

HOW CAN ACCOMMODATION BE ENHANCED? THE ROLE OF ANALYTICAL AND EMOTIONAL MUSIC RECEPTION

Tim Loepthien^{*}, Bernhard Leipold[†]

^{*}Institute for Music, University of Hildesheim, Germany

[†]Institute for Psychology, University of Hildesheim, Germany
tim.loepthien@uni-hildesheim.de

Abstract

The dual-process model of development regulation (Brandtstädter & Rothermund, 2002a) proposes that accommodation (flexible goal adjustment) contributes to well-being and successful development. A cognitive mindset characterized by a divergent thinking mode should facilitate accommodative processes. Two studies were conducted to examine the relationship between accommodative mechanisms and music reception. Study 1 (training study; $N = 79$) investigates whether such a mindset can be induced by attentive-analytical music reception (simultaneously focusing various musical parameters). Two groups of students were trained to listen to music or view art in a complex way. Results showed group differences in the preferences for the stimuli presented. These preferences were correlated with accommodation. The findings from Study 2 (cross-sectional; $N = 470$) showed a significant relationship between attentive-analytical music reception and accommodation. Furthermore, the interplay between analytical and affective music reception seemed to play an important role in this process. Further studies are needed to examine how the training could be implemented into fields of practice in which developmental regulation processes are relevant (e.g., support groups, psychotherapy, adult education settings, and lifelong learning).

Keywords: personal goals, accommodation, music reception

1. Introduction

The life cycle of each individual is usually characterized by a high degree of openness (Brandtstädter & Rothermund, 2002a) in which personal goals play an important role. Personal goals, in that they represent ideal states of one's own self (Austin & Vancouver, 1996) promote a discrepancy between this ideal and the person's perceived actual state (Brandtstädter, 2011). To reduce this discrepancy, actions toward the goal are initiated. In this sense, personal goals are central in motivating actions and providing orientation to the individual. Various studies have found connections between the commitment to personal

goals and positive emotions such as well-being (Brunstein, Maier, & Dargel, 2007).

During the life course, personal goals are often constrained, for instance, by functional losses, diseases, financial and social difficulties. The discrepancy between the actual and the ideal state of the self may exceed a critical point, thus leading to stress, negative emotions, and lowered levels of well-being (Brandtstädter & Rothermund, 2002a). The dual-process model of development regulation (Brandtstädter & Renner, 1990) proposes two modes for reducing discrepancies between actual and desired developmental outcomes: assimilation and accommodation. Assimilative strategies (such as improving one's compe-

tences, reinforcing goal commitment, or asking for help) subsume intentional efforts and actions to achieve personally valued but threatened goals. When, however, certain goals become infeasible, assimilative strategies become dysfunctional because resources are being invested pointlessly. At this point, the dual-process model stresses the importance of accommodative processes. These, in general, aim to replace blocked goals and establish alternative ones. As accommodative processes are the focus of the present study, they will be described in more detail in the following. Accommodation reduces the discrepancy between actual and ideal state by flexibly adjusting the latter to the changed situational demands. Previously attractive goals that became unachievable lose subjective value while alternative goals gain in importance. Essential for this process is a shift in the cognitive mode (Brandtstädter & Rothermund, 2002b). Whereas attention is focused on one specific goal in the assimilative mode, the focus broadens once accommodative mechanisms become active. As a result of this shift in attention, alternative goals become available, can be evaluated, and finally replace unachievable ones. Furthermore, the accommodative mode is characterized by divergent thinking. This means that a negative situation can be regarded from different perspectives which in turn may lead to a positive reinterpretation. The individual realizes that resources are now available to pursue other equally valued goals and positive aspects of the situation can be detected. Because accommodative processes cannot be intentionally controlled by the individual (Brandtstädter & Greve, 1994; Greve & Wentura, 2007), they are difficult to train. Thus, to be able to activate accommodative processes (which could be valuable when unavoidable losses occur), it is essential to look for conditions that would facilitate accommodative mechanisms. What are the preconditions of accommodation? Brandtstädter and Rothermund (2002a) refer to self-complexity (Linville, 1987; Rafaeli & Hiller, 2010), which renders persons less vulnerable to depression. High self-complexity as characterized by a multi-faceted picture of oneself might be a positive factor because it provides the individ-

ual with a higher number of alternative goals, and thus, enhances flexible goal adjustment (Brandtstädter & Rothermund, 2002a). In addition to their sheer number, Leipold, Jopp, and Staudinger (subm.) stress the interconnectedness of the self-aspects as a relevant factor. If goals are imbedded in a connected structure, they become more easily accessible (Anderson, 1983).

