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READING AT HOME: COMPARISON OF READING ABILITY AMONG HOMESCHOOLED AND TRADITIONALLY SCHOOLED CHILDREN

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The homeschool framework differs significantly from the traditional school setting. Earlier research has shown differences between homeschooled and other children in language skills, but no study has examined how homeschooling is related to the acquisition of the different components of reading. The present research examined several reading skills, comparing these two groups. The findings indicated that the homeschooled children achieved lower results in reading comprehension, but not in listening comprehension. The homeschooled children were also found to have broader general knowledge than the other children did. The gap between the groups in reading was associated with lower levels of phonological awareness. These findings might be attributed to the different methods used to teach reading in the two frameworks.

Homeschooling is a practice in which children of different ages do not attend school, but study at home instead. The homeschooling option differs significantly from the school framework that is customary in modern society. The majority of children today spend a large part of the day in educational institutions, where professional educators teach them together with children of similar age; in homeschooling, the teaching is usually done by parents in the family home, on an individual level or in small groups of siblings (Kunzman & Gaither, 2013; Reyes, 2012; Knowles, 1988; Rothermel, 2004; Safran, 2012).

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For the past few decades, there has been a steady increase in the number and percentage of children in the homeschooling framework in several western countries (Kraftl, 2013; Kunzman & Gaither, 2013; Lubienski, Puckett, & Brewer, 2013), with United States and England leading in terms of this trend. According to conservative estimates, approximately 1,500,000 children (about 2.9% of all school-age children) are homeschooled children in the US, and about 80,000 in England.

In Israel, the practice is much more limited, but it is also growing steadily. The education ministry estimates that 360 families in Israel homeschool, with double that number of children; furthermore, the figures have grown significantly over the last ten years (Neuman & Guterman, 2013; Neuman & Aviram, 2015). Although the mandatory education law in Israel applies to the entire population, homeschooling is allowed. However, each family must obtain permission from the ministry of education, which sends representatives to visit each family once a year to establish whether the framework suits the child's needs.

Even though homeschooling is a growing practice, little research has examined this subject in Israel. Researchers began comparing the academic achievements of children in homeschooling with those of children who attend schools in the 1980s (see, e.g., Rakestraw, 1988) and continue to do so to this day, mainly in the US and Europe (e.g., Cogan, 2010; Saunders, 2009; Wilkens, Wade, Sonnert, & Sadler, 2015). One of the comprehensive studies on this subject was conducted by Belfield (2005). His analysis of the SAT test results of children who were educated in the homeschool framework revealed that the graduates of homeschooling achieved relatively high scores on the exam – mainly because of their higher scores in the verbal field and less because of their mathematics scores – compared with children who were educated in public or private schools. Belfield attributed the higher ability in verbal skills among homeschooled children to the higher level of verbal skills among their parents. He also found that the demographic background of the parents (such as place of residence, parents' education, family size, and the like) affected homeschooled children more than their counterparts who attended school. Belfield's (2005) findings also indicated that the socioeconomic

characteristics, that is, level of education of their parents and income, of the parents in homeschooling were higher, but when he controlled for these demographic characteristics, the difference between homeschooling and school education in SAT scores remained (although it was smaller).

Another explanation for the consistent finding of an advantage in verbal abilities among children who are homeschooled (Kunzman, 2009; Thomas & Pattison, 2008; Thomas & Pattison, 2013, 2015) is that a large portion of the parents utilize parent–child conversations as the basis of learning, and this is likely to significantly improve the verbal ability of the child over time. In addition, these explanations suggest that children in homeschooling may spend considerably more time reading or being read to by a parent. It is plausible that this behavior also helps build the children's verbal ability.

One of Belfied's (2005) findings that much of the other relevant literature has corroborated is the impact of socioeconomic conditions, such family income, and particularly parents' education, on the educational outcomes of homeschooling. This has been shown by both qualitative examinations of the quality of the parents' instruction (such as Kunzman, 2009) and by quantitative studies of the children's academic achievements (such as Medlin, 1994).

