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The Influence of Music Genre, Style of Singing, and Gender of Singing Voice on Music Preference of Elementary School Children

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ABSTRACT

Hargreaves' (1982, 1995) research on childrens' development of music preference, which led to the hypothesis of "open-earedness", has often been replicated and initiated empirical studies on different aspects. The presented study adds new perspectives with its longitudinal design and its systematically controlled variables style of singing and gender of singing voice. Results of the first measurement with N=313 first graders of five schools will be discussed. Participants indicated their liking of eleven music examples from six music genres on a five-point rating-scale. For each music genre (except World Music) male and female singers were presented as well as different styles of singing (Belcanto, not Belcanto / Jazz). The Jazz examples were recorded especially for the study and are based on the same song, thus, eliminating the possible influence of the musical structure of the song itself. Unexpectedly, children did not show broad acceptance for different music genres, as pop music was already preferred most. Furthermore, gender differences with regard to style of singing and gender of singing voice were detected. The impact of these findings on the hypothesis of "open-eardness" – more than 25 years after it was enunciated – will be discussed.

I. INTRODUCTION

Musical preference and its development have been investigated extensively over the last decades. Major impact on this aera of research has to be attributed to the many studies Hargreaves (e.g. 1982a, 1982b, 1995) conducted. Hargreaves coined the term "open-earedness" to summarize his findings that younger children show more openness to a wide variety of musical styles that adolescents or adults.

Thus, age seems to be a major factor in developing musical preference. LeBlanc (1991) investigated this age-dependency in detail and formulated four hypotheses to characterize preference development over the life-span: The broad musical tolerance ("open-earedness") of early childhood declines sharply with moving into adolescence, increases again during adulthood, and finally declines again as old age is reached. Apart from age, further factors relevant to this development have been identified, e.g. gender of listeners, musical experience, or personality.

Among others, Gembris & Schellberg (2003, 2007) and Kopiez & Lehmann (2008) found a general decline of open-earedness as well as gender effects already for elementary school children. According to Gembris (2005), the starting point for the reduction in musical tolerance lies around an age of nine years.

Gembris & Schellberg (2003) also focussed on tolerance for opera singing (Belcanto) and also found the expected decline. On this basis, Schellberg (2006) conducted a study into the effect of music education on tolerance for opera singing. She found that especially girls responded positively to action-based music teaching and indicated high preference for Belcanto arias they had been singing in class.

In a follow-up study, we were able to replicate Schellbergs' and Gembris' findings (Lehmann-Wermser, Liermann & Busch, 2008) and started a longitudinal study with five elementary schools. The results of the first measurement (school enrolment) will be presented in this paper.

II. AIMS AND QUESTIONS

With our study we aim to add new perspectives on the factors possibly relevant for the development of music preference. Firstly, we chose a longitudinal research design and will combine preference ratings with structural data as well as qualitative data. This might help to identify relevant aspects not yet considered in the preference discussion. Secondly, we are interested in the interrelations of the possibly influencing factors. Therefore, musical examples were chosen or especially recorded to systematically control the independent musical variables genre, style of singing, and gender of singing voice.

For the first measurement participants are expected to give positive aesthetic ratings for a broad variety of music examples. Differences due to the musical variables should not yet show, as participants should – according to research – still be open-eared. With regard to gender on the other hand, it can be expected that differences in preference ratings already show, with generally less open-earedness in boys.

III. METHOD

A. Participants

The participants are pupils of five elementary schools from Bremen, Germany. The Head of each school decided whether his school would take part in the study. All parents gave written consent on behalf of their children on a voluntary basis. Data collection at the first point of measurement included N=313 pupils (164 male; 158 female; 1 missing; age between 5 and 7 years at school enrolement).

B. Points of measurement

The study was planned as a longitudinal study with three points of measurement: The first measurement took place at school enrolement in October 2007. The second measurement is planned for the beginning of the third year in school (October 2009). And the third and final measurement is projected for the beginning of the fourth year in elementary school (October 2010). Calculating with a sample mortality of around 20%, we hope to collect N=250 complete sets of data.

Table 1. Music Examples used in the sound questionnaire on musical preference.

