

# **Joint Project with the Stuttgart Symphony Orchestra and the University of Education Freiburg – “Peter and the Wolf” – Evaluation Study of a Multisensory Approach Conception**

*Georg Brunner*

*Department of Music, University of Education, Freiburg (D)*

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## **ABSTRACT**

Educational projects conducted by symphony orchestras often focus only on one aspect of the music (e.g., cognitive or emotional). The concept of an educational project presented here integrates various senses with regard to multisensory learning and combines them in order to promote a holistic approach to music. Through this study, I aimed to investigate how various stakeholders (pupils, teachers, university students, and musicians) perceive the concept of a music education project. This project integrates multisensory approaches, employs learning stations, and incorporates a popular TV presenter during concert preparations. Data from  $n = 592$  people were assessed. Semantic differentials, various items, and open questions were used to assess the pupils' perception of the concerts. The data analyses consisted of descriptive statistics and the analysis of variance. The results showed a beneficial effect for all stakeholders of original encounters with music and of the above-mentioned multisensory learning approach. Moreover, gender differences appeared in the evaluation of the learning stations. In addition, the pupils' status of playing a musical instrument was particularly important in “learning”, and age was significant for the basic acceptance of this approach. Based on these results, implications for music educators were provided in order to create age-/gender-specific offers and to test transferability to other music pieces.

## **KEYWORDS**

connecting schools to orchestra, evaluation study, multisensory, music education project, primary school

## INTRODUCTION

Individuals in charge of symphonic orchestras have been conducting educational music projects for several years. The question arises as to why such music education projects are carried out. One reason was undoubtedly to introduce pupils to classical music. These concepts were different, but they often focused on cognitive aspects, e.g., the introduction to works, knowledge about instruments and timbres, as well as an initial encounter with music or enabling emotional experiences, play-along actions with the orchestra, composing with children, discussion concerts, embedding the concerts in stories or instrumental classes in cooperation with an orchestra (Mall, 2016; Schlemmer & James, 2011; Schwanse, 2003; Vidulin et al., 2021). In addition, opportunities for making music or participating in music were developed, especially for children from socially disadvantaged backgrounds, to contribute to social integration or enable access to a “foreign musical culture”. In this context, there were several projects, e.g., in Liverpool (“In Harmony Liverpool”, n.d.), following the El Sistema educational program (“What is El Sistema?”, 2017), Berlin – Rhythm Is It, 2023 (“Das Education-Programm der Berliner Philharmoniker”, 2023) or New York (Carnegie Hall, 2023) that could be quoted here. A consistent outcome across these diverse programs is the profound impact of a direct, live concert experience and the active engagement of the students (Vidulin et al., 2021; Winterson, 1994).

The individuals in charge of the SWR Symphony Orchestra Stuttgart (which is a partner in the presented concept) have already carried out several educational projects – SWR #LOVE MUSIC (Mall, 2016).<sup>1</sup> These include family concerts with different themes (targeted at children aged 5 and up, along with their families), school concerts with introductory materials for teachers and pupils, lunchtime concerts, talks with orchestra members, the “Line 2” format with unconventional programs, or opening the orchestra with rehearsal visits and so on.<sup>2</sup>

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<sup>1</sup> SWR (2022) advertises with: “The musical repertoire covers all epochs, ranging from classical music and jazz to experimental electronic music – and it’s not just about listening, but also about trying out and explore it for yourself. The rule here is: every visit – no matter what the format – is a discovery.”

<sup>2</sup> “The SWR orchestras work closely with music teachers from all types of schools. Visits to rehearsals and concerts, workshops at schools, and talks with professional artists inspire some 15,000 young people throughout the country every year. A permanent staff of music educators also develops numerous concert didactic aids. The result is an attractive offer for lively music lessons inside and outside the classroom, which

The study falls within the realm of “Children and Family Concerts”.

In this evaluation study, I aimed to investigate the effects of the concept of a music education project (*Peter and the Wolf*) that is guided by a multisensory approach and learning station methods with integration of a popular TV presenter and incorporates the acceptance or assessment of pupils (aged 6–11), teachers, university students, and musicians. As far as I could discern, it is worth mentioning that there are no empirical evaluation studies. Thus, the following hypotheses guide this contribution.

Firstly, I assume that a multi-perspective research approach is essential for concept evaluation. This could be attributed to the fact that different actors in the field have varying ideas and attitudes that can be significant for further concept development (Palomares et al., 2018). Therefore, musicians, pupils, university students, and parents were surveyed.

Secondly, I assume that a multisensory approach in combination with learning station methods and the integration of a popular TV presenter has a positive effect on the acceptance and evaluation of this “Children Concert” of pupils (aged 6–11), teachers, university students, and musicians.

Thirdly, there were various findings from other areas suggesting that children who did not receive musical support outside of school (e.g., private instrumental lessons) benefit particularly well from musical support inside school settings (Brunner, 2022). Likewise, there are already indications that an original encounter with concert situations has positively affected the pupils (Bernhofer, 2022; Vidulin et al., 2021).

Finally, I assume that gender-specific aspects and age play a central role in evaluating classical music, in which this concept is situated (Dobrota & Medikovic, 2021).

## **MULTISENSORY LEARNING**

Multisensory learning is based on the assumption that individuals learn better if they are taught using more than one sense, such as auditory, visual, and other senses (Ayres,

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provides children and young people with lasting emotional, artistic-aesthetic, appreciative, and value-forming experiences.” (SWR, 2022)

2005). The senses typically employed in multisensory learning are visual, auditory, kinesthetic, and tactile, which enable the brain to make more associations through the additional input created by the different sensory impressions (Botts, 2006). This approach makes it easier to understand and store the learning content (Thomson, 2010). According to the U.K. independent review of the teaching of early reading (Rose Report, 2006), multisensory learning is also effective because it keeps students more engaged in their learning.<sup>3</sup> Recently published results in cognitive science have shown that multisensory integration facilitates more efficient learning (Rao, 2018).<sup>4</sup> This approach is supported in the scientific literature (e.g., Ho et al., 2022; Stover, 1993), in music education and practice (“What is Multisensory Teaching in Music?”, 2020). Comparable approaches can also be found in music therapy, such as when working with adults with severe dementia (Maseda et al., 2018). Despite some controversial discussions,<sup>5</sup> a positive effect of a multisensory approach is assumed in this study.