Martin-Chang, Gould, and Meuse (2011) addressed these findings in a study of 37 homeschooled children and 37 school-going children aged 5-10, with control of family variables and parents' education by using of samples of similar characteristics in these respects. The findings indicated that among children with "structured" homeschooling, where the mothers saw themselves as the children's teachers and used a structured curriculum that they had learned or created themselves, the academic achievements were higher than those of children in the school group. In contrast, the children who experienced "unstructured" homeschooling, where the prevailing pedagogical beli was that education is a natural outcome of daily experience, and the parents never, or almost never used structured lesson plans, achieved lower scores on most of the subtests compared with the children who attended school.

Thus, we see that previous research has indicated differences in the scholastic competence, in general, and in verbal

skills, in particular, between children who are homeschooled and children who attend school. However, there were three main limitations in those studies. First, a large portion of the research compared adults, and not young children who were in the process of acquiring reading ability (e.g., Cogan, 2010; Saunders, 2009). More important, they did not compare children from different age groups. In light of this, it is difficult to understand the dynamics of the differences between groups, and particularly, whether they develop and change over time. Against this background, the present research was conducted with children in the major period of learning to read, ages 6 to 12, divided into three age groups.

Second, in previous research, the relationship of scholastic competence and reading skills with other abilities, such as general knowledge and intelligence, among children from the two types of schooling has not been examined. Consideration of these variables is particularly important, in light of research on the subject of learning to read that found general knowledge and intelligence to be related to the ability to read (e.g., Anderson & Pearson, 1984; Kershaw & Schatschneider, 2012). In order to examine the difference in reading skills beyond these influences (general knowledge and intelligence), we also examined the general knowledge and intelligence of the groups of children.

Third, one of the main shortcomings of the existing research on homeschooling is the absence of comparable control groups in most of the studies. Many have compared groups of people who were raised in homeschooling with norms in the population, a method in which there is no matched group for comparison that would enable conclusions regarding the differences between groups (Kunzman & Gaither, 2013). In the present research, we used two matched samples of children educated at home and in the school system. The children came from families with similar socioeconomic characteristics and were of the same ages. In addition, the children were examined under the same conditions by the same examiners using the same tests, to enable good comparison between the results of the different groups.

In addition, in order to examine whether any of the disparities between the groups derived from differences in general

comprehension or from other sources, such as test-taking skills (since the children in homeschools in Israel do not take tests and are not used to this type of activity) or the ability to understand informative texts regardless of reading ability, we chose to include an examination of listening comprehension in this research, as well. It is important to note that in order to avoid confusion among languages, all the instruments employed in the research were in Hebrew, and all the children were native Hebrew speakers.

Method

Participants

The research participants were 101 children, 65 who were homeschooled, and 36 who attended school. Of the participants, 42 were girls and 59 were boys. The ages of the children ranged from 6 to 12, with a mean of 9.18 years and a standard deviation of 1.91. In order to examine whether there were age differences between the homeschooled children and those who attended schools, we performed a t-test for independent samples. The results indicated no significant differences between the groups of children in terms of age, $t\ (99) = 1.55$, $p > .05$. In addition, in order to examine whether there were differences between the homeschooled children and those who attended school in terms of the percentage of boys and girls in each group, we conducted a Chi-square analysis for independent samples. The results indicated no significant differences between the groups of children in the distribution by gender (1) $X^2 = 0.01$, $p > .01$.

In addition, in order to examine the possibility of socioeconomic differences between the groups of children who were homeschooled and those who attended school, we conducted a t-test for independent samples comparing the education of the dominant caring figure and the family income in the homeschooling families with that of the families of children who attended school. The analysis indicated no significant difference between the two frameworks in terms of these two

variables (education of dominant parent: $t(99) = 1.46$, $p > .05$; family income: $t(99) = 1.07$, $p > 0.5$).