Taken together, accommodative mechanisms are characterized by divergent thinking, and a broad focus of attention. High complexity in the structure of personal goals facilitates replacement of unachievable goals because alternative ones are available.

In addition to these cognitive aspects of accommodative mechanisms, Brandtstädter (2011) describes the influence in particular of positive emotions on accommodation. According to Fredrickson (2006), positive emotions broaden the focus of attention, which has already been mentioned as being essential for accommodative mechanisms.

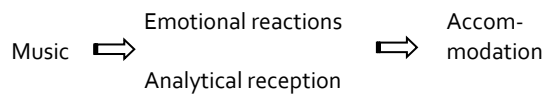
Comparable to accommodative mechanisms, cognitive as well as emotional aspects also play an important role in the course of music reception (Krumhansl, 2002). In certain forms of music reception, a cognitive mode similar to that of accommodation might occur. For example, Hargreaves and Colman (1981) describe two forms of objective music reception. Whereas objective-analytical music reception denotes a listening style that aims at grasping different technical and stylistic aspects of a piece of music, objective-global music reception focuses on the piece of music and its structure as a whole. Objective-analytical reception focusses on various parameters and therefore the overall impression of the piece of music - as a result of objective-global reception - is a complex one. This process of establishing a complex representation can be compared to the previously mentioned accommodative mechanisms, namely, regarding a negative situation from different perspectives. In both cases divergent thinking and a wide focus of attention lead to a complex impression of an object.

In a sample of adolescents, Behne (1997) found an analytical and concentrated form of musical reception which he called distancing

listening. The analytical distance described here between the listener and the piece of music might also be an indicator for a cognitive aspect of this form of musical reception. Distancing listening does not aim automatically to experience various affective reactions while listening to music.

Hargreaves and Colman (1981) subsume emotional aspects of music listening under the term "affective reception". Here the listener focuses on the perceived affective reactions while listening. The focus of attention thus lies on the listening subject. This point is further elaborated by Thoma et al. (2012), who found that mood-congruent music is preferred in emotional situations. Thus emotional aspects play a crucial role in music reception.

Using this theoretical background the main research questions of the present paper focus on connections between music reception and accommodative mechanisms. We investigated the relationship between cognitive-emotional music reception and accommodation (flexible goal adjustment).



Loepthien and Leipold (2013) found a positive relationship between attentive-analytical music reception and accommodation. This connection could be explained by the aforementioned similarities in the cognitive mode. As these cross-sectional results do not allow causal interpretations, Study 1 examines whether training participants in attentive-analytical music reception or in a complex form of art reception has a positive influence on accommodative mechanisms. The art reception training was introduced as a condition that was comparable but differed in the perceived stimuli. The importance of comparison conditions that also contain a form of training have been previously stressed (e.g., Jäncke, 2008; Schellenberg, 2005) and realized (e.g., Moreno et al., 2011). In detail, we investigated the complexity of the individuals' judgments after the training session and whether affective reactions to music pieces and pictures lead to differences in accommodation.

Study 2 is cross-sectional and examines whether the interplay between the two forms of music reception in question sheds further light on previous findings. Thus, we expect that both an attentive-analytical listening style and the emotional reaction to music are crucial for accommodative goal adjustments.

2. Study 1

2.1. Sample

The participants of Study 1 were students of the University of Hildesheim.

N = 79

Music training: N = 38;

Art training: N = 41

Age: M = 23 years (18-47 years); SD = 6

Gender: female = 92%

2.2. Procedure

Two training conditions were used to examine the hypothesis. Whereas in the first, participants were instructed in attentive-analytical music reception, in the latter they received instructions in complex art reception. Both conditions aimed at training the participants to mention several parameters when they listened to music or looked at pictures (for examples used see table 1). For the music training these parameters were:

- Melody
- Harmony
- Rhythm
- Dynamic

The parameters of the art training ("modes of seeing") referred to painting styles:

- Balance between colours
- Perspective
- Linear, hard-edged vs. paint-like, soft-edged
- Relatedness of objects (unity vs. multiplicity)

For each of the parameters the participants received separate training. Each of the training sessions was followed by the presentation of a

new example and the following tasks: Participants were asked to judge the picture or the music piece with regard to the parameters. Subsequent to each parameter judgement, they used two Likert scales to rate how difficult this task was, and how much they liked the picture or the music. After focusing on the parameters separately the participants were confronted with two new examples to focus on the parameters simultaneously. Participants were then asked to write in free text about their impression of each of the last example's param-

eters. Because we did not expect the participants to be as familiar with the criteria for art judgments as for the 4 music parameters, the art group received a sheet (memory aid) with examples of the 4 parameters. These parameters seem not as common to the participants as the music parameters.