## METHODOLOGY SECTION

### THE CONCEPT OF THE MULTISENSORY APPROACH IN THIS PROJECT

The development of the concept of the multisensory approach was embedded in a seminar called “Musicology/Professionalization”. The seminar's main topic was the “teaching of program music” in class in general. The seminar took place in cooperation with the Stuttgart Symphony Orchestra. The second part of the seminar focused on the

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<sup>3</sup> In 2010 the U.K. Department of Education established the core criteria for programs that teach school children to read by using systematic Synthetic phonics. It includes a requirement that the material uses a multi-sensory approach so that children learn variously from simultaneous visual, auditory, and kinaesthetic activities which are designed to secure essential phonic knowledge and skills (“Multisensory learning”, 2023).

<sup>4</sup> Multisensory is distinguished here from the narrower sense of synaesthesia (Cytowic, 1989).

<sup>5</sup> Some neurologists question whether more is “actually better for learners who are struggling”. The rationale is that learners with developmental disorders may have impairments in cognitive control, planning, and attention, so multisensory integration might place additional demands on systems that are already straining. Consequentially, it is suggested, it may be better to narrow the alternatives to one that works. Other studies suggest that multisensory integration only develops optimally by middle childhood (i.e., eight years of age or older) (“Multisensory learning”, 2023).

development of station learning for the pupils, in partnership with the Stuttgart Symphony Orchestra.

To implement this concept of the multisensory approach to meet the requirements of the SWR Symphony Project and to transfer these effects of the multisensory approach into a learning setting, a combination with the learning station method was chosen. In the learning station method, an object of learning is divided into sub-aspects. Thus, the pupils are given various learning opportunities that address different input channels or forms of representation (e.g., iconic, enactive, symbolic) (Bauer, 2009; Karacali et al., 2019; Lankenkamp & Malottke, 2014). Ideally, one sense should be addressed per station. One musician, the Orchestra, and the moderator (see below) were included in the different stations, reflecting an original encounter with music. There were time constraints for the concept set by the orchestra management. In total, the learning stations should not take longer than 30 minutes, equating to approx. 4–5 minutes per station. Moreover, the experiment took place in the foyer of the concert hall, all in preparation for listening to the entire piece.

The university students developed a station tour (involving musicians, orchestra, conductor, and moderator) in different groups with a multisensory approach for the five senses: hearing, smell, taste, touch, and sight (see above). The idea was not to describe the content of Prokofiev's piece, but to develop empathy with selected sections of the work in a heuristic approach through multi-sensory settings (see Table 1). The concept was developed in an iterative process using design development techniques (Prediger, 2015; Bakker, 2018). The stations were tested several times in the seminar group, developed further, presented to an expert from the SWR Orchestra, and adapted again.

In the concert hall, four tours (Figure 1) were conducted concurrently before listening to the whole piece in a concert situation (Brunner, 2020). Different musicians and students performed the hearing, smell, taste, and touch stations. The Sight station was performed by the orchestra, the moderator, and the conductor and was thus the same for all pupils.

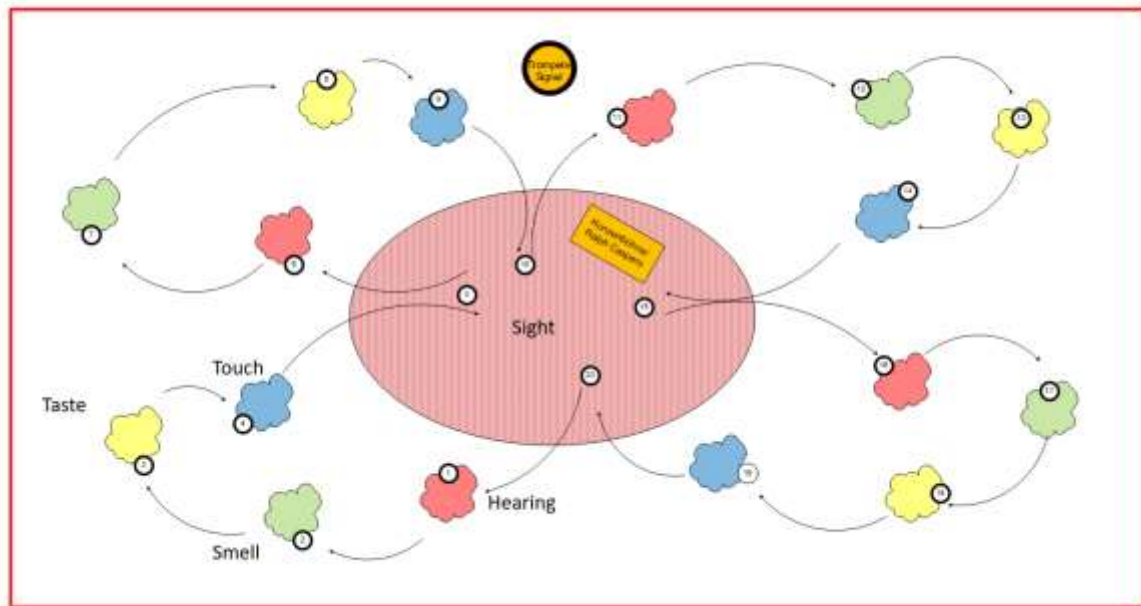


Figure 1: Station learning in four groups (source: author of the contribution)

Primary and secondary schools (grades 1–6, ages 6–12; see also Figure 4) in Baden-Württemberg (southwest of Germany) were invited via the office of the SWR Symphony Orchestra. All participants were pupils from public education schools. There, music is taught for one or two hours (45 minutes each) per week. However, the proportion of teachers who do not specialize in music (i.e., who have not studied music) is relatively high (approx. 80 %).

About 4000 pupils participated in the project over a total of eight performances. Students from the University of Education Freiburg attended the performances. The story of Peter and the Wolf was narrated during the performance by Ralph Caspers, a popular TV presenter of children’s programs in Germany.