PROCEDURE

We met the prospective participants at social meetings of homeschooling parents that are held frequently. At the meetings, we presented the goal of the study to the parents and to the children of the relevant ages (6 to 12) and asked them to participate in the research. All the parents who met the criteria for the study (68 families) agreed to participate, with the exception of three families that chose not to participate. The parents of children who studied in schools were recruited by means of a request to parents of children of the same ages (6 to 12) from the same residential area. Parents of children of similar ages and similar background as the homeschooled children were approached by direct phone calls, in which the purpose and the process of the research were explained. Among these parents, too, the response rate was very high; only 4 of the 39 families approached chose not to participate.

In a preliminary stage, we trained research assistants in developing relationships of trust with families and in administering questionnaires. They then practiced administering the questionnaires to children and parents that were not included in the research. The research assistants then contacted the families that had agreed to participate by phone and made appointments for meetings with each parent and child at the family home. The parents signed a form indicating informed consent to participate in the research and then completed the parents' questionnaire, which included questions about the family's demographic and socioeconomic characteristics. While they were doing so, a research assistant administered the questionnaire to the child. When the parents and child had completed their respective questionnaires and tests (which are described in detail in the Instruments section), a discussion was held with them together, where the importance of the research was again emphasized and the participants were given an opportunity to make comments or ask questions.

INSTRUMENTS

In the present research, we used two batteries of tests: Elul tests for detection of learning disabilities and a Wechsler intelligence test.

Elul tests. The Elul (a Hebrew acronym for Detection of Learning Disabilities and Difficulties) testing system is a set of exams in Hebrew designed for children in grades 1 to 9 (Breznitz, Nevo, & Shatil, 2004), with a different version for each grade level. For the ages relevant to this research, there are tests adapted to grades 1 and 2, grades 3 and 4, grade 5, and grade 6. The testing system includes age-based norms, to enable determination of the student's performance score in each of Elul exams. Each of the participants was administered exams appropriate to his or her age. In this research, in order to create groups of similar age ranges, we examined three age groups: children of the age of grades 1 and 2 (ages 6 to 8) were included in the first group; children of the age of grades 3 and 4 (ages 9 to 10) were included in the second age group; and children of the age of grades 5 and 6 (ages 10 to 12) were included in the third age group.

Vaknin-Nusbaum, Sarid, and Shimron (2016) found a high correlation between children's results on the Elul test and their ability to understand written text. In the present research, we included four tests that examine different components of the reading process. The first test is a general measure of reading skill, which examines reading comprehension. The second and third tests examine two components of reading: phonological awareness and orthographic awareness, respectively. The fourth test examines listening comprehension.

The reading comprehension test is comprised of informative text. The child is asked to read the informative texts and then to mark each of ten statements as true or false. The level of difficulty and complexity of the exam increases with age. The score is determined by the number of correct answers.

The phonological awareness test is a test of decoding skills. It is comprised of a list of pseudohomophonic words (words that sound like real words, but are not spelled correctly). This list of non-words is organized in columns on one or two pages, according to the number of non-words included in the test.

They are common parts of speech, mostly nouns and adjectives, and the children are familiar with their meaning (the familiarity of the words included was examined by the researchers who constructed the test). Some of the non-words resemble names of foods. The child is asked to read the list of non-words to him or herself and circle those that are names of foods. Each of the age groups receives a different list and is given a different period of time to perform the task, according to the norms set for the age group (Breznitz, Nevo, & Shatil, 2004). The score is determined by the number of correct non-words chosen.

The orthographic awareness text is comprised of a list of words organized in columns on one or two pages, according to the number of words included in the test. The words include common parts of speech, such as nouns, verbs, and adjectives, and the children are familiar with their meaning (here, too, the researchers who constructed the test examined the familiarity of the words on the list). Examples include words such as "stairs," "computer," and "table," Some of the words are names of animals. The child is asked to read the list to him or herself and circle the names of animals. It should be noted that in this test, the words are actual words, not non-words (or pseudohomophonic words). Each age group receives a different list and is given a different period of time to perform the task, according to the norms set for the age group (Breznitz, Nevo, & Shatil, 2004). The score is determined by the number of correct words chosen.

