Study Level Documentation of the Project “Musical interventions for the sustainable integration and cultural participation of refugee children and adolescents - Part project Oldenburg: Learning music, cognitive, psychosocial and integrative development of primary school children“ („Musikalische Interventionen für nachhaltige Eingliederung und kulturelle Teilhabe geflüchteter Kinder und Heranwachsender - Teilprojekt Oldenburg: Musiklernen, kognitive, psychosoziale und integrative Entwicklung in der Grundschule; MINUTE“)

<table>
<thead>
<tr>
<th>Objectives &amp; Hypotheses</th>
<th>Objective</th>
<th>The main purpose of this study is to assess the specific effects of a school-based musical intervention program on different areas of child development. Near and far transfer effects of musical training on cognitive and psychosocial skills were examined.</th>
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<tr>
<td>Hypothesis</td>
<td>Participation in the music program was expected to significantly increase the scores of all dependent variables, when compared to a game-based mathematical intervention and a control group without any intervention.</td>
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<tr>
<td>Number of measurements</td>
<td>3 measurements</td>
<td></td>
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<td>Methodological approach</td>
<td>Data rely on a longitudinal-experimental study. The study constitutes a quasi-randomized controlled trial.</td>
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<tr>
<td>Description of the research design on a construct level</td>
<td>Dependent variables such as linguistic and mathematical competence, working and verbal memory, acculturation, emotional, psychosocial, and musical abilities were evaluated three times in all groups. Group and Time represent the independent variables. The participants were assigned to one of three groups: music, math, or control. Data were collected as follows: - prior to the intervention (at the beginning of the third school year; baseline/t1); - immediately after the intervention period (at the end of the third school year; post-measurement/t2); - after a retention interval of approximately six months (follow-up/t3). Experimental design was a 3 x 3 mixed model, with Group as the between-subject factor and Time as the within-subject factor. In this study, it was controlled for following variables: age, gender, intelligence, choir membership, parental educational level and socioeconomic status.</td>
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| Measurement instruments | • Students Questionnaire (generated ad hoc)  
• Parents Questionnaire (generated ad hoc)  
[Culture Fair Intelligence Test - Revision (CFT 20-R) with Vocabulary and Number Sequence Test (WS/ZF-R)]. Göttingen, Germany: Hogrefe.


<table>
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<tr>
<th>Paradigm</th>
<th>The interventions consisted of a musical learning paradigm (instrumental – percussion or ukulele – or choir singing lessons) and a game-based mathematical intervention paradigm (board and card games).</th>
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<tr>
<td>Setting</td>
<td>School setting (measurements and interventions took place inside school)</td>
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<tr>
<td>Control operations</td>
<td>Measurements and tests were conducted in a similar timeframe and in the same order in all schools.</td>
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<td>Inclusion/Exclusion criteria</td>
<td>Schools from the city of Oldenburg (Germany) with a high number of children having a migration background were</td>
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**Sample**

Included. Seven schools met this criterion and participated in this study. A second criterion of inclusion was that children attend third grade at the beginning of the study. Furthermore, children with and without migration background who returned written consent from themselves as well as from their parents to participate in this study were accepted. Considering final analysis, another condition was settled for the children in the intervention groups: only children who attended 70% of the intervention lessons were included.

**Population**

Results can be generalized on the population of third graders with and without migration background living in the city of Oldenburg (Germany) and going to school together.

**Sampling method**

Non-random sampling

**Assignment**

Quasi-randomized assignment to one of three groups

**Sample size**

$N = 220 \ (n = 109 \text{ female}, \ n = 111 \text{ male}; \ n = 136 \text{ German}, \ n = 84 \text{ migrant})$

**Power**

For conducting analyses of variance (ANOVA) with 3 repeated measures and 3 groups, the following power level was targeted in all cases: $\alpha$-level: 0.05, power $(1 - \beta)$: 0.80, correlations among repeated measurements: 0.50, medium effect size $f = 0.25$. 