The Effect of an Orff-based Curriculum on Social Emotional Competence of Migrant Children in Shanghai

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Abstract. The quasi-experimental design included students in two kindergarten classes, where one class of 28 students was randomly assigned to receive the treatment while the other class of 28 served as the control group. The intervention was a 16-session Orff music curriculum over a period of eight weeks, aimed at improving children’s social emotional competence. The results indicated that, after participating in the Orff-based musical program, children in the treatment group were rated significantly higher in responsibility, social competence and self regulation as compared to children in the control group beyond that accounted for by the pretest scores and gender. No statistically significant improvements in children’s empathy was found after participation in this program.

Introduction

Orff Schulwerk is not only an effective way of teaching music for children and adolescents, but also an approach to address non-musical goals in educational and clinical interventions. This study adds to the research base by conducting an intervention for migrant children in a suburban school in Shanghai to improve their social emotional competencies. In this current study, the aim is to enhance the student participants’ emotional competency and social skills through receiving the Orff-based curriculum. This study informs Chinese music educators and kindergarten teachers regarding teaching strategies for improving children’s social competence in a new way of a music-based curriculum.

Literature Review

Psychological Functions of Music

Evidence from many researches indicates there are underlying influences of music and music education on non-musical capacities [5, 12, 15, 16]. This exploratory research provides some of the first empirical data regarding the possible benefits of using an Orff-based curriculum to enhance migrant children’s social emotional competence in the setting of a Chinese suburban school with kindergarteners. The findings add to the research literature which focuses on the influence of Orff Schulwerk on children’s social and psychological development and the non-musical functions of musical activities. This inquiry informs Chinese music educators and kindergarten classroom teachers regarding teaching strategies for improving children’s social emotional competence through the use of a music-based curriculum.

These influences are not only related to musical accomplishment, but also associated with psychological wellness. In ancient Greece, music education was so important that it was considered as a basic discipline in education [2]. Several great philosophers considered music to impact human emotion and cognition. Aristotle proposed that music could imitate emotion and character of humans, such as gentleness, happiness, anger, sadness and braveness [6]. Both Aristotle and Plato considered that exquisite music could make people graceful [19]. When people listen to and imitate music with various emotional expressions, they may be filled with emotions of the same nature; if
and when exposed for a long time to music of base emotions, the receivers’ disposition might be influenced that way [19].

A growing body of evidence indicates that music education or music intervention can be considered as effective methods to enhance the social competence of children and adolescents [2, 9]. Music can express one’s emotions through the arrangement of notes and rhythm. As one function of music is to influence people’s emotions, it is not a surprise to find music education can have an impact on social development. Thoma, Scholz, Ehler, and Nater, find that qualitative aspects of music listening are significantly related to the psychological functioning, mediated by emotion regulation and dispositional stress reactivity [20].

Orff Schulwerk

Orff Schulwerk (Schoolwork) is a music education approach for children, adolescents and adults founded by Carl Orff (1895-1982), a German musician and music educator [17] (Shamrock, 1988). Orff Schulwerk has a system of teaching strategies that include singing, movement, speech, instrumental playing, and a series of textbooks for teaching music within elementary schools. However, it does not require the direct use of textbooks in different countries. In fact, the utilization of the Orff approach is encouraged for music educators, teachers, professors and composers to develop their own materials from folk songs, instruments and other local resources under the big “umbrella” of the idea “Elementar Musik” and teaching strategies [18]. Findings from research, examining the effects of Orff-based musical curriculum and Orff-based musical therapy intervention indicate improvement in children’s psychological well-being [4]. In addition, it is found that employing the ideas from Orff Schulwerk has positive effects on children’s social communication, self-efficacy, social skills and emotional regulation in South Korea [25].