Both training sessions took on average 42 minutes ($M = 42.0$; $SD = 3.8$). The assessment took place in group sessions with an average of 5 participants.

Table 1. Music and art examples used in Study 1.

Music		Art	
Melody	Wolfgang Amadeus Mozart: Piano Sonata, C major, KV 545, 1 st movement	Color	Paul Klee: Little Tree in Bushes
	Wolfgang Amadeus Mozart: from: The Magic Flute: In diesen heil'gen Hallen		Fernand Leger: Landscape with Cows
	The Beach Boys: God only knows		Paul Klee: Colored Flower Bed
Harmony	Example based on: Johann Sebastian Bach, Präludium No. 21, Well-Tempered Pianoforte I, BWV 866	Perspective	Gerrit van Vucht: Pomp Still Life
	Alexander Skrjabin: Vers la flamme, op. 72		Paul Cézanne: Still Life with Cherries
	Simon and Garfunkel: Bridge over Troubled Water		Jean-Baptiste Camille Corot: L'Église de Marissel
Rhythm	The Beatles: Eight Days a Week	Contour	Lucas Cranach the Elder: Portrait of an Unknown Lady
	Nieves Quintero: La Cumparsita		John Constable: The Haywain
	The Dave Brubeck Quartet: Take Five		Peter Paul Rubens: Polder Landscape with Cattle Herd
Dynamic	Ludwig van Beethoven: Piano Sonata op. 10, No. 3, 2 nd movement	Relatedness	Peter Paul Rubens: Hay Harvest near Mecheln
	Björk: It's oh so Quiet		Oberrheinischer Meister: The Garden Eden
Overall	Derek and the Dominos/Eric Clapton: Layla, CD-Version and Live/Unplugged Version	Overall	Paul Cézanne: Two Versions of Monte Saint-Victoire seen from Les Lauves
	Franz Schubert: Piano Trio No. 2, E flat major, D 929, 2 nd movement		Henri Matisse: Plum Blossoms in Front of Green Background

2.3. Measurements

Accommodation was assessed using the Ten-Flex scale (Brandstädter & Renner, 1990). This instrument measures the dispositional tendency to face goal blockages by either tenaciously pursuing goals (assimilation) or flexibly adjusting personal goals to a new situation (accommodation).

Assimilation (e.g., "I usually reinforce my efforts extensively when faced with difficulties"; $\alpha = .83$).

Accommodation (e.g., "When I am faced with insurmountable obstacles I prefer to look for a new goal."; $\alpha = .81$).

Goal complexity: To measure the complexity of the personal goal structure a card-sorting task (Linville, 1987) was used. Participants were asked to name personal goals. After that they were given 42 cards containing adjectives, (e.g., cheerful, impatient, determined, etc.) The adjectives had to be sorted to the goals when they described how the participant felt while thinking about the goal. Two indicators of complexity (von Eye, 1999) were used: 1. the number of goals; and 2. their degree of connectedness, resulting from how many similar adjectives were used to describe the goals (overlap). Both items were combined to one variable; α was .76.

In addition, two measures from the training sessions were used to assess the emotional reactions to the music or pictures respectively and the complexity of the free-text paragraphs.

Preference: Participants were asked to indicate how much they liked the 4 examples for which they had judged the quality of melody, harmony, rhythm, and dynamic. The participants of the art group were asked how much they liked the pictures. We computed the sum score and interpreted this as general emotional reaction to music or art.

Text complexity: Two students of the University of Hildesheim were trained to rate the complexity of the free texts describing the parameters of the final examples. They used 5 items with 6 point Likert scales (1 = "not complex at all" – 6 = "very complex") the sum of which provided this variable.

Task difficulty: The perceived difficulties with training tasks served as control variables. Because the sample consisted of musical and artistic laypersons, it was interesting to know whether the tasks were a strain for the participants. This was obviously not the case. The evaluations ranged on average from easy to mid-grade levels. We computed the sum score of the four parameters in each group. High values indicate that the task was perceived as quite simple.