Table 1: Description of the individual learning stations<sup>6</sup>

Sense	Actions	Objectives
Sight	Presenting and guessing characters from <i>Peter and the Wolf</i> (moderator, conductor).	Get to know the tasks of a conductor in an action-oriented way to get to know the different actors of the piece (pantomimic).
Hearing	Mirror images in partner work with two music excerpts from <i>Peter and the Wolf</i> – the pupils discuss with each other using a poster with adjectives.	Supported exchange about the description of the music, to be able to recognize the audio clips later in the performance of <i>Peter and the Wolf</i> .
Taste	The pupils received food twice (chocolate) and listened to 2 different music pieces from <i>Peter and the Wolf</i> . The input was: “We are looking for chocolate for a cake for the conductor”. Final reflection.	Raising awareness of the influence of music on taste. The aim is to find out whether music has an influence on the sense of taste and whether tasting perception changes, even though the only thing that changes is the music playing at the time of the tasting.
Smell	Smelling: Different smells in 4–6 glasses – each smell represents a situation. The pupils had to choose cards with pictures and place them into the correct box.	Raising awareness of the mood of the forest.

<sup>6</sup> A detailed description with materials (though only in German) can be found in Brunner (2020).

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Touch	Sitting in a circle and listening to a story and themes from <i>Peter &amp; the Wolf</i> played by a musician. The pupils recreate movements of the animals/characters of the story on the backs of other pupils.	This involved a macro movement transposition of music. The pupils should portray and perceive four animals with their sense of touch and the sensations of their skin. They were encouraged to immerse themselves in the story meditatively,  and later identify the characters during the performance of <i>Peter and the Wolf</i> .
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## ETHICS AND SAMPLE

Before describing the sample in more detail, a brief discussion of the human ethics processes is necessary. The entire evaluation was approved through a review process of the ethical processes by the Ministry of Culture of the State of Baden-Württemberg, Germany (Approval from the Ministry dated 29. 3. 2019). Teachers and musicians were informed about the procedure of the survey by cover letter, the voluntary nature of participation in the survey, and the assurance of anonymity.

The survey at schools in Baden-Württemberg is based on the following premises:

In Baden-Württemberg, participation in scientific surveys is voluntary for schools, teachers and pupils; no disadvantages arise from non-participation. In the information letters to the school principals, teachers and pupils, it must be clearly pointed out that the endorsement of the survey by the Ministry of Education and Cultural Affairs is not connected with any scientific quality control, but that the examination was only carried out according to legal criteria, especially data protection laws. The Ministry's approval is not connected with an invitation to participate in the study. Individuals must not be identifiable from the presentation of the study results. Furthermore, publishing class or school-specific results is prohibited. The data obtained may not be used for other



purposes, and both anonymity and the provisions of data protection must be guaranteed at all times.<sup>7</sup>

A total of 8 concerts took place. Only the concert in Freiburg was surveyed: The sample consisted of n = 592 people (n = 271 female, 45,8 %; n = 313 male, 53,4 %; n = 8 nonbinary, 0,8 %), of which n = 7 were university students, n = 11 musicians, n = 36 teachers, and n = 538 pupils. 53 % (n = 314) of the pupils were learning to play a musical instrument outside of school. About 45 % (n = 272) were in grades 3 and 4 (8 to 10 years of age).

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<sup>7</sup> Likewise, the parents of the pupils were informed as follows (Translation from German):

“The SWR Symphony Orchestra regularly performs concerts for school children. In April, the performance of *Peter and Wolf* by S. Prokofiev is on the programme. In cooperation with the Institute of Music at the Freiburg University of Education, a station course has been developed to address the various senses. This development project is to be evaluated. For this purpose, we would like to get feedback from the pupils.

An assessment by the pupils is to be collected.

The questionnaire will take max. 15 minutes and is strictly anonymous, i.e., the children’s names will not be recorded.

Participation is voluntary. Both your child and you can withdraw your consent at any time and without giving reasons. Non-participation is not associated with any disadvantages. All data collected will be completely anonymized before it leaves the school, stored electronically, used exclusively for scientific purposes (including publications in professional journals) and deleted after the study is completed.

The approval of the survey by the Ministry of Education and Cultural Affairs does not imply any scientific quality control, but the examination was only carried out according to legal, especially data protection criteria.

It is important for us to inform you as parents and guardians about this survey and we hope for your support. If you agree to participate, we would like to ask you to sign the consent form on the back and give it back to your child.”

