STUDIA UBB PSYCHOL.-PAED., LXI, 2, 2016, p. 5 - 13
(RECOMMENDED CITATION)

WHAT FACTORS INFLUENCE THE DEVELOPMENT OF READING FLUENCY OF ROMA CHILDREN? THE EFFECTS OF WHOLE-CLASS REPEATED READINGS AND SCHOOL ABSENTEEISM

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ABSTRACT. Research literature shows that Roma children's literacy skills are less developed compared with their non-Roma peers. This situation represents a major deterrent in integration of Roma within the majority of countries of European Union. In this study we measured the effects of an intervention program aimed to diminish the gap in reading fluency skills between Roma and non-Roma 2nd grade children. The results indicated that a) Roma children's performance was significantly lower than their non-Roma peers before and after the intervention, b) there was no difference in the reading fluency growth rate of Roma and non-Roma children and c) poor school attendance of Roma children moderated the effect of Roma ethnicity. The findings suggest that poor school attendance has a particularly significant negative effect on the development of reading fluency of children of Roma ethnicity.

Keywords: *Roma; reading fluency; school attendance.*

Zusammenfasung. Die Forschungsliteratur zeigt, dass bei Roma-Kinder die Lese- und Schreibfähigkeiten weniger entwickelt sind im Vergleich zu ihren Nicht-Roma-Peers. Diese Situation stellt eine große abschreckende Wirkung auf die Integration der Roma in den meisten Ländern der Europäischen Union. In dieser Studie haben wir die Auswirkungen eines Interventionsprogramms gemessen, das darauf abzielt, die Lücke zwischen den Roma und Nicht-Roma-Kindern der 2. Klasse zu verringern. Die Ergebnisse zeigten dass, a) die Leistung den Roma-Kindern war signifikant niedriger als ihre Nicht-Roma-Kollegen vor und nach der Intervention, b) es gab keinen Unterschied in der Lesefluenz-Wachstumsrate von Roma und Nicht-Roma Kindern und c) schlechte Schulbesuch

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von Roma-Kindern moderiert die Wirkung von Roma-Herkunft. Die Ergebnisse deuten darauf hin, dass ein schlechter Schulbesuch einen besonders signifikanten negativen Effekt auf die Entwicklung der Lesefluenz von Kindern der Roma-Ethnizität hat.

Schlüsselwörter: *Roma; Leseflüssigkeit; Anwesenheit.*

The Roma people is one of the largest ethnic minority groups in Europe. Despite considerable efforts made by local, national and European institutions aimed towards supporting the Roma group's economic and social development, their level of education is still shown to be lower than the average in general population (e.g. Decade of Roma Inclusion; O'Nions, 2010; Rat, 2005). Official data from European Union (Council of Europe, 2006; Fundamental Rights Agency, 2014) provide an insight into a dramatic situation when it comes to school attendance, achievement and completion: less than half of 4-year-olds Roma attend kindergarten compared with their non-Roma peers; as many as 50% of Roma children are indicated to fail to complete primary education; in some Central and Eastern European countries between 50% to 80% of Roma children are enrolled systematically in special schools established for children with learning disabilities, and 89% of Roma individuals have not completed secondary education. Empirical research shows that one of the main reasons why Roma children struggle in school and have a drop-out rate higher than their non-Roma peers is their poor literacy skills (Baucal, 2006; Kiprianos, Daskalaki & Stamelos, 2012). It is, therefore, striking that while there is a clear interest at the European level for increasing the level of literacy of the Roma population, the scientific research studies that investigate the development of reading skills of Roma children are scarce. There is little evidence-based knowledge on the extent to which ethnicity can predict the development of reading skills of Roma children, and what school generally can do to help Roma children improve their literacy skills.

Literacy is generally seen as the ability to read and to write. Learning how to read is one of the basic skills learned in school, and which predicts significantly the school performance of children in upper grades (Herbers, et. al., 2012). While the ultimate goal of learning to read is to comprehend the written message, one of the early stages in the development of such skill is learning to read fluently, i.e. identifying automatically the connection between graphemes and their corresponding phonemes. Reading fluently, which is measured by the extent to which children can decode written words quickly, accurately and with the appropriate use of prosody (Kuhn, & Stahl, 2003), was found to be a major predictor of reading comprehension on medium- and long-term (De Jong and

Van der Leij, 2002; Landerl & Wimmer, 2008). Moreover, reading fluency was identified as one of the major variables responsible for achieving reading proficiency (National Reading Panel, 2000) that has the potential to significantly predict the overall academic performance in the upper grades (Rasinski & Hoffman, 2003). Given the importance of reading skills for children's general development and school performance, and the indicated issues regarding the low literacy levels in the Roma population, gaining more insight into how reading fluency is developed among Roma children is paramount.