Genre	Composer / Interpreter	Title	Style of singing	Gender of singer	Duration	Tempo bpm
Pop	*NSync	It's gonna be	Belcanto	male	''36	82
Pop	Jessica Wahls	Ten steps back	not Belcanto	female	''36	100
Schlager	Manfred Krug	Liebe kleine Schaffnerin	not Belcanto	male	''37	68
Schlager	Gitte Haenning	Ich bin stark	not Belcanto	female	''34	86
Opera	E. Humperdinck (Andreas Schmidt)	Hunger ist der beste Koch; Hänsel und Gretel	Belcanto	male	''35	64
Opera	W.A. Mozart (June Anderson)	Der Hölle Rachen; Die Zauberflöte	Belcanto	female	''39	52/104
Popular	E. Granados (Andrea Bocelli)	Besame mucho; Goyescas	Belcanto	male	''41	48/96
Popular	A. L. Webber (Sarah Brightman)	Phantom of the Opera; Phantom of the Opera	Belcanto	female	''40	62
Jazz	J. Kosma (Gunnar Brandt)	Autum Leaves (Part A)	Belcanto	male	''34	60
Jazz	J. Kosma (Christiane Liermann)	Autum Leaves (Part B)	Belcanto	female	''33	64
Jazz	J. Kosma (Gunnar Brandt)	Autum Leaves (Part A)	not Belcanto	male	''32	60
Jazz	J. Kosma (Christiane Liermann)	Autum Leaves (Part B)	not Belcanto	female	''33	64
World Music	Wolfgang Saus	Overton Singing	not Belcanto	male	''29	72

C. Questionnaires

The research design includes quantitative and qualitative data collection. The main questionnaire repeated throughout the three points of measurement is a sound questionnaire to investigate music preference judgements. This questionnaire includes nine music examples of five different music genres (Schlager, Opera, Pop, Popular [musical, ballade], and World music) and four music examples of a Jazz-Standard especially recorded for the study. The examples for the genre Opera were adopted from Schellberg & Gembris (2003).

The combination of the music examples presented in Table 1 had to satisfy the following criteria: For each genre one example sung by a female singer and one sung by a male singer had to be presented. The genres had to differentiate according to the style of singing – mainly reduced to Belcanto style of singing or not – as research suggests that Belcanto style of singing is highly disliked. Searching for music examples with Belcanto style of singing that might be more accepted by pupils than Opera led us to the genre termed "Popular". Additionally, the tempi of the music examples should spread within a rather narrow span. This criterion was not fully met as the tempi are ranging between 62 bpm and 104 bpm.

Of special interest are the four Jazz examples recorded for the study in order to examine the independent variables gender of singing voice and style of singing on the same piece of music, as the male and female singer sang to the identical music track. Thus, the influence of the concrete piece of music on music preference could be excluded.

The overtone example (World music) was included to analyse participants' preference ratings for (most probably) highly "unconventional" music. For the analysis provided in this paper, this example is not relevant, as the independent variables could not appropriately be applied.

Further questionnaires to be used in the second and third point of measurement will examine participants' musical behaviour and experience, their parents' musical activities and socioeconomic background, as well as the teachers' formal music training and teaching experience.

Finally, qualitative interviews with groups of five pupils will be conducted at second and third point of measurement. The interviews will among others investigate the subjective explanations for music preferences.

D. Procedure

Participants were tested within their school, during school hours, and together as school class (groups of around 20 pupils). They listened to the music examples (each about 30 sec) and used the silence between the examples (2 min) to indicate their preference on a five-point iconic rating scale (smileys from 1 "strong liking" to 5 "strong disliking"). The music examples were arranged in two orders of presentation (see Table 2). The four versions of the Jazz example were presented split-half.

Table 2. Orders of stimulus presentation (F: female singer; M: male singer; Bel: Belcanto style of singing).

Order 1		Order 2
Schlager M	→	Schlager M
Jazz M	→	Jazz F
Oper M	→	Opera M
Popular F		World Music
Pop M	⤫	Opera F
Opera F	⤫	Pop M
World Music	⤫	Popular F
Schlager F	→	Schlager F
Jazz Bel F	→	Jazz Bel M
Pop F	→	Pop F
Popular M	→	Popular M

IV. RESULTS

The data is not normally distributed, but shows homogeneity of variance (exception: Pop F). Thus, nonparametric data analysis was applied. With only few exemptions, no general differences were found between the five schools, the different classes of one school, or the two orders of stimulus presentation (Kruskal-Wallis-Test; $p < .05$).