Social Emotional Competence

The Ministry of Education in China issued the “Guide of Learning and Development for Children from Three to Six” (“Guide”) in the year 2010. The expert panel in early childhood education spent six years developing this “Guide” based on studying related policies from 13 countries and two years of research. This research recruited approximately 3,600 children, their parents and their teachers in China [14]. More detailed explanations and standards of every field are provided. It is pointed out that the social development process of children from three to six years old is the basis for improving their socialization and healthy personalities, mainly including interpersonal behaviors and social adaptation identified in the “Guide.” Early childhood is the key period for social development; good interpersonal and social adaptation have positive impacts on children’s physical and mental health development, academic achievement and intellectual development. Engaging in communication with adults and peers, children can learn not only how to get along with people, but also how to see themselves, practice positive ways to treat others, and gain abilities to acquire skills to adapt to social life [14].

Migrant Children

In China, migrant children are youth who are under 18 years old live in a town or suburban areas without local household registration [7]. Under this binary system, schools in suburban areas are facing two challenges: one is the shortage of qualified teachers; the other one is the high proportion of migrant children [21, 22]. In Shanghai, the educationally advanced areas are mostly located in urban districts; in contrast, suburban areas and districts show an obvious lack of quality educational resources and services [21].

Furthermore, in Shanghai, four out of every 10 children are migrant children, and the proportion is even higher in suburban schools [1]. It is reported that, although the number of migrant children is increasing, their families encounter many economic, social welfare and social-cultural obstacles that make it difficult for them to adapt to city life [8, 24]. There is growing evidence indicating that migrant children in China, in general, suffer from different kinds of psychological problems. They may have the risks of experiencing depression, separation anxiety, feelings of inferiority, and
loneliness, and perform poorly in self regulation, adaptive behaviors, learning habits, and academic achievement [3, 10, 11].

Because of the shortage of qualified teacher resources and the higher proportion of migrant children in China’s large municipalities of millions of people, migrant children in suburban kindergartens may have potential risks and challenges regarding their psychological wellness and development. Therefore, there is a need to pay attention to young migrant children’s social development and mental wellness [3, 10, 23]. However, few studies employ the strategies of Orff Schulwerk as a framework aimed at improving children’s social emotional development in the contexts of schools.

**Research Questions**

This present inquiry is designed to engage kindergarten students, from migrant families, in an integrated curriculum using an Orff approach to study its influence on improving children’s social emotional competencies in a suburban school in Shanghai, China.

Based on the literature review and the instrument employed, the research questions are as follow:

1. Does participation in the Orff-based musical curriculum improve migrant kindergarteners’ responsibility after controlling for gender and initial levels of responsibility?
2. Does participation in the Orff-based musical curriculum improve migrant kindergarteners’ social competence after controlling for gender and initial levels of social competence?
3. Does participation in the Orff-based musical curriculum improve migrant kindergarteners’ self regulation after controlling for gender and initial levels of self regulation?
4. Does participation in the Orff-based musical curriculum improve migrant kindergarteners’ empathy after controlling for gender and initial levels of empathy?

**Methodology**

Two kindergarten classes with 28 children in each class, from five to six years of age, were to be selected, wherein both of each class would be children of migrant workers. One class was to be randomly assigned as the control group, with the other one serving as the treatment group. Each class had two classroom teachers taking charge of their daily activities. When selecting the classes of students, criteria related to teacher characteristics also were considered. Teachers needed to have worked with the children for at least six months so that they would know them sufficiently well to complete the data collection instrument pertaining to their students. In addition, the researcher tried to select control and treatment group teachers who had similar educational training and work experience. The sampling unit was the class but individual students served as the unit of statistical analysis.

| Time | Monday 10:00 am-10:30 am | Wednesday 10:00 am-10:30 am |
|------|--------------------------|----------------------------|
| Week |                          |                            |
| 1    | Lesson 1                 | Review of lesson 1         |
| 2    | Lesson 2                 | Review of lesson 2         |
| 3    | Lesson 3                 | Review of lesson 3         |
| 4    | Lesson 4                 | Review of lesson 4         |
| 5    | Lesson 5                 | Review of lesson 5         |
| 6    | Lesson 6                 | Review of lesson 6         |
| 7    | Lesson 7                 | Review of lesson 7         |
| 8    | Lesson 8                 | Review of lesson 8         |

Teacher participants completed the Chinese version of teacher form of Social Emotional Assets and Resilience Scales to provide their perspectives of their students’ social emotional competence.
The teacher form of SEARS has four subscales: Self-regulation, responsibility, empathy and social competence [13].