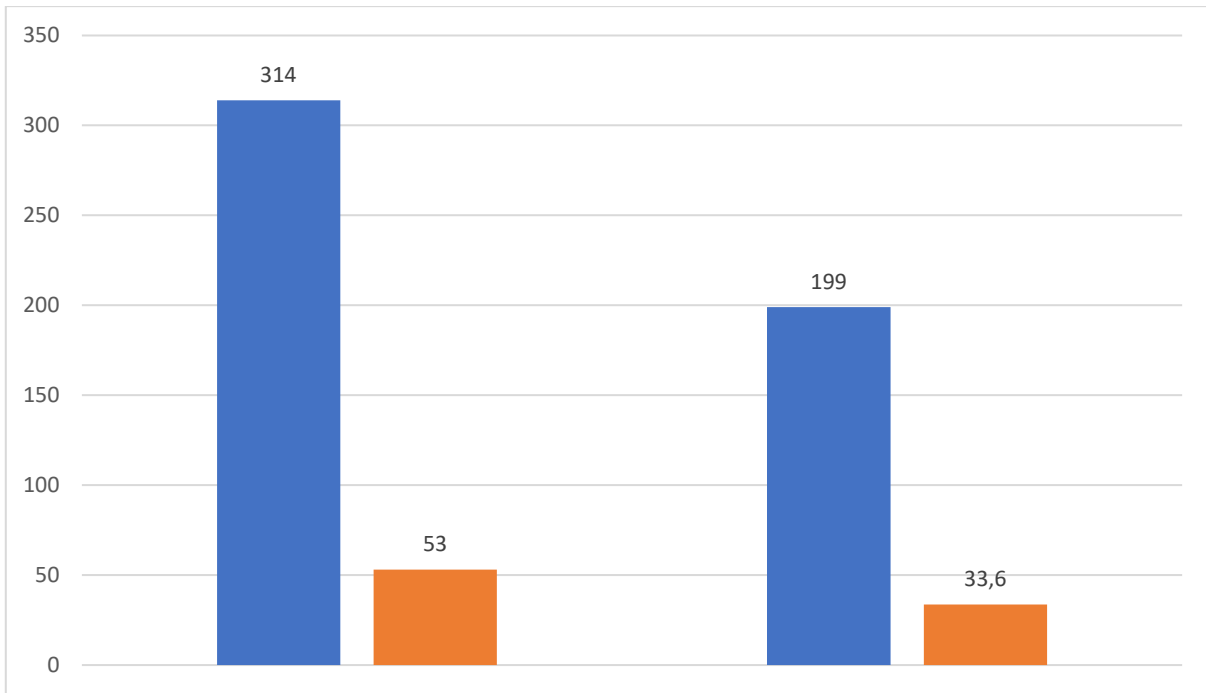


Figure 2: The group of pupils learning to play a music instrument outside of school (blue = absolute numbers; red = percent)

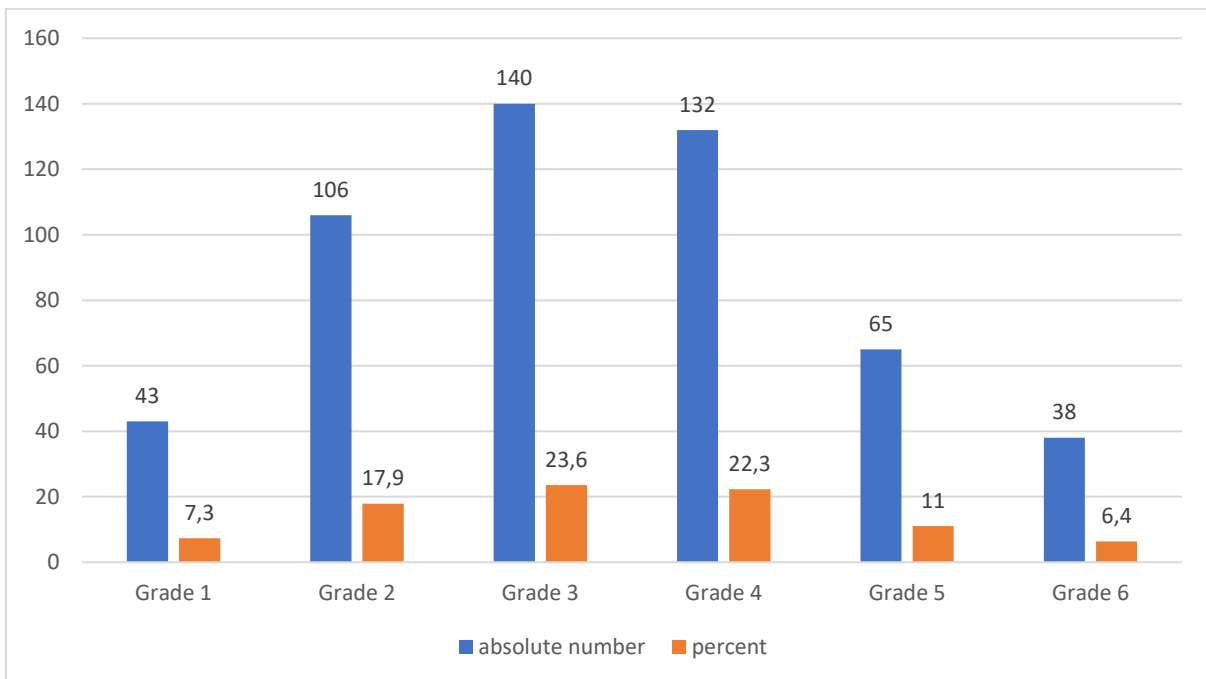


Figure 3: Grades 1 to 6

## PROCEDURES AND MEASURES

A paper-and-pencil questionnaire<sup>8</sup> was used to compare the different groups (students, musicians, teachers, and pupils). The questionnaire consisted of existing measuring instruments (see Table 2 and below) but was partly supplemented by custom items. Table 2 on the left lists the individual areas for which questions were asked. These were partly very specifically tailored to the individual groups (students, musicians, teachers, pupils). For the comparative study presented here, however, only the questions that were asked of all, as well as “pupils at station work”, are taken into account in this article.

Table 2: Parts of questions and sample<sup>9</sup>

	Students	Musicians	Teachers	Pupils
Development	x			
Involvement in stations		x		
Pupils at station work	x	x	x	
Which stations are the best?			x	x
Which ones should be developed further?			x	x
Context stations/concert			x	
Pre-/post-processing			x	
Station evaluation				x
How much did pupils learn?	x	x	x	x
How much did pupils laugh?	x	x	x	x
Did pupils do it themselves?	x	x	x	x

<sup>8</sup> The survey was conducted in the German language; though the examples being given here are translations which may not completely reflect the wording in German.

<sup>9</sup> The complete questionnaires (in German) can be requested at [georg.brunner@ph-freiburg.de](mailto:georg.brunner@ph-freiburg.de).

Liked it?	x	x	x	x
Further development	x	x	x	x
Overall assessment	x	x	x	x

### Semantic differentials

In the present study, I worked primarily with semantic differentials. Semantic differentials are particularly frequent in market research. Surveys on the perception of products and brands or questionnaires that seek to ascertain the acceptance of a new design in advance are often the basis of the marketing strategies and product development of both large and small companies. Since this project is also about the development of a new concept, this survey method was chosen (Bradley & Lang, 1994). At the end of the survey, open questions were incorporated as well, e.g., “How do you evaluate the actions of the different stations before the concert?”; “In general, how would you rate the interplay between the introductory stations and the subsequent concert?”; “What did you particularly like about it?”; “What improvements could be made?”

Table 3: semantic differentials (example: questions for teachers)

How did you perceive the pupils during the station work before the concert?