In the listening comprehension test, the examiner reads informative text out loud to the child. After the child hears the text, the examiner reads out ten statements and asks the child to note whether each statement is true or false. The level of difficulty and complexity of the exam increases with age level. The score is determined by the number of correct answers. In all four tests, the test score is transferred to the age-based norm.

Wechsler tests. The Wechsler (1974) test is one of the most common means for assessing children's cognitive ability. It is standardized and there are Israeli norms for ages 6 to 16 and 2 months (Ganel, Freud, Chajut, & Algom, 2012). A score key is used to mark each subtest. The child's score on each subtest is then converted, according to age-based norms, into the score

for that test. The reliability coefficients of the Israeli version of the Wechsler tests are high (Lieblich, Ben Shahar-Segev, & Ninio, 1976). Three of the exams were administered to the children; two of them are accepted as a general measure of cognitive ability (similarities and comprehension) and the third is used to evaluate general knowledge.

In the test on similarities, for every item, the examiner reads aloud two words that represent familiar concepts to the child. The child is asked to say how the concepts are similar (for example: "How are pants and a dress similar?"). This test examines cognitive ability and abstract conceptualization. The main ability measured is the ability to choose and verbalize meaningful relationships between two objects or concepts.

In the comprehension test, the child is asked to respond verbally to a series of questions that require daily problem-solving skills and understanding of general social concepts (for example: "What should you do if you see a lot of smoke coming out of the window of your neighbor's house?"). The test examines the child's social functioning and judgment, or in other words, his or her reality check. The test includes references to familiar, daily situations as well as more abstract situations, which require processing and integration of ethical, value-related, and social information that the child has internalized.

The general knowledge test is comprised of a series of questions about general knowledge (for example: "In which direction does the sun set?"). It examines the general knowledge that the child has absorbed from the surroundings.

The scores for these three tests are also transferred to the age-based norm. In addition to these tests, the parents also completed a demographic questionnaire that referred to general data about themselves and their family, such as their parents' education, the family income, their age parents, and the like.

Results

Difference between groups

In order to examine whether there were differences between the types of education – home schooling and school system – and

TABLE 1 Means and standard deviations of Elul tests, by type of education

	Type of education					
	Homeschooling (n = 59)		School education (n = 35)			
Measure	M	*SD*	M	*SD*	*F*(1, 88)	Eta^2
Phonology	18.19	11.98	28.14	6.30	19.53***	0.18
Orthography	9.53	7.11	10.54	4.96	0.02	0.00
Reading comprehension	6.20	3.56	7.94	1.73	9.26**	0.09
Listening comprehension	7.53	1.96	7.77	1.11	0.44	0.00

**$p < .01$, ***$p < .001$.

between the age groups in reading ability on the Elul test, we performed a 2 x 3 (type of education x age group) MANOVA analysis. The results indicated a significant difference between the children who were homeschooled and those that attended school, $F(4,85) = 6.68$, $p < .01$, Eta$^2 = .24$, and a significant difference among age groups, $F(8,170) = 8.62$, $p < .01$, Eta$^2 = .29$, No significant interaction was found, $F(8, 170) = 0.90$, $p > .05$, Eta$^2 = .04$, In Table 1 we present the means and standard deviations of the Elul tests by type of education and the results of the ANOVA test conducted for each measure separately.

As can be seen from table 1, significant differences were found between the homeschooled children and those that attended school in the phonological and reading comprehension tests; the children who attended school demonstrated higher phonological awareness than their homeschooled counterparts. Similarly, the children who attended schooled had better reading comprehension than the homeschooled children did.

As noted, the analysis also indicated a significant difference between age groups. In Table 2, we present the means and standard deviations on the Elul tests and the results of the ANOVA test for each measure separately.

Significant differences were found among the age groups on the different tests. The results indicated that in all the tests, the children aged 6 to 8 achieved lower scores compared with both other age groups, and the grades of the children aged 9 to 10 were lower than those of the children aged 10 to 12.

