance of Music". Frontiers in Psychology 5, [online]. Available at: http://journal.frontiersin.org/article/10.3389/fpsyg.2014.00276/abstract [accessed 1 Mar 2023].

Sharda, Megha, Giorgia Silani, Karsten Specht, Julian Tillmann, Urs Nater, and Christian Gold. 2019. "Music Therapy for Children with Autism: Investigating Social Behaviour through Music". The Lancet Child & Adolescent Health 3(11): 759–761.

Sloboda, John. 1992. "Empirical Studies of Emotional Response to Music". In Mari Riess Jones and Susan Holleran (eds.) Cognitive Bases of Musical Communication. Washington: American Psychological Association, 33–46. Available at: http://content.apa.org/books/10104-003 [accessed 23 Dec 2022].

Stewart, Joanna, Sandra Garrido, Cherry Hense and Katrina McFerran. 2019. "Music Use for Mood Regulation: Self-Awareness and Conscious Listening Choices in Young People With Tendencies to Depression". Frontiers in Psychology 10: 1199.

Tessler, Holly and Paul Long. 2022. "Introduction". Journal of Beatles Studies 2022(Autumn): 3–9.

Thayer, Robert E. 1990. "The Biopsychology of Mood and Arousal". New York, N.Y: Oxford University Press.

Thayer, Robert E., J. Robert Newman and Tracey M. McClain. 1994. "Self-Regulation of Mood: Strategies for Changing a Bad Mood, Raising Energy, and Reducing Tension". Journal of Personality and Social Psychology 67(5): 910–925.

The Beatles *et al*. 2009a. "Yellow Submarine". Remastered. Hollywood, Calif., Capitol.

The Beatles. 2009b. "Yellow Subrmarine". Remastered. [online]. Available at: https://music.youtube.com/playlist?list=OLAK5uy_nd7utIrpWh7bhjrtPLbtuWzbZ5o9u48fU. [accessed

10 Jan 2022].

White, Jill. 2000. "State of the Science of Music Interventions". Critical Care Nursing Clinics of North America 12(2): 219–225.

Xiang, Yu-Tao et al. 2020. "Timely Mental Health Care for the 2019 Novel Coronavirus Outbreak Is Urgently Needed". The Lancet Psychiatry 7(3): 228–229.

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