	Strongly agree	Tends to agree	Neither	Tends to agree	Strongly agree	
Interested						Uninterested
Active						Passive
Motivated						Unmotivated
Concentrated						Unfocused
Innovative						Unimaginative
Fast						Slow
Friendly						Hostile
Careful						Careless

Gentle						Wild
Attractive						Repulsive
Loud						Calm
Impressive						Inconspicuous
Familiar						Strange
Confusing						Clear
Creative						Monotonous

### **Items for evaluating pupils' concerts**

There were special questions based on a survey by Olbertz (2007), previously employed for assessing pupil concerts. Olbertz pinpointed "laughter" and "participation" as important indicators of satisfaction and positive evaluation and, therefore, for the success of children's concerts. The survey was expanded to a 5-point Likert scale (see also Hirte, 2008; 1 = lowest rating; 5 = highest rating). The questions are (Figure 2): (1) "How much did you learn at the children's concert?" (2) "How much did you laugh at the children's concert?" (3) "How much did you take part in the children's concert yourself?"

1) Wie viel hast Du im Kinderkonzert gelernt?

2) Wie viel hast Du im Kinderkonzert gelacht?

3) Wie viel hast Du im Kinderkonzert selbst mitgemacht?

Figure 4: Questions for the pupils (translation see above; source: author of the contribution)

## ANALYSIS

Samples were collected by interviewing university students, musicians, teachers, and pupils via questionnaires during the concerts. The analysis was carried out using SPSS, version 25 (Field, 2018) for descriptive statistics (frequencies and mean values). The one-factor ANOVA was used to compare several groups. Since the individual groups of teacher-musicians-student had too few members for an inferential statistical test, the following groups were used for the comparison: Group 1 = pupils ( $n = 533$ ) and Group 2 = adults (university students, musicians, teachers,  $n = 54$ ) (Table 5). To determine whether the difference between three or more groups was statistically significant, a single factor ANOVA was conducted (Table 9). The open questions were analyzed using content analysis (Kohlbacher, 2006) and were sorted by category.

**FINDINGS FROM THE CLOSED QUESTIONS**

Table 4 shows the evaluation of the questions divided according to the individual groups. The pupils' scores were consistently lower than the adults' in almost all ratings. Notably, teachers had the highest score in the overall evaluation ("Satisfaction with the project"). "Laughter" and "participation" received the highest scores from the students who developed the stations and supervised them on-site. Conversely, the musicians rated the learning effect most favorably.

Table 4: Assessment Children – Adults 1

Who was asked?		Children's concert learning	Children's concert laughing	Children's concert participation	Satisfaction with the project
Pupils	<i>n</i>	533	524	524	517
	<i>M</i>	2.86	2.76	2.89	4.31
	<i>SD</i>	.944	1.027	1.109	.908
Teachers	<i>n</i>	36	35	32	36
	<i>M</i>	3.00	2.89	2.81	<b>4.46</b>
	<i>SD</i>	.586	.718	1.030	.553
Students	<i>n</i>	5	5	5	7
	<i>M</i>	3.60	<b>4.60</b>	<b>4.20</b>	4.43
	<i>SD</i>	.548	.548	1.304	.535
Musicians	<i>n</i>	10	11	10	11
	<i>M</i>	<b>4.10</b>	3.82	3.70	4.27
	<i>SD</i>	.316	.982	.949	1.009

Note: highest values in bold; *M* = mean; *n* = number; *SD* = standard deviation; 1 = lowest rating; 5 = highest rating

A one-factor ANOVA was conducted to compare the two groups with each other (Table 5): The level of assessment differed significantly for “children learning” ( $F(1, 582) = 9.55, p = .002$ ) and “children laughing” ( $F(1, 573) = 10.86, p = .001$ ). That means “adults” rated “children learning” and “children laughing” significantly higher than the pupils themselves; there was no significant difference in “children participate” and “satisfaction project”.

Table 5: Assessment Children – Adults (significant results are in bold)

Who was asked?		Children’s concert learning	Children’s concert laughing	Children’s concert participation	Satisfaction with the project
Pupils	<i>n</i>	533	524	524	517
	<i>M</i>	2.86	2.76	2.89	4.31
	<i>SD</i>	.944	1.027	1.109	.908
Adults	<i>n</i>	51	51	47	54
	<i>M</i>	3.27	3.25	3.15	4.42
	<i>SD</i>	.695	.956	1.142	.657
<i>p</i>		<b>.002</b>	<b>.001</b>	.126	.382

Note: highest values in bold; *M* = mean; *n* = number; *SD* = standard deviation; 1 = lowest rating; 5 = highest rating

Gender-specific aspects should also be taken into account in the study (Table 6). The study shows that girls rate all stations (Hearing –  $F(2, 499) = 7.42, p = .001$ ; Sight –  $F(2, 490) = 6.63, p = .001$ ; Taste –  $F(2, 508) = 3.56, p = .029$ ; Touch  $F(2, 473) = 5.52, p = .004$ ) except for the station Smelling, significantly higher than the boys.



Table 6: Comparison girls – boys

Gender		Evaluation Station Smell	Evaluation Station Hearing	Evaluation Station Sight	Evaluation Station Taste	Evaluation Station Touch
Female	<i>n</i>	265	264	262	269	244
	<i>M</i>	3.9472	4.2424	4.3664	4.6654	4.0492
	<i>SD</i>	1.009	.8555	.8277	.7428	1.025
Male	<i>n</i>	236	233	226	237	228
	<i>M</i>	3.7881	3.9399	4.0619	4.4684	3.7368
	<i>SD</i>	1.151	1.077	1.149	1.059	1.270
Sig.		.205	<b>.001</b>	<b>.001</b>	<b>.029</b>	<b>.004</b>

Note: highest values in bold; *M* = mean; *n* = number; *SD* = standard deviation; 1 = lowest rating; 5 = highest rating

It is known from other studies (Brunner, 2022) that acceptance of music lessons often correlates with learning a musical instrument outside of school. The study reveals (Table 7) that children who do not play a musical instrument rate the “learning effect” significantly higher ( $F(2, 508) = 4.42, p = .029$ ), but there are no statistically significant results for “laughing” and “joining in” and the other two questions (“How about another children's concert?”; “Satisfaction with the concert?”)