Children in the treatment group received this Orff-based curriculum twice a week. Each lesson was completed in one week: the first class was spent teaching the new lesson and the second class of the week reviewed the previous session. The schedule of the intervention and the assessment are shown in Table 1.

Result

Table 2 shows the means and the standard deviations of responsibility, self regulation, social competence and empathy of the pretest and posttest scores for each group. According to the results of the independent-samples t-tests, using alpha = .05, there was evidence to suggest that the responsibility posttest scores differ, on average, between the control group and the treatment, $t(54) = 2.080$, $p = .04$. There was evidence to suggest that the social competence pretest scores differ, on average, between the control group and the treatment, $t(54) = -2.065$, $p = .04$. There was evidence to suggest that the self regulation pretest scores differ, on average, between the control group and the treatment, $t(54) = -3.346$, $p = .001$. There was evidence to suggest that the empathy pretest scores differ, on average, between the control group and the treatment, $t(54) = -2.552$, $p = .01$.

Table 2. Descriptive Statistics by Subscales by Condition.

|                      | Treatment (n=28) | Control (n=28) | $t$    | $p$  |
|----------------------|-----------------|----------------|-------|------|
|                      | $M$  | $SD$ | $M$  | $SD$ |       |        |
| Responsibility       | Pretest  | 2.13 | .47  | 2.03 | .65  | .70    | .48    |
|                      | Posttest | 2.52 | .33  | 2.23 | .68  | 2.08   | .04    |
| Social competence    | Pretest  | 1.63 | .39  | 1.92 | .65  | -2.07  | .04    |
|                      | Posttest | 2.15 | .38  | 2.17 | .60  | -.11   | .91    |
| Self regulation      | Pretest  | 1.39 | .31  | 1.81 | .57  | -3.35  | .001   |
|                      | Posttest | 1.99 | .33  | 2.05 | .66  | -.42   | .68    |
| Empathy              | Pretest  | 1.66 | .75  | 2.04 | .73  | -2.55  | .01    |
|                      | Posttest | 2.04 | .565 | 2.16 | .72  | -.81   | .42    |

Table 3 provides the correlations among the main variables, using pretest scores above and posttest scores below the diagonal. As would be expected from the t-test results, as shown in the correlations matrix, the condition and responsibility posttest scores were significantly correlated ($p < 0.05$, two-tailed). Also, the four indicators of social emotional competence were highly correlated before and after the intervention.

Research question one (RQ1) asked whether participation in an Orff based musical curriculum improved migrant kindergarteners’ responsibility or not after controlling for gender and initial levels of responsibility. A sequential multiple regression was conducted. In Model 1, the control variable (gender) was entered along with the corresponding pretest (i.e., that measures initial levels of responsibility). In Model 2, the condition (treatment, coded 1; control, coded 0) was added to the Model 1 variables. As shown in Table 2, in Model 1, the control variable (gender) was entered along with the corresponding pretest (i.e., that measures initial levels of responsibility); together, the two variables explain almost 59.7% of the variance in posttest responsibility scores (see Table 20). In Model 2, the condition (treatment, coded 1; control, coded 0) was added to the Model 1 variables. Model 1 was statistically significant and the addition of knowing whether the student participated in the treatment or not (condition) accounted for an additional 4.1% of the variance in posttest scores of responsibility, $\Delta R^2 = .041$, $F (1, 52) = 5.862$, $p = .019$. (Table 4).
Table 3. Correlations between Social Emotional Competence, Condition and Control Variable (n = 56).

|       | 1    | 2    | 3    | 4    | 5    | 6    |
|-------|------|------|------|------|------|------|
| 1. Condition |      | .095 | -.271* | -.414** | -.328* | -.036 |
| 2. Responsibility | .272* |      | .726** | .735** | .801** | .478** |
| 3. Social competence | -.015 | .813** |      | .900** | .822** | .323* |
| 4. Self regulation | -.057 | .845** | .915** |      | .881** | .337* |
| 5. Empathy | -.109 | .777** | .884** | .869** |      | .421** |
| 6. Gender | -.036 | .384** | .267* | .309* | .396** |      |

* p < 0.05 (two-tailed) ** p < 0.01 (two-tailed)

Note:
1. Condition (1=treatment, 0=control); Gender (1=girl, 0=boy).
2. Correlations involving the four indicators of social emotional competence above the diagonal use pretest scores; those below the diagonal use posttest scores.