Descriptive statistics (see Table 3) showed that Pop examples overall obtained best ratings (exact median Pop M: 1.28; Pop F: 1.29) and lowest dispersion, whereas examples in Belcanto style of singing received worst ratings (e.g. Oper F: 3.63), but showed highest dispersion (semi-quartile range Oper F: 1.61). There are two exemptions of this general tendency: The Popular example sung by a female singer in Belcanto style was rather consistently liked (exact median Popular F: 1.94) and the Jazz version recorded with a female singer using Jazz style of singing was consistently rejected (exact median Jazz F: 3.57). Male participants least liked the Opera example (Belcanto) sung by a female singer (exact median Opera F: 4,25), while female participants disliked the male sung Jazz version in Belcanto style most (exact median JazzBel M: 3,47).

Table 3. Exact median and distribution for preference ratings, test for normal distribution of rating categories, and test for differences in boys' and girls' ratings.

Genre and gender of singer	Exact median	Semi-quar. range	Chi^2-Test	MW-U-Test
Pop M	1.28	- - - -	.000	.144
Pop F	1.29	- - - -	.000	.141
Schlager M	2.21	1.38	.000	.075
Schlager F	2.36	1.41	.000	.001
Opera M	2.82	1.47	.000	.306
Opera F	3.63	1.61	.000	.000
Popular M	3.34	1.63	.000	.410
Popular F	1.94	1.29	.000	.002
JazzBel M	3.37	1.57	.000	.233
JazzBel F	2.53	1.45	.000	.248
Jazz M	2.71	1.45	.000	.254
Jazz F	3.57	1.30	.000	.000
World Music	2.13	1.43	.000	.139

Gender differences in the aesthetic judgements were observed for four examples – both with (Opera and Popular) and without (Schlager and Jazz) Belcanto style of singing – but only for the examples sung by the female singer respectively. Boys' ratings of these four examples were consistantly worse than the girls' judgements (Mann-Whitney-U-Test; $p < .005$).

Differences within each musical genre regarding gender of the singing voice were found for girls in the Belcanto genre Popular only (Wilcoxon-Test; $p = .000$). Whereas for boys, gender of singing voice seemed relevant to their ratings for the genres Opera, Popular, and Pop ($p < .002$) (see Figures 1 and 2).

Further analyses of the four Jazz examples revealed that girls and boys did not differentiate in overall preference judgements, although significant results were only obtained for either girls' or boys' ratings (see Table 4).

Table 4. Differences in preference ratings regarding the independent variables gender of singing voice and style of singing (Mann-Whitney-U-Test).

Four Jazz examples	Boys' ratings	Girls' ratings
Jazz style	.001	.566
Belcanto style	.516	.003
Male singer	.849	.014
Female singer	.000	.302

Looking at the two versions sung in Jazz style of singing, analysis showed that boys prefered the male singing voice. For the versions sung in Belcanto style girls indicated highest liking for the female singer (see Table 4, Figures 3 and 4). Analysing the two female sung versions only, boys prefered the version with Belcanto style of singing best. Whereas looking only at the male sung ones, girls showed best ratings for the versions with Jazz style of singing (see Table 4, Figures 5 and 6).

In order to investigate the influence of the independent variables on the aestehtic judgements ordinal regression analysis was applied. Significant results were obtained for the Jazz examples only: For the two versions sung in Jazz style, the factors gender of recipient and gender of singer explained 9,85 % of variance (.000). For the two versions of the Jazz example sung by the female singer, the factors gender of recipient and style of singing explained 11,1% of variance (.000).

V. CONCLUSION

Contrary to our hypotheses, firstgraders already showed differentiated aesthetic judgements. The music genre Pop was liked most, with no difference concerning gender of participants or gender of singer. Examples sung in Belcanto style of singing generally received worst ratings, although this rejection was not (yet) as unanimous as the Pop ratings. Overall, the preference ranking of the music genres one would expect for older children already showed at the age of five to seven years. Whether this indicates an earlier start of the decline in open-earedness remains to be investigated.

On the other hand it has to be stressed that only in three cases the median of the ratings for boys and girls together was higher than 3, meaning that only these three examples out of eleven were disliked. Thus, although we already observed the Pop preference typical for decline in open-earedness, firstgraders still appeared to be relatively tolerant towards different musical genres.