Table 7: Effect of instrumental playing on evaluation

Instrumental Performance		Children's concert learning	Children's concert laughing	Children's concert participation	How about another children's concert?	Satisfaction with the project
Yes	<i>n</i>	311	306	307	303	302
	<i>M</i>	2.78	2.71	2.80	2.5545	4.31
	<i>SD</i>	.946	.993	1.119	.622	.895
No	<i>n</i>	199	194	192	191	192
	<i>M</i>	2.96	2.78	2.99	2.5550	4.29
	<i>SD</i>	.923	1.081	1.104	.653	.943
Sig.		<b>.029</b>	.485	.055	.993	.786

Note: highest values in bold; *M* = mean; *n* = number; *SD* = standard deviation; 1 = lowest rating; 5 = highest rating

There is also a relationship between grade level and evaluation. The higher the grade level, the lower the individual items are rated (negative correlation). That means that the age of the pupils plays an important role in the evaluation of the project (Table 8 and Figure 5).

Table 8: Relationship between Grade and Evaluation

Grade		Children's concert learning	Children's concert laughing	Children's concert participation	How about another children's concert	Satisfaction with the project
1. grade	<i>n</i>	43	43	42	43	43
	<i>M</i>	<b>3.42</b>	<b>3.07</b>	<b>3.33</b>	<b>2.88</b>	<b>4.60</b>
	<i>SD</i>	.794	1.142	.979	.324	.979
2. grade	<i>n</i>	105	104	105	102	101
	<i>M</i>	3.04	3.01	3.02	2.72	4.52
	<i>SD</i>	1.028	1.066	1.038	.529	.844
3. grade	<i>n</i>	140	139	133	137	139
	<i>M</i>	2.98	2.76	3.02	2.66	4.32
	<i>SD</i>	.835	1.087	1.121	.597	.950
4. grade	<i>n</i>	131	126	131	128	130
	<i>M</i>	2.68	2.63	2.66	2.41	4.15
	<i>SD</i>	.816	.943	1.195	.670	.821
5. grade	<i>n</i>	63	61	63	61	62
	<i>M</i>	2.75	2.90	3.06	2.52	4.50
	<i>SD</i>	.997	.815	.937	.640	.996
6. grade	<i>n</i>	38	37	36	34	31
	<i>M</i>	2.08	2.05	2.08	1.88	3.48
	<i>SD</i>	.943	1.024	1.116	.636	.907

Note: highest values in bold; *M* = mean; *n* = number; *SD* = standard deviation; 1 = lowest rating; 5 = highest rating

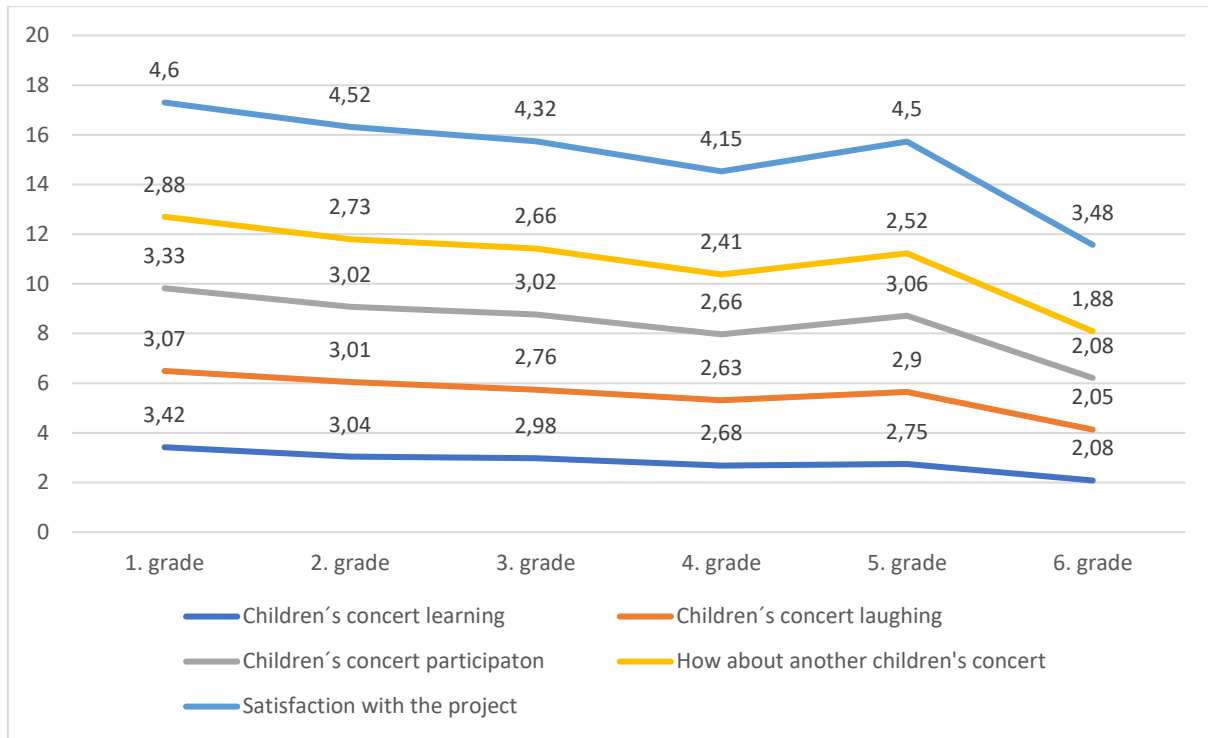


Figure 5: Relationship between Grades and Evaluation (value = Mean)

Given that it is a concept meant to appeal to the different senses, participants were asked to evaluate the individual stations (Figure 6). The Station Taste is rated the highest by the pupils, ahead of Sight (this was the station with the moderator Ralph Caspers); Smell is rated the lowest.