Table 4. Summary of the Models Predicting Posttest Scores of Responsibility.

| Model | R    | R²   | Adjusted R² | ΔR² | F    | df₁ | df₂ | p   |
|-------|------|------|-------------|-----|------|-----|-----|-----|
| 1     | .772a| .597 | .581        | .597| 39.204| 2   | 53  | .000|
| 2     | .798b| .638 | .617        | .041| 5.862 | 1   | 52  | .019|

Notes: Model 1: (Constant), Responsibility Pretest, Gender
Model 2: Model 1 Predictors above plus Condition (1=Treatment, 0=Control)

Table 5 shows the regression coefficients of the variables in the models. For "condition," the coefficient was significant t (52) = 2.421, p = .019 with b = .222 and β = .204. The positive coefficients were in the predicted direction, in that program participation, on average, is associated with higher posttest responsibility scores; therefore, there was evidence to suggest that the treatment improved responsibility, after controlling for gender, and initial levels of self regulation that the teachers reported for their students. Based on Cohen’s f², the effect size was .113 which was considered to be more than a small (.02) but less than a medium (.15) effect size (Cohen, 1988).

Table 5. Effects of the Intervention on Responsibility.

| Model | B     | SEₘ | β     | t   | p   |
|-------|-------|------|-------|-----|-----|
| 1     | (Constant) | .828 | .185 | 4.467 | .000|
| Gender | .022 | .109 | .020 | .201 | .841|
| Pretest | .739 | .096 | .763 | 7.682 | .000|
| 2     | (Constant) | .764 | .179 | 4.259 | .000|
| Gender | .045 | .104 | .041 | .435 | .666|
| Pretest | .710 | .093 | .733 | 7.650 | .000|
| Condition | .222 | .092 | .204 | 2.421 | .019|

Note: Condition (1=treatment, 0=control); Gender (1=girl, 0=boy).
Research question two (RQ2) asked whether participation in an Orff-based musical curriculum improved migrant kindergarteners’ social competence or not after controlling for gender and initial levels of social competence. A sequential multiple regression was conducted. In Model 1, the control variable (gender) was entered along with the corresponding pretest (i.e., that measures initial levels of social competence). In Model 2, the condition (treatment, coded 1; control, coded 0) was added to the Model 1 variables. As shown in Table 6, in Model 1, the control variable (gender) was entered along with the corresponding pretest (i.e., that measures initial levels of social competence); together, the two variables explain almost 59.3% of the variance in posttest social competence scores. In Model 2, the condition (treatment, coded 1; control, coded 0) was added to the Model 1 variables. Model 1 was statistically significant and the addition of knowing whether the student participated in the treatment or not (condition) accounted for an additional 4% of the variance in posttest scores of social competence, $\Delta R^2 = .040, F (1, 52) = 5.658, p = .021$.

Table 6. Summary of the Models Predicting Posttest Scores of Social Competence.

| Model | R    | $R^2$ | Adjusted $R^2$ | $\Delta R^2$ | F     | df1 | df2 | p    |
|-------|------|-------|---------------|--------------|-------|-----|-----|------|
| 1     | .770a | .593  | .577          | .593         | 38.582| 2   | 53  | .000 |
| 2     | .795b | .633  | .612          | .040         | 5.658 | 1   | 52  | .021 |

Notes: Model 1: (Constant), Social Competence Pretest, Gender
Model 2: Model 1 Predictors above plus Condition (1=treatment, 0=control)

Table 7 shows the regression coefficients of the variables in the models. For "condition," the coefficient was significant $t (52) = 2.379, p = .021$ with $b = .225$ and $\beta = .208$. The positive coefficients were in the predicted direction, in that program participation, on average, is associated with higher post-test social competence scores; therefore, there was evidence to suggest that the treatment improved social competence, after controlling for gender, and initial levels of social competence that the teachers reported for their students. Based on Cohen’s $f^2$, the effect size was .109 which was considered to be more than a (.02) but less than a medium (.15) effect size (Cohen, 1988).