2.4. Results

In a first step, we examined whether the musical training led to more accommodation and goal complexity. No treatment differences were found in these measures. We found, however, differences in text complexity and preferences, two measures that were assumed to mediate the influence of complex art or music reception on participants' goal complexity and accommodation. We used a path analysis to illustrate the group effects and the significant relationships between mediating training effects and general goal structure (i.e., goal complexity and accommodation; see Figure 1). Participants receiving the training in complex art reception wrote significantly more complex texts than the participants in the music condition. Text complexity predicted the complexity of the participant's goal structure. The latter, in turn, is positively connected to accommodative mechanisms.

Figure 1 also shows preference differences. On average, the musical stimuli were liked significantly more than the stimuli used in the art group. Higher preferences significantly predicted accommodation.

Assimilation was also included in the analysis for heuristic purposes. This regulation process was significantly predicted by goal complexity and the perceived difficulty of the training tasks. The easier the tasks were for the participants, the higher were their values on the scale measuring assimilative strategies.

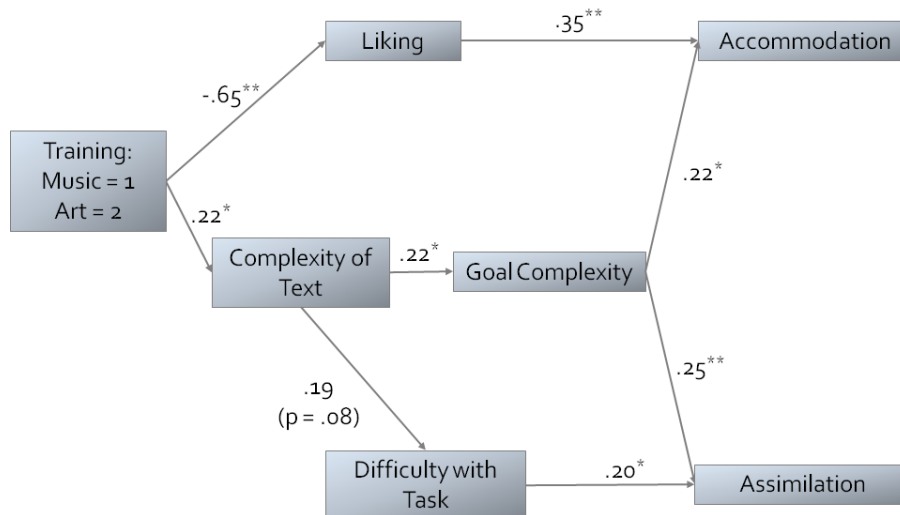


Figure 1. Path analysis (N = 79). The values indicate standardized and significant path coefficients.

3. Study 2

A previous study by Loepthien and Leipold (2013) showed a direct relationship between attentive-analytical music reception and accommodation. We have interpreted this effect by arguing that complex cognitive structures (e.g., goal complexity, cognitive complexity) are preconditions of accommodation. As music is an important part of life for many people and does affect their emotions, in the present study we investigated whether emotional reactions possibly contribute to the development of accommodation. We expect that the correlation between analytical listening to music and accommodation is stronger if individuals are emotionally affected by music.

3.1. Sample

N = 470
 Age: M = 38 years (19-96 years); SD = 19
 Gender: female = 68%
 Musical expertise: 45% play an instrument
 Educational level: Most participants (70%) had a high level of education with 13 years of schooling; 17% had a medium level with 10 years of education, and 13% had a lower level of education.

3.2. Measures

As in Study 1, accommodation was assessed by the TenFlex (Brandtstädter & Renner, 1990).

To assess music reception, two scales from an instrument by Leipold and Loepthien (Leipold & Loepthien, 2008) were used, measuring the amount of emotional and attentive-analytical music reception.

Emotional listening consists of 4 items ($\alpha = .77$, e.g., "Sad music often makes me cry", "Music is a matter of feeling").

Attentive-analytical listening consists of 5 items ($\alpha = .84$; e.g., "I try to understand the formal structure of a piece of music.").

3.3. Results

Regression analyses were used to examine the relationship between accommodation and emotional and attentive-analytical music reception separately while controlling for the musical expertise of the participants. The results showed that this regression model explained 4.6% of the variance ($R^2 = 4.6$, $F(3,466) = 7.48$, $p < .01$). Attentive-analytical music reception significantly predicts accommodation ($\beta = .24$; $p < .01$) as well as emotional music reception ($\beta = -.14$; $p < .01$).