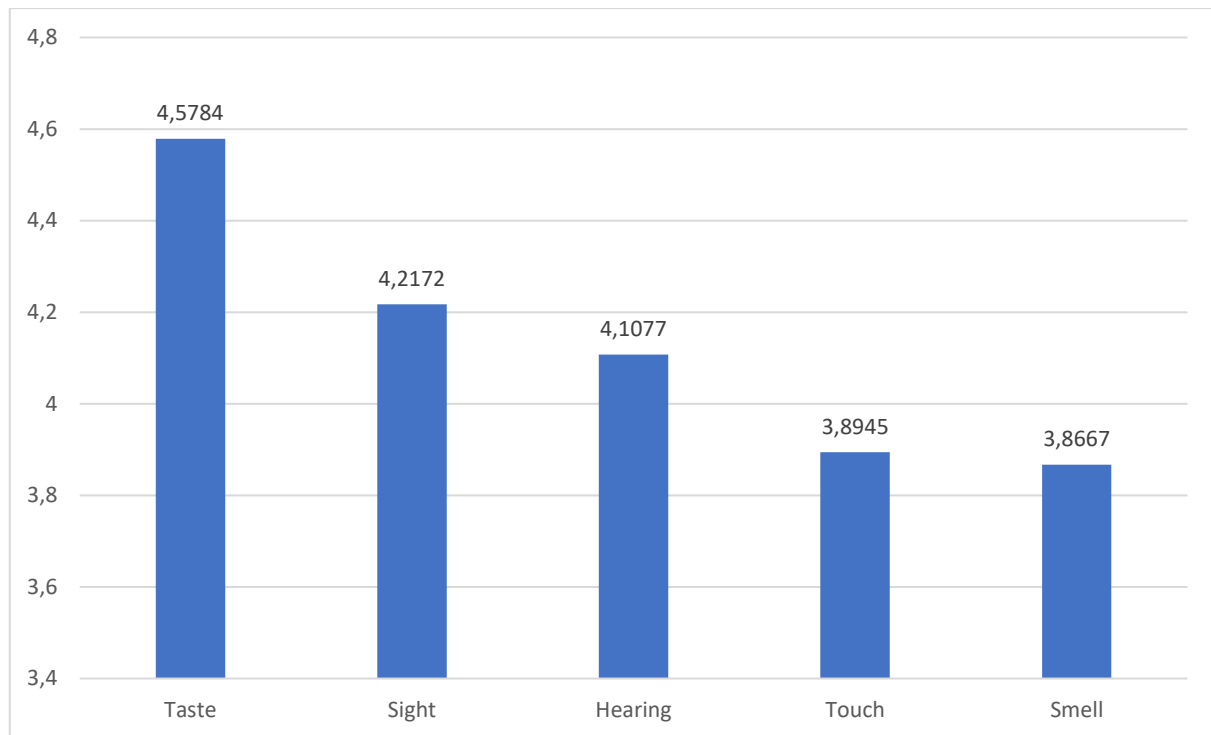


Figure 6: Ratings of the stations by pupils  
(Mean; 1 = lowest rating: I do not like it at all; 5 = highest rating: I like it very much)

For the assessment of “pupils at the stations”, a single factor ANOVA was conducted (Table 9). In this case it was asked if musicians, teachers or university students differ in the assessment of the pupils. The results reveal that the level of assessment differed significantly for the different levels of active/passive ( $F(2, 48) = 15.18, p = .000$ ), motivated/unmotivated ( $F(2, 49) = 5.56, p = .007$ ), concentrated/unconcentrated ( $F(2, 48) = 6.23, p = .004$ ), creative/monotonous ( $F(2, 49) = 5.51, p = .007$ ). This indicates that teachers/students assess the pupils more positively in each case than the musicians.

Table 9: Assessment of Pupils at Station Work

Pupils at station work	Musicians	Teachers	Students	Total	Sign.
	<i>n</i> = 11	<i>n</i> = 35	<i>n</i> = 5	<i>n</i> = 51	<i>p</i>
Interested/uninterested	1.73	1.37	1.40	1.45	.201
Active/passive	2.55	1.37	1.20	1.61	<b>.000</b>
Motivated/unmotivated	2.18	1.47	1.40	1.62	<b>.007</b>
Concentrated/unconcentrated	2.73	1.71	2.40	2.00	<b>.004</b>
Innovative/unimaginative	2.82	2.48	2.60	2.57	.406
Fast/slow	2.55	2.12	2.60	2.26	.303
Friendly/hostile	1.45	1.59	1.60	1.56	.858
Cautious/careless	2.82	2.91	2.80	2.88	.953
Gentle/wild	2.70	2.83	3.40	2.86	.289
Attractive/repellent	2.30	2.42	2.40	2.39	.903
Loud/quiet	3.27	3.24	2.20	3.14	.153
Impressive/unimpressive	2.64	2.39	2.00	2.41	.215
Familiar/foreign	2.18	2.22	3.00	2.29	.257
Unclear/overwhelming	3.36	3.31	3.20	3.31	.984
Creative/monotonous	2.73	2.21	1.40	2.17	<b>.007</b>

Note: the polarities were rated from 1 to 5. A low value means high proximity to the left pole, a high value to the right pole.

## **FINDINGS FROM THE OPEN QUESTIONS**

In the survey, musicians, teachers, and pupils were given an opportunity to provide free responses when asked what they liked about the project and what improvements they would suggest. The answers were grouped into the following categories.

### **Positive Aspects**

#### **(1) Personal interaction and engagement**

These were highlighted as particularly positive. The musicians (Mu) and the teachers (T) emphasized the encounter between musicians, the moderator, and the children, but also, above all, the work with and the engagement of the children. Comments referred to a “creative atmosphere before the concert” (Mu).

#### **(2) The concept itself**

This was seen as innovative. “Connecting the music and the story with the senses is a great idea” (T). The stations contained surprising elements, and this was well-received. (“Courage to take risks. Dare to do something new. Something ‘new’ was tried out.” (Mu)). Among the children (C), the smell and taste stations were favorites (with 224 mentions in total). Teachers also expressed appreciation for these two stations: (Taste) “I had previously thought about how to link this and was pleased with the ideas provided.” (Smell) “...because here pupils also got to know another – non-musical – side of Peter and the Wolf.”

#### **(3) Concert experience**

Interestingly, there was also very positive feedback on the concert itself, i.e., the performance following the learning stations. Children primarily mentioned their appreciation for the music itself (87 mentions), the story behind the piece (57 mentions), and the encounter with the musical instruments (97 mentions).

#### **(4) Moderator**

The popularity of the moderator, Ralph Caspers, played a significant role in the feedback. His contribution was especially highlighted by the children (55 mentions).

## **Improvements**

When asked about possible improvements, it is particularly noteworthy that about a quarter of the children (148) indicated they did not want any changes.