TABLE 2 Means and standard deviations of Elul tests, by age group

	Age group							
	Ages 6 to 8 (n = 32)		Ages 9-10 (n = 30)		Ages 10-12 (n = 32)			
Measure	M	*SD*	M	*SD*	M	*SD*	*F*(1,88)	Eta^2
Phonology	13.09	10.77	22.97	8.93	29.69	11.29	22.07***	0.33
Orthography	6.01	6.56	11.23	6.13	12.56	4.41	8.18**	0.16
Reading comprehension	4.06	3.01	8.40	2.45	8.19	1.49	25.47***	0.37
Listening comprehension	6.84	2.05	8.33	1.44	7.72	1.14	4.40*	0.09

*$p < .05$, **$p < .01$, ***$p < .001$.

In order to examine whether there were differences between the types of education and between the age groups in cognitive ability, as measured by the Wechsler tests, we conducted a 2 x 3 (type of education x age groups) MANOVA analysis. The results indicated a significant difference between the homeschooled schooled and those who attended school, $F(3,91) = 4.75$, $p < .01$, $Eta^2 = .13$, but not among the age groups, $F(6,182) = 1.04$, $p > .05$, $Eta^2 = .03$. No significant interaction of type of education x age group was found, $F(6,182) = 0.44$, $p > .05$, $Eta^2 = .01$. In Table 3 we present the means and standard deviations of the groups in the two types of education on the Wechsler tests and the results of the variance analysis for each measure separately.

Significant differences were found between the children who were homeschooled and the children who attended school on the test of general knowledge; the children who were homeschooled had greater general knowledge than the school-going children.

Correlations among the research variables

We calculated Pearson correlations to examine the relationship between the four Elul tests. Strong correlations were found between the reading-related variables – reading comprehension, phonological awareness, and orthographic awareness skill – in a range of $r = .57$ to $r = .66$. In contrast, the correlations

TABLE 3 Means and standard deviations of Wechsler tests, by type of education

	Type of education					
	Homeschooling (n = 64)		School education (n = 35)			
Measure	M	*SD*	M	*SD*	*F*(1, 93)	Eta^2
Similarities	12.58	3.28	12.40	2.49	0.01	0.00
General knowledge	12.52	3.76	9.51	3.17	13.19***	0.12
Comprehension	8.02	2.57	7.11	2.40	1.72	0.02

***$p < .001$.

TABLE 4 Pearson correlations of cognitive abilities with reading abilities and listening comprehension (N = 101)

Variables	General reading	Listening comprehension
Similarities	.24*	.27**
General knowledge	.07	.02
Comprehension	.03	.11

*$p < .05$, **$p < .01$.

among these three variables and listening comprehension were lower, although also significant, in a range of r = .31 to r = .39. Therefore, we decided to combine the measures related to reading into a single variable, constituting the average of the three tests. We then had two variables, one of reading ability and one of listening ability. In Table 4 we present the correlations between Wechsler tests and the two Elul measures.

Significant correlations were found between the similarities test and general reading ability and listening comprehension. A higher score on the similarities test correlated with a higher level of reading ability and listening comprehension. The correlations were for all of the children combined.

In order to examine the contribution of type of education and cognitive abilities to the explained variance in the unified variables of reading abilities and the variable of listening comprehension, we performed hierarchical regression analyses. Each of the regressions was comprised of three steps: in the first step, we entered the personal characteristics of the

TABLE 5 Hierarchical regression coefficients for explained variance in general reading ability

Variable	B	β	R^2 change	R^2
Step 1				
Type of education	12.56	.24**	.34***	.34***
Age group	15.00	.49***		
Step 2				
Type of education	16.91	.32***	.10**	.44***
Age group	15.61	.52***		
Similarities	1.56	.19*		
General knowledge	1.38	.21*		
Comprehension	0.12	.01		
Step 3				
Type of education	14.13	.27**	.03*	.47***
Age group	15.29	.51***		
Similarities	1.43	.17*		
General knowledge	1.24	.19*		
Comprehension	–0.05	.01		
Type of education x general knowledge	5.06	.18*		

*$p < .05$, **$p < .01$, ***$p < .001$.

children – type of education and age group. In the second step, we entered the three variables of cognitive ability – similarities, the general knowledge, and comprehension. In the third step, we examined the contribution of the interaction of type of education x the other predictors. In the first two steps, the entry of variables was forced, and in the third step, in which we examined the contribution of the interactions to the explained variance, we entered only those interactions that contributed significantly to the explained variance ($p < .05$).