The development of reading skills in general, and of reading fluency in particular, is predicted by several factors, and one of them is particularly important in the context of Roma children, i.e. school absenteeism. Several empirical studies have shown that school absenteeism can significantly predict poor reading development (Gottfried, 2010; Steward, Steward, Blair, Jo & Hill, 2008), and this variable apparently has a more powerful impact on children at-risk (Morrisey, Hutchinson & Winsler, 2014; Ready, 2010). Just like any other disadvantaged groups, many Roma children do not attend school systematically (Brüggemann, 2012; Kiprianos, Daskalaki & Stamelos, 2012; Kosko, 2012). In this context, examining the extent to which school absenteeism plays a role in the development of reading fluency of Roma children can generate knowledge that has both conceptual and practical application, and will be focus of this study.

Finally, a question arises with regard to how can school contribute to the improvement of the reading fluency skills in a disadvantaged group such as the Roma children. Empirical evidence shows that repeated reading is one of the most effective strategies to improve fluency (Meyer & Felton, 1999; Therrien, 2004; Therrien & Kubina, 2006). Whole-class repeated reading strategy is reported to work for the majority of children, and to have a particular positive effect for struggling readers since it helps overcome possible reading-aloud anxieties and provides them group support from their peers (e.g. Heilman, Blair & Rupley, 2002). Such strategy emerges as suitable for providing the Roma children with support when learning to read, since it can be applied without singling out these children, who may have obvious gaps in comparison to the average class level. Furthermore, it offers clear opportunity to include these children in class-level reading activities. In this vein, this study mainly aims to examine the extent to which a whole-class repeated reading intervention improves the fluency of potential struggling early readers of Roma ethnicity.

Three research questions were formulated in order to address this aim, namely:

1. Can the whole-class repeated reading strategy support the Roma children to improve their reading fluency?
2. Does school attendance predict the development of reading fluency?
3. Does school attendance moderate the effect of ethnicity?

Method

Participants

A total number of 241 2nd grade children from Romania aged between 7 and 11 years were initially involved in the study. However, 35 of these children were missing at least one of the variables of interest. Thus, the final sample consisted of 206 children aged between 7 and 11 years (105 boys, *M* age = 101.41 months, *SD* = 6.40 months). Out of these, 47 were Roma children (36 boys; see Table 1 for descriptive statistics), and 159 were Non-Roma (90 boys; see Table 1 for descriptive statistics).

Procedure

A 7-week/35-day intervention program was implemented to measure the development of reading fluency skills of our participants. Children's reading fluency was measured individually before and after the intervention program by a group of assessors within the same school where children attended classes. Three intervention teachers (other than the regular classroom teachers) implemented the program. To control for the teacher effect, the intervention teachers rotated every week. The intervention program was implemented daily during the regular language arts classes and lasted about 20 minutes. Each day, children read a different story. Initially, the intervention teacher informed the children the topic of the story they were about to read. Then, each story was read 3 times. After the story was read, the children in each class engaged in conversations about the story, by answering a set of standardized comprehension questions posed by the teacher.

Measures

Reading fluency was measured by the number of correct words read per minute, and included two tasks: *Words in disconnected text* (read in 40 seconds) and *Words in connected text* (read in 120 seconds). The tasks were built by the research team, similarly with TOWRE-2 (Torgessen, Wagner & Rashotte, 2012). Each task was measured by using two instruments (two words lists, respectively two age appropriate stories). To check the reliability of our measure, we carried out Pearson correlations between the two instruments, as well as between scores at T1 and T2 for the same instrument. All indices were between $r = .74$ and $r = .96$, indicating good reliability.

School attendance was calculated by counting the number of full days the children were not present in school.

Results

As can be seen in Table 1 (means and standard deviations for all relevant study variables), Roma children in our study were significantly older than Non-Roma children, were absent from school more often, and had lower reading fluency scores both at T1 and T2.

As we were interested in the development of reading fluency from T1 to T2, we created a "growth" variable for each reading fluency measure by subtracting children's decoding scores at T1 from their scores at T2. The resulting scores are also included in Table 1. Although Roma and Non-Roma children differed in terms of their starting and end scores (T1 and T2), their growth rates were not significantly different. Additionally, one-sample *t*-tests indicated that growth curves for both *Words in disconnected text*, $t(205) = 13.345$, $p < .001$, and *Words in connected text* were significantly different from zero, $t(205) = 14.864$, $p < .001$.