Our expectations regarding gender differences were met: Overall, girls seemed more open towards different music examples, whereas boys articulated more differentiated preferences, especially dislikes. Interestingly, gender of singing voice appeared to influence these gender differences, as they were only found in examples sung by a female singer. The analysis of the Jazz examples added the interesting aspect, that the combination of male singer and Jazz style of singing and the combination of female singer and Belcanto style of singing were liked best by girls and

boys. Given that both singers were equally well trained in both styles of singing, singing expertise is unlikely to explain this observation. Hence, we will have to investigate whether gender-specific socialisation regarding style of singing accounts for it. Linked to this aspect is the question why boys generally expressed stronger views about their musical preference. Our longitudinal study will follow up these questions and will also focus on possible effects of school or school class, which might be due to migration background or music lessons.

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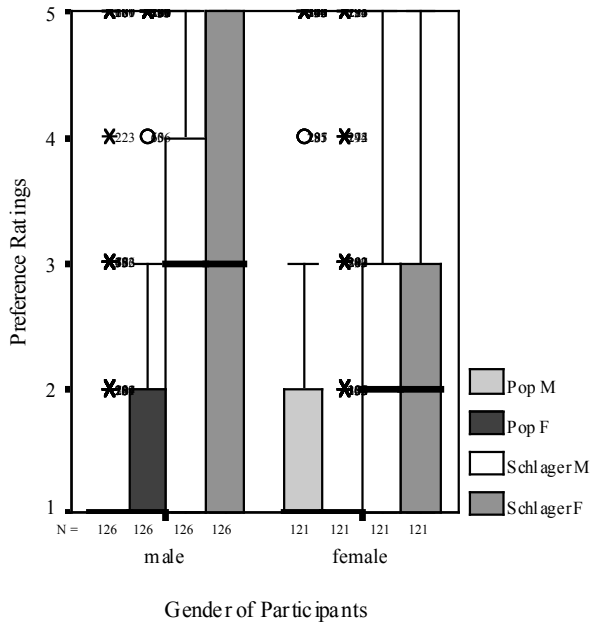

Figure 1. Boxplots of preference ratings for music genres without Belcanto style of singing

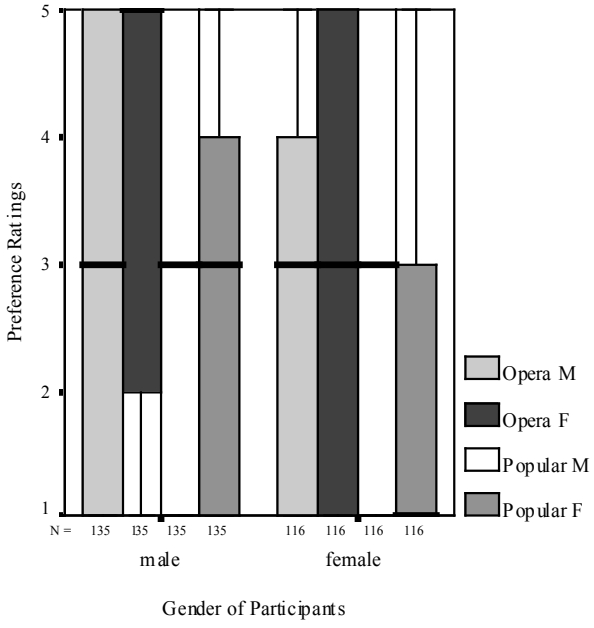

Figure 2. Boxplots of preference ratings for music genres with Belcanto style of singing

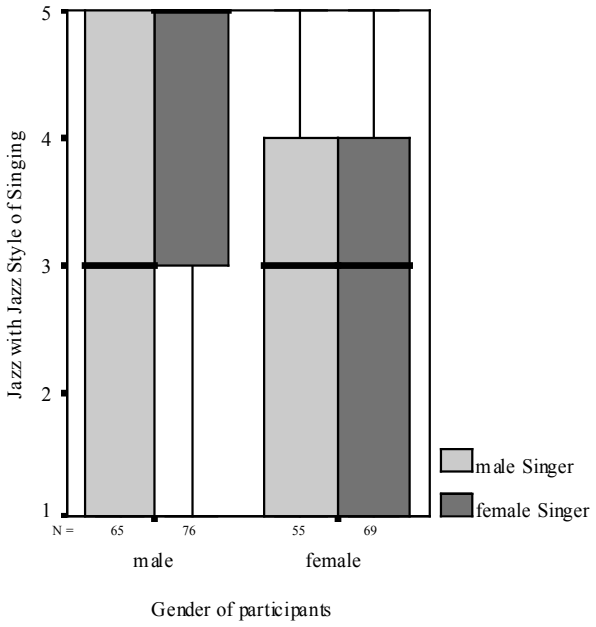

Figure 3. Boxplots of preference ratings for the two versions of the Jazz examples sung in Jazz style of singing