Another regression analysis was conducted to further analyze the connection between accommodation and the interaction between

both music reception styles and musical expertise. The regression model was expanded by adding the interaction terms to the regression model. This enlarged model explained 5.6% of the variance ($R^2 = 5.6$, $F(6,463) = 4.59$, $p < .01$). The interaction between both reception styles was nearly significant ($\beta_{\text{analytical} \times \text{emotional listening}} = .09$; $p = .059$). As can be seen in Figure 2, emo-

tional music reception moderates the correlation between attentive-analytical music reception and accommodation. This connection is highest for participants who show high values for attentive-analytical as well as emotional music reception.

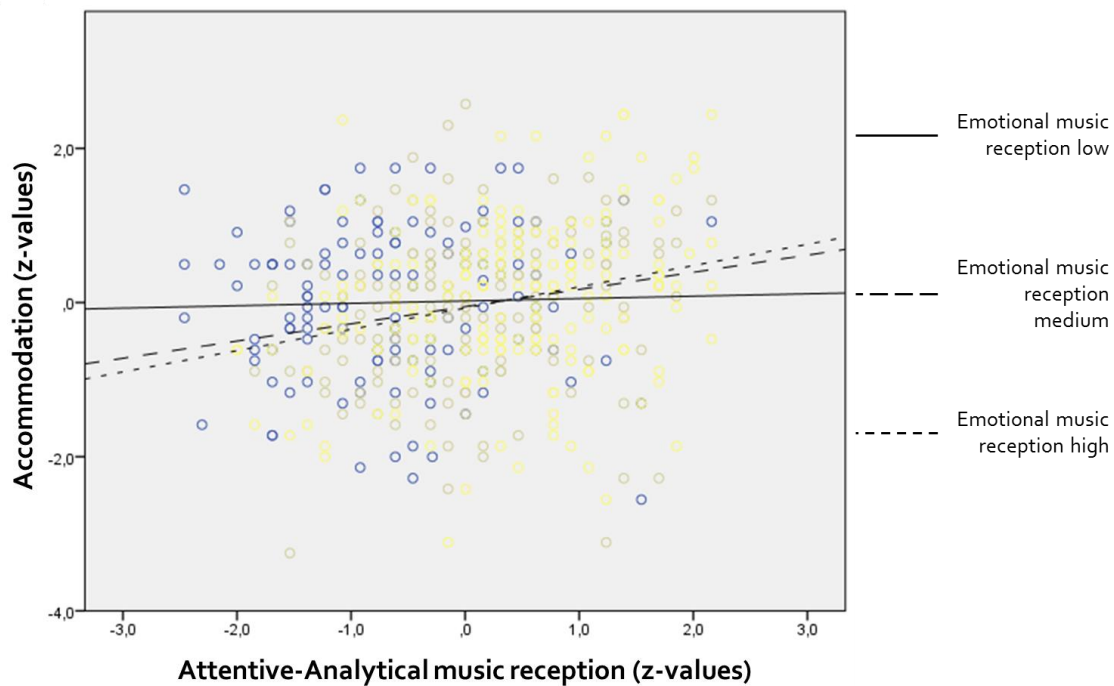


Figure 2. Regression analysis for accommodation: Emotional listening moderates the relationship between attentive-analytical listening and accommodation.

4. Discussion

In general, both studies indicate relationships between music reception and accommodative regulation processes. The results of Study 1 suggest that music may influence accommodation via affective evaluations. The preference for the music was higher than for the pictures. Participants who liked the examples had significantly higher values on the scale measuring accommodation. A possible explanation for this result might be that participants were put in a positive mood if they liked the stimuli. According to the broaden-and-build theory of positive emotions (Fredrickson, 2006), such a positive emotional state broadens the focus of attention and therefore facilitates accommodative mechanisms (Brandtstädter, 2011). If

the focus of attention is wide, alternative goals become available and replace blocked life-plans. However, the present study did not measure changes in participants' mood during the course of the training. Further studies have to examine more closely whether and how the stimuli do influence participants' mood, which in turn facilitates accommodative mechanisms.