Nevertheless, the following categories were identified for improvements.

### **(1) Organization and structure**

More time at the stations and fewer stations was the predominant suggestion (Mu, T, C). Teachers expressed a desire for clearer instructions at the station and a greater spatial separation between them (T). Some musicians also provided feedback regarding the conceptual layout, feeling that the children were being challenged on too many fronts simultaneously, leading to the sentiment that “unfortunately, the concepts caused too much chaos.” A relatively large number of children (48) expressed a desire for theatrical elements to be integrated, while others suggested adapting the stations to be more suitable for older pupils.

### **(2) Disposition on the part of the musicians**

The following was expressed: “Very exhausting for musicians, as they perform the concert immediately after the activity.” Another musician pointed out the lack of pedagogical training, implicitly calling for a better preparation: “[...] We have no pedagogical training.”

### **(3) Recommendations of various kinds**

Musicians suggested incorporating more interactive activities before children/student concerts, possibly with slight modifications to the existing concept. Regarding a mentoring figure for the children to bond with, the focus should be more on the music, on the instrument, and most importantly, on the individual.

### **(4) “Smell” station**

There were specific references to the “Smell” station, mainly from the children (14), albeit without precise suggestions. However, the teachers offered additional insights: “...but you had to explain the connection to the play, and it wasn't obvious



to everyone” and “No discussion of the smells and the correct answers in this activity. Idea – good, but some room for improvement”.

## **DISCUSSION**

The present study aimed to investigate how different actors (pupils, teachers, university students, musicians) perceive the concept of a music education project guided by multisensory approaches, learning stations, and the integration of a popular TV presenter. I hypothesized that the acceptance of the project would be high due to this approach but that group-specific differences (children-adults) would also be observed. I also hypothesized that there would be gender and age-specific differences, especially in terms of assessing the different learning stations. Furthermore, I expected influences from the factor of “playing an instrument”. The impact of the moderator was also expected to be high.

The study results showed that there were differences between the surveyed groups. Adults valued “learning” and “laughter” higher than children. Musicians also rated “learning” higher than university students and teachers. There seemed to be different presuppositions or beliefs about these categories, especially about what “learning” could mean (see, e.g., De Vries et al., 2014; Prichard, 2017). In addition, there was a relatively high general consensus on the “positives” of this educational concept that focused on the five senses, coupled with various active actions by the pupils. Similar effects have been observed in other projects (e.g., Hirte, 2008; Vidulin et al., 2021). Furthermore, the assumption regarding the significant role of the involvement of a well-known TV presenter in a positive evaluation was confirmed. Schwane (2003) has previously demonstrated that pupils’ enjoyment of family concerts is influenced by factors such as “interaction” and “moderation”.

Nevertheless, gender-specific differences were evident in the evaluation of the learning stations. Girls rated all learning stations (except Smell) significantly higher than boys. One reason might be that it was a classical concert programme. Research from other studies indicates that there are gender-specific differences in preferences for classical music in Elementary Schools, which supports the findings of this study (see, e.g., De Vries, 2010; Dobrota & Mendiković, 2021). The study revealed that playing an instrument is

particularly significant for “learning”. That means that pupils who do not learn a musical instrument outside of school seem to benefit from this concept. One explanation could be that the potential for learning growth is particularly high for these children, as they lack opportunities to compensate for possible learning gaps in the area of music through extracurricular learning settings (Brunner, 2022). Age also plays a significant role in the acceptance of the project. This concept is particularly appealing to younger pupils, while older ones felt it was not as relevant for them (see also Dobrota & Mendiković, 2021; Schlemmer & James, 2011).

### **LIMITATIONS OF THE PRESENT STUDY AND OUTLOOK**

To what extent this concept leads to a better acceptance of classical music compared to other projects (see introduction) was not the subject of this study. It has only been shown that this approach is promising. Undoubtedly, the findings of this study are context-dependent and may be difficult to transfer to other settings. A limitation of the study is also that no comparison group could be used. Furthermore, a pre-post comparison was not possible. In addition, *Peter and the Wolf* is a renowned work in music history. In other words, the question arises as to what extent it is a “self-runner”, that is, the work naturally resonates with the pupils without significant pedagogical efforts. Moreover, *Peter and the Wolf* is a very common and popular work of classical music. Further studies would have to examine the transferability of this concept to less “attractive” works, for instance, modern music. Likewise, comparative studies would have to be conducted that adopt a different approach in order to verify the effectiveness of this multisensory concept. Clarification is also needed on the extent to which the popularity of the TV presenter was a primary factor in its success. Suggestions for future research include determining whether this project would have been impactful without the involvement of the symphony orchestra (for the Sight station, would a video or another visual method work?) or perhaps with (or without) a charismatic presenter, even if lesser-known. This study focused on in-the-moment, immediate effects of the project but not whether or not pupils gained musical or extramusical knowledge. Are there any effects on such knowledge? Future research should delve deeper than simply student enjoyment and engagement.

## IMPLICATIONS FOR MUSIC EDUCATION

To conclude, it is evident that the opportunity for a genuine encounter with music is – as shown in other studies (e.g., Vidulin et al, 2021; Winterson, 1994) – highly significant. This is particularly reflected in the positive feedback about the music itself. The integration of the TV presenter enhanced the positive assessment of the narrator. The involvement of a popular public figure with the target group evidently increases the concept's attractiveness. This suggests that teachers should use any opportunity to connect pupils with musicians in real music-making scenarios. Particularly, children without exposure to instrumental lessons can benefit greatly from this concept.

The concept is based on the five senses and an activity-oriented involvement of the pupils, including the body (embodiment; see, e.g., Leman & Maes, 2014) at some stations (touch, hearing), which has been positively received. It can be further developed with minor modifications – e.g., adjusting the time factor – and expanded to include theatrical elements, integration of reflections, and more connection of some stations with the music. Likewise, the musicians should receive better preparation for the pedagogical work. Currently, the cooperation of the musicians in the mediation parts (here: learning stations) is voluntary. To professionalize this domain, it would be advisable to integrate it into the regular orchestra working hours with appropriate training initiatives. Concurrently, strategies must be devised to engage older children and, notably, boys.

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