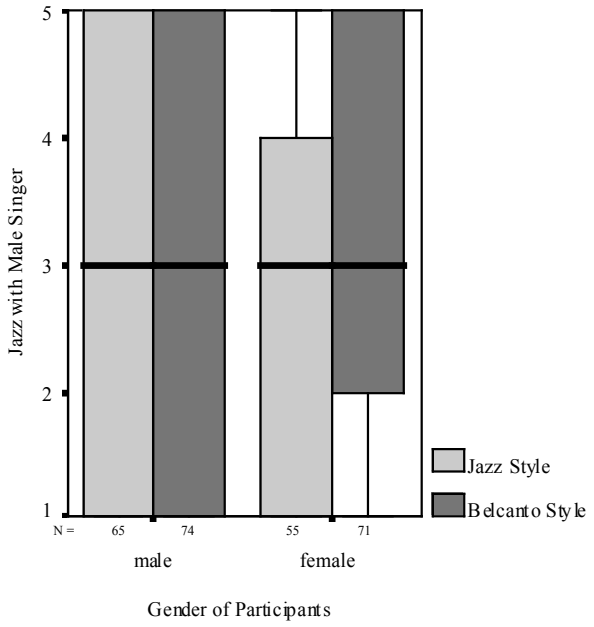

Figure 5. Boxplots of preference ratings for the two versions of the Jazz examples sung by male singer

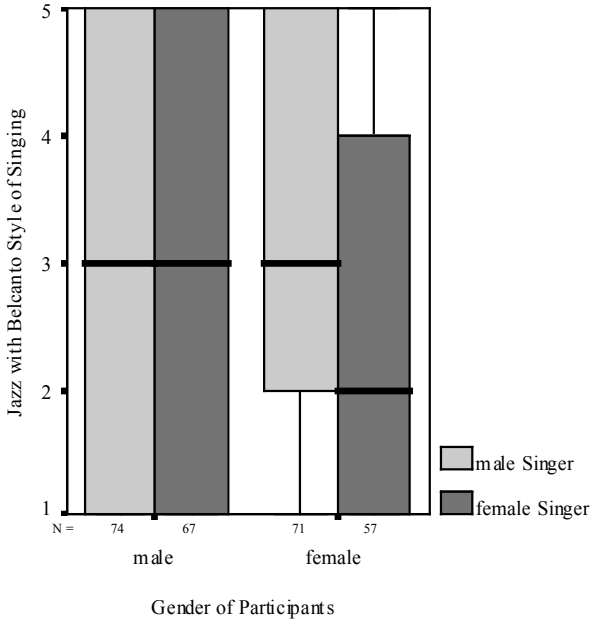

Figure 4. Boxplots of preference ratings for the two versions of the Jazz examples sung in Belcanto style of singing

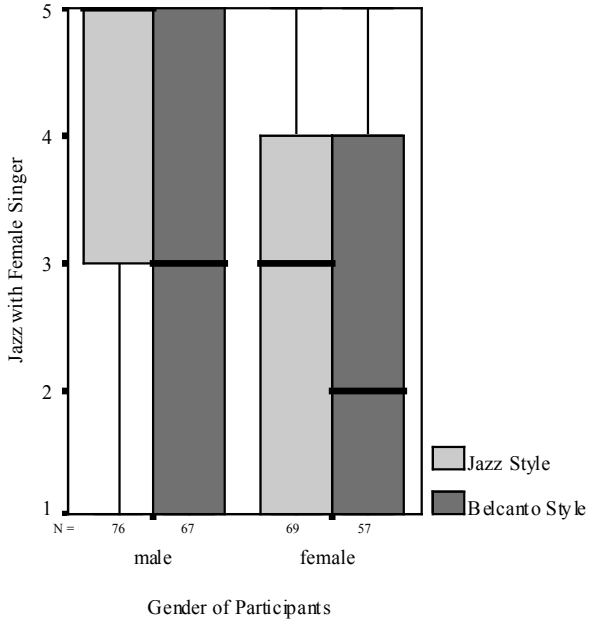

Figure 6. Boxplots of preference ratings for the two versions of the Jazz examples sung by female singer