Study 1 also showed a significant connection between the structure of personal goals and accommodative mechanisms, namely, the higher the complexity of the goal structure, the higher accommodation was. This result is in line with the assumptions of the dual-process model which assumes that a multifaceted self structure renders alternative options to be more accessible (cf. Rafaeli & Hiller, 2010). However, we found that training partic-

ipants in complex art reception enhanced the complexity of their personal goal structure as measured by the text complexity.

An interesting path was found from the training condition to assimilation, linked by text complexity and perceived task performance. Assimilation was significantly predicted by less difficulty during the training. This might be due to a possible influence on participant's self-efficacy (Bandura, 1997) which is beneficial for assimilative strategies (Brandtstädter, 2011).

The results of Study 2 shed more light on previous cross-sectional studies of the connection between accommodation and complex music reception (Loepthien & Leipold, 2013). The regression analysis suggests that the interplay of attentive-analytical and emotional music reception plays an important role in accommodative mechanisms. High values in attentive-analytical music reception significantly predicted higher flexibility in adjusting personal goals. This association was moderated by emotional listening. Participants who emphasize emotional aspects during music reception showed a higher correlation between attentive-analytical music reception and accommodative processes. These results show the importance of examining the interplay between cognitive and emotional aspects of music reception for research. The importance of both cognitive and emotional processes for developmental regulation has been discussed by Labouvie-Vief (2005) in the dynamic integration theory. This theory claims that structural aspects of thought (e.g., cognitive differentiation, complexity), in short, the processes of cognitive development as introduced by Piaget, are important characteristics of successful development. Logical analysis and problem solving abilities and the related adaptation of cognitive schemata constitute a domain traditionally called epistemology. The underlying processes refer to the question of what we can know. The ability to analyze a piece of music, for instance, to listen attentively, and to see various parameters, possibly deals with schema differentiation and complexity and thus provides a cognitive basis for accommodation (flexible goal adjustment).

These rather cognitive, logical processes, however, are perhaps not comprehensive enough to characterize processes of coping, problem solving, or development regulation in adulthood. They do not necessarily entail feelings, hopes, desires, and emotions. Many of the problems adults have - one can also say some of their identity projects and attitudes - are value-loaded and refer to emotionally *hot* matters (Labouvie-Vief, 2005). Thus, emotions are dynamic and arise out of social relations or social problems, which one cannot or will not solve by logical arguments or epistemological facts. Of course, emotional reactions may have specific causes, but they are not under immediate personal control like the knowledge about well-learned problem-solving strategies.

The role of emotions in the light of the dual-process model of development regulation is manifold (Brandtstädter, 2011). Positive emotions can lead to planned actions; they are part of self-evaluations (high self-esteem), and indicate personal importance. They are a central part of development regulation and influence the dynamic between goal pursuit and flexible goal adjustment. Depressive states, for instance, indicate that problems have not been solved for the individual, although an inevitable loss (e.g., a severe disease) has been acknowledged.

Emotional reactions towards music are not limited to short-term affective fluctuations that occur while we listen to a song and feel happy or sad. Emotional listening can also indicate that music is of great importance for the self— as is the case for many individuals. To this effect, music is a reminder of what Harry Frankfurt (1982) has called the importance of what we care about. For many people, music is personal matter, an ideal, and a source of meaning and, as such, a part of accommodation. Against this background, attentive-analytical listening is not a mere cold cognitive process that hinders feelings or “authentic interpretation”, but rather a level of processing that can be learned to a degree – and we assume that this effort could be helpful in hearing differences, progressions, aesthetic qualities – or perhaps a part of the beauty of the music.

We know that our data are not specific enough to test these assumptions, rather, we believe that the role of music in the process of coping and development regulation is manifold and that it would be worthwhile to invest in research to understand how individuals cope with challenges and how music can contribute to adaptation.

A complete understanding of the general psychological mechanisms of goal-adaptation processes requires knowledge about the interaction between relevant factors (e.g., attention, information-processing, motivation, evaluation, as well as sociocultural constraints) that contribute to the changes in adaptation. Of course, further studies are needed to analyze more precisely the processes underlying the connection between music reception and accommodation. For example Study 1 should be enhanced by a listening condition that triggers emotional listening. In addition, studies with a longer time-span for the training need to be conducted. Also, research with a more representative sample is needed. As accommodative mechanisms gain importance across the life-span (Brandtstädter & Greve, 1994), it would be particularly worthwhile to include a broader age range in the sample. Future research expanding the results reported in the present paper is beneficial because music reception might be a way to positively influence accommodative mechanisms.

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