These regression analyses indicated that it was possible to explain 47% of the variance in general reading ability and only 14% of the variance in listening comprehension. In Table 5 we present the β coefficients of the explanation of variance by general reading ability.

The first step of the regression, in which we entered the personal characteristics (type of education and age group) of the children, showed a significant contribution of 34% to the explained variance. Both variables contributed significantly to the explained variance. In other words, as can be seen in Table 1, the children who attended school demonstrated a higher level of reading ability than their homeschooled counterparts did. In the second step, when we entered the three variables of

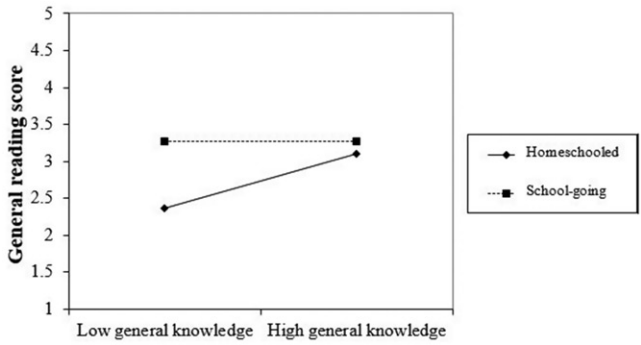

FIGURE 1 The correlation between general knowledge and the general reading score among homeschooled and school-going children.

cognitive ability (similarities, general knowledge, and comprehension), we found a significant contribution of another 10%. Similarities and general knowledge correlated positively and significantly with general reading ability. In other words, higher scores on these tests correlated with higher scores on general reading. In the third step, when we entered the interactions between type of education and the other variables, we found a significant interaction of type of education x general knowledge. This interaction added 3% to the explained variance. To clarify the interactions, we used Aiken and West's (1991) method. In Figure 1, we present the correlations between general knowledge and general reading scores among homeschooled and school-going children. The figure shows the trends that emerged from numerical analysis of the correlations of each of the independent variables, separately, with the dependent variable, and of the interaction of the independent variables with the dependent variable.

The analysis of the interaction indicated a strong, significant correlation between general knowledge and the general reading score among the children who were homeschooled, $\beta = .33$, $p < .01$; however, among the children who attended school, the correlation was insignificant, $\beta = -.02$, $p > .05$. Among the homeschooled children, those with a higher level of general knowledge also had higher general reading scores.

In Table 6 we present the β coefficients of the explained variance in listening comprehension. The results of the

TABLE 6 Hierarchical regression coefficients for explained variance in listening comprehension

Variable	B	β	R^2 change	R^2
Step 1				
Type of education	0.08	.02	.05	.05*
Age group	0.44	.22*		
Step 2				
Type of education	0.08	.02	.09*	.14*
Age group	0.41	.20*		
Similarities	0.16	.29**		
General knowledge	0.01	.02		
Comprehension	0.08	.12		

*$p < .05$, **$p < .01$.

regression analysis regarding listening comprehension did not indicate a significant interaction; therefore, we did not include them in the table.

The first step of the regression, in which we entered the personal characteristics of the children (type of education and age group), revealed a significant contribution of 5% to the explained variance. The findings indicated a significant positive β coefficient between age group and listening comprehension; the higher the age, the better the listening comprehension. The second step, in which we entered the three variables of cognitive ability (the similarities, general knowledge, and comprehension tests), added a significant contribution of an addition 9%. The only significant contribution to the explained variance of listening comprehension was that of the similarities test; the higher the score on the similarities test, the higher the listening comprehension.