Table 1. Descriptive statistics (means and standard deviations) for the two ethnic groups, and independent-samples t-test comparisons for all study variables

	Non-Roma	Roma	*t*
N	159	47	
Age (months)	99.92 (4.23)	106.59 (9.37)	-4.69*
Absence	1.22 (1.78)	4.57 (4.08)	-3.35*
T1_Words in disconnected text	27.37 (12.32)	10.51 (7.07)	16.86*
T2_ Words in disconnected text	32.11 (13.11)	14.64 (9.31)	17.47*
Growth words in disconnected text	4.75 (5.13)	4.13 (4.33)	0.62
T1_Words in connected text	86.87 (51.10)	23.43 (24.35)	63.44*
T2_Words in connected text	109.28 (52.58)	40.96 (40.41)	68.32*
Growth words in connected text	22.41 (21.27)	17.53 (17.67)	4.88

*$p < .001$

In order to determine whether individual differences in the growth of reading fluency could be predicted by ethnicity, school attendance and / or their interaction, we conducted a separate moderation analysis for each of the two reading fluency measures. We centered attendance, dummy-coded ethnicity (using the Non-Roma group as a baseline), and then computed the attendance × ethnicity interaction term by multiplying the two variables. We then carried out a hierarchical regression analysis for each of the two reading fluency measures,

with ethnicity (step 1), attendance (step 2) and the interaction term (step 3) as the predictors. For *Words in disconnected text*, results indicated that ethnicity explained only a non-significant 0.3% of the variability in growth, $\Delta R^2 = .003$, $F < 1$, *ns*, $\beta = -.052$. Attendance was also unrelated to reading fluency growth, $\Delta R^2 = 0$, $F < 1$, *ns*, $\beta = -.024$. However, the interaction of ethnicity and attendance significantly predicted growth, $\Delta R^2 = .021$, $F(1, 202)=4.41$, $p<.05$, $\beta = -.295$. This indicates that while attendance does not seem to predict reading fluency growth in the overall sample, for children belonging to the Roma group, the lower the school attendance level, the slower the growth of their reading fluency (which is not the case for Non-Roma children). For the second reading fluency measure – *Words in connected text* – results indicated that ethnicity was not associated with individual differences in growth, $\Delta R^2 = .010$, $F(1, 204) = 2.053$, $p = .153$, $\beta = -.100$. However, a higher number of absences was significantly linked to a lower growth rate over the entire sample, $\Delta R^2 = .061$, $F(1, 203) = 13.392$, $p < .001$, $\beta = -.285$. Finally, there was no significant ethnicity × attendance interaction effect, $\Delta R^2 = .010$, $F(1, 202) = 2.132$, $p = .146$, $\beta = .175$, indicating that the effect of attendance was similar in the two ethnic groups.

Discussion

This study aimed to identify to what extent an intervention program of whole-class repeated reading strategy supports the improvement of the reading fluency of Roma children. Our findings showed that Roma children scored significantly lower than their non-Roma classmates, both before (T1) and after (T2) the 7-week intervention program. This indicates that the gap in literacy skills between Roma and non-Roma children is substantial, and these findings are consistent with previous empirical evidence from other countries (Baucal, 2006; Kiprianos, Daskalaki & Stamelos, 2012). However, the growth rate of the two ethnical groups was not significantly different during our 7-week intervention. This indicates that, once Roma children come to school and are exposed to the same educational opportunities and support as their non-Roma peers, they have similar chances to develop their literacy skills.

Our findings also showed that missing out on a few days of school did not significantly impact the 7-week growth rate of our reading fluency intervention for the children in our sample. However, the significant interaction effect of attendance and ethnicity for words in disconnected text indicates that Roma children are particularly vulnerable when they are not present in class, and that school attendance plays a crucial role for this category of children. Our findings are consistent with other studies in the literature which indicated

that children from disadvantaged families are particularly vulnerable when they miss school (Morrisey, Hutchinson & Winsler, 2014; Ready, 2010). It is interesting to note that the interaction effect between attendance and ethnicity was not significant for the measures of reading words in connected texts. This is explained by the fact that the growth of reading fluency of words in connected text is faster than in disconnected text, since such tasks involve reading comprehension (and relies on oral language skills) that need a longer time to develop (Klauda & Guthrie, 2008; Rumelhart, 1994).

The generalization of the results needs to be treated with caution because the reading growth between the two testing points cannot be fully explained by the intervention program alone (which lasted about 20 minutes daily). Two potential unaccounted confounding variables might partially explain the reading growth: classroom teacher effect and differential instructional content. However, regardless the aforementioned limitations, the conclusions about the interaction effect between school attendance and ethnicity are unaffected, since the data collected for the two variables leaves no room for ambiguity.

The findings of our study indicate that further research is needed to clarify the sources of poor literacy skills of Roma children at an earlier age. The effects of a 7-week intervention program developed in 2nd grade, which had proven to be effective in improving fluency for at-risk students (like whole-class repeated readings) are not strong enough to compensate the development gap between the Roma and non-Roma children. However, our findings showed that if Roma children have similar schooling experiences with their non-Roma peers and attend the school regularly, their literacy skills can develop at similar rates with their peers.

Acknowledgements: This work was supported by EEA grants / Norway Grants under the program "Research within priority sectors" (15 SEE/30.06.2014)

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