Table 7. Effects of the Intervention on Social Competence.

| Model | B     | SEB  | $\beta$ | t    | p     |
|-------|-------|------|---------|------|-------|
| 1     | .809  | .161 | .5027   | .000 |
| (Constant) |       |      |         |       |       |
| Gender | .023  | .101 | .021    | .228 | .820  |
| Pretest| .755  | .012 | .763    | 8.238| .000  |
| 2     | .599  | .178 | .3364   | .001 |
| (Constant) |       |      |         |       |       |
| Gender | .010  | .097 | .009    | .103 | .918  |
| Pretest| .814  | .091 | .823    | 8.915| .000  |
| Condition | .225  | .094 | .208    | 2.379| .021  |

Note: Condition (1=treatment, 0=control); Gender (1=girl, 0=boy)

Research question three (RQ3) asked whether participation in an Orff based musical curriculum improved migrant kindergarteners’ self regulation or not after controlling for gender and initial levels of self-regulation. A sequential multiple regression was conducted. In Model 1, the control variable (gender) was entered along with the corresponding pretest (i.e., that measures initial levels of self regulation); together, the two variables explain almost 49.5% of the variance in posttest self-regulation scores. In Model 2, the condition (treatment, coded 1; control, coded 0) was added to the Model 1 variables. Model 1 was statistically significant and the addition of knowing whether the
student participated in the treatment or not (condition) accounted for an additional 6.2% of the variance in posttest scores of self-regulation, $\Delta R^2 = .062$, $F (1, 52) = 7.210$, $p = .01$. (Table 8).

Table 8. Summary of the Models Predicting Posttest Scores of Self-Regulation.

| Model | $R$  | $R^2$ | Adjusted $R^2$ | $\Delta R^2$ | $F$  | $df_1$ | $df_2$ | $p$   |
|-------|------|-------|----------------|-------------|------|--------|--------|-------|
| 1     | .703a| .495  | .476           | .495        | -    | -      | -      | -     |
| 2     | .746b| .556  | .531           | .062        | 7.210| 1      | 52     | .010  |

Notes: Model 1: (Constant), Self Regulation Pretest, Gender
Model 2: Model 1 Predictors above plus Condition (1=Treatment, 0=Control)

Table 9 shows the regression coefficients of the variables in the models. For "condition," the coefficient was significant $t (52) = 2.685$, $p = .010$ with $b = .282$ and $\beta = .275$. The positive coefficients were in the predicted direction, in that program participation, on average, is associated with higher posttest self regulation scores; therefore, there was evidence to suggest that the treatment improved self regulation, after controlling for gender, and initial levels of self-regulation that the teachers reported for their students. Based on Cohen’s $f^2$, the effect size was .140 which was considered to be more than a small (.02) but less than a medium (.15) effect size (Cohen, 1988).

Table 9. Effects of the Intervention on Self-Regulation.

| Model | $B$  | $SE_{B}$ | $\beta$  | $t$  | $p$   |
|-------|------|-----------|----------|------|-------|
| 1 (Constant) | .848  | .171      | 4.970    | .000 |
| Gender | .085  | .107      | .082     | .795 | .430  |
| Pretest | .700  | .108      | .671     | 6.474| .000  |
| 2 (Constant) | .517  | .203      | 2.547    | .014 |
| Gender | .052  | .102      | .050     | .509 | .613  |
| Pretest | .830  | .113      | .796     | 7.334| .000  |
| Condition | .282  | .105      | .275     | 2.685| .010  |

Note: Condition (1=treatment, 0=control); Gender (1=girl, 0=boy).

Research question four (RQ4) asked whether participation in an Orff-based musical curriculum improved migrant kindergarteners’ empathy or not after controlling for gender and initial levels of empathy. A sequential multiple regression was conducted. A sequential multiple regression was conducted. In Model 1, the control variable (gender) was entered along with the corresponding pretest (i.e., that measures initial levels of empathy); together, the two variables explain almost 44.3% of the variance in posttest empathy scores. In Model 2, the condition (treatment, coded 1; control, coded 0) was added to the Model 1 variables. Model 1 was statistically significant but Model 2 was not statistically significant. The addition of knowing whether the student participated in the treatment or not (condition) could be accounted for in posttest scores of empathy, $\Delta R^2 = .009$, $F (1, 52) = .863$, $p = .357$ (Table 10).

Table 10. Summary of the Models Predicting Posttest Scores of Empathy.

| Model | $R$  | $R^2$ | Adjusted $R^2$ | $\Delta R^2$ | $F$  | $df_1$ | $df_2$ | $p$   |
|-------|------|-------|----------------|-------------|------|--------|--------|-------|
| 1     | .665a| .443  | .422           | .443        | 21.063| 2      | 53     | .000  |
| 2     | .672b| .452  | .420           | .009        | .863 | 1      | 52     | .357  |

Notes: Model 1: (Constant), Empathy Pretest, Gender
Model 2: Model 1 Predictors above plus Condition (1=Treatment, 0=Control)
Table 11 displays the regression coefficients of the variables in the models. For "condition," the coefficient was not significant $t (52) = .929, p = .357$ with $b = .116$ and $\beta = .102$. The positive coefficients were in the predicted direction, in that program participation, on average, was associated with higher posttest empathy scores; however, there was not sufficient evidence to suggest that the treatment improves empathy, after controlling the gender and initial levels of empathy that the teachers reported for their students. Based on Cohen’s $f^2$, the effect size was .016 which was not considered to be even a small (.02) effect size (Cohen, 1988).

| Model | B     | SE  | $\beta$ | t    | p   |
|-------|-------|-----|---------|------|-----|
| 1     | (Constant) | .915| .199    | 4.601| .000|
|       | Gender | .169| .130    | .147 | 1.299| .200|
|       | Pretest | .590| .113    | .590 | 5.220| .000|
| 2     | (Constant) | .794| .238    | 3.331| .002|
|       | Gender | .154| .131    | .134 | 1.177| .245|
|       | Pretest | .628| .121    | .629 | 5.213| .000|
|       | Condition | .116| .125    | .102 | .929| .357|

Note: Condition (1=treatment, 0=control); Gender (1=girl, 0=boy).

Four multiple regressions were conducted and the results show that the intervention had positive effects on students’ social emotional competency (specifically participants’ responsibility, social competence and self regulation) after controlling for gender along with their initial levels of responsibility, social competence and self regulation, respectively.

Discussion

The ability of children to perceive mood and feeling, and to understand their emotional status provides a foundation for furthering their good social relations and prosocial behaviors. However, the findings in this current study suggest that the Orff-based musical curriculum can improve children’s empathy but not to a statistically significant extent. There are two reasons for this result, one is the intervention is a short-term program, and the other one is that for children in the early childhood, it may be more difficult to master and apply the skills of empathy than the other three aspects of social emotional competence.

Recommendations on Further Studies

The design of the experiment can be also adjusted for different participants (both migrant and local children) based on their levels of social emotional competence and characteristics. In addition, future research studies might lengthen the intervention and collect delayed posttest scores to explore the long term influence of the Orff-based curriculum, as studies in other countries tended to use longer interventions.

Summary

This exploratory research provides some of the first empirical data regarding the possible benefits of using an Orff-based curriculum to enhance migrant children’s social emotional competence in the setting of a Chinese suburban school with kindergarteners. The findings add to the research literature which focuses on the influence of Orff Schulwerk on children’s social and psychological development and the non-musical functions of musical activities. This inquiry informs Chinese music educators and kindergarten classroom teachers regarding teaching strategies for improving children’s social emotional competence through the use of a music-based curriculum.
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