Discussion

In the present research, we compared a group of children who were taught at home with a group who sent their children to school. The data indicated that the children who attended school had a higher level of reading comprehension than their homeschooled counterparts, particularly, as discussed later, in phonological awareness. The results of the Wechsler tests revealed that the homeschooled children had a higher level of

general knowledge; the similarities and comprehension tests did not indicate significant differences between the groups.

In order to compare the children who were homeschooled with those who attended school, we used paired groups, that is, groups that did not differ in terms of parents' education, family income, or age of the dominant parent (the parent who spent most of the hours of the day with the child). In addition, we implemented the same research procedure in both groups.

These differences in reading skills may have reflected a gap between the groups in the age at which they began reading; specifically, some of the homeschooled children may have begun learning to read later than those who attended school. This explanation is reasonable, as all the children who attend school begin learning to read in grade 1, but not all the children in homeschooling begin at exactly that point (Neuman & Aviram, 2003). However, two other findings of the research do not support this explanation. One is the lack of difference found between the groups in orthographic awareness, and the other is the finding that the difference by group in phonological awareness remained at older ages, as well. If the reason for the difference was variance in age when they began learning, we would expect the differences to diminish or disappear within a few years.

The difference in reading skills does not seem to derive from differences between the groups in the dimensions of intelligence we examined, either. In the similarities and comprehension tests, we did not find a difference between the groups, and therefore these variables do not explain the gaps. Furthermore, we found a higher level of general knowledge among the children who were homeschooled compared with those who attended school. This finding shows clearly that a higher level of reading comprehension cannot be attributed to general knowledge, as the children who attended school had relatively higher scores on reading skills.

Thus, the gap between the groups in reading skills did not come from differences in parents' education, family income, or age of the dominant parent, nor from differences between the groups in the dimensions of intelligence we examined.

Unlike instructional approaches used in schools, which are usually uniform and dictated by the state, the approaches used

in homeschooling are unique to the parents and usually reflect their own previous knowledge, personal experience, and educational philosophy (Knowles, 1989; McKeon, 2007(. Therefore, one possible explanation of the gap between the groups in reading skills found in this research might be that it is a result of the difference in the methods used to teach them to read. In future research, it would be interesting to examine whether the methods of teaching reading to homeschooled children differs from that employed in the schools. Such a study is very important; if different methods of reading instruction are employed in the two settings, this may indicate an advantage of educators who receive formal training based on many years of research and experience with methods of teaching.

The findings regarding a significant group difference in phonological awareness may also indicate the importance of having educators who receive formal training. This suggests a disadvantage of homeschooling by parents, who may have no training in education or pedagogy. Despite the benefits of one-on-one teaching, in some cases this type of education overlooks existing knowledge in the field and is liable to lead to gaps in the children's skills and knowledge. This perspective emphasizes the role of the homeschooling parent as a teacher and raises the question of whether there might be many cases in which such parents are unfit to teach and of the potential damage of nonprofessional homeschooling.

Furthermore, in addition to the effect of the type of schooling on reading skills, the data suggest a difference between the groups in the relationship between reading skill and general knowledge. Among the homeschooled children, a high level of general knowledge correlated with better reading skills; no such correlation was found among the children who attended school. In future research, it would be interesting to examine whether this correlation stems from the fact that families in which there is more learning general knowledge also encourage more acquisition of reading.

It is important to remember that from the perspective of the simple-view-of reading theory (Hoover & Gough, 1990), which views reading comprehension as the main goal of reading and specific reading abilities as serving this goal, the main

finding of this study is the gap in reading comprehension scores. As noted, these findings are particularly important in light of the continual increase in the practice of homeschooling over the past decades. According to this view, the present findings of gaps in phonological awareness are less significant and reading comprehension should be the focus of future research in this field. However, phonological awareness is a key element of decoding skills, so finding gaps in phonological awareness should be tied to reading comprehension, and as such, important from this perspective, as well. In light of the growing scope of home schooling, we must not continue to treat this practice as a negligible phenomenon adopted by only a few parents. Instead, it should be considered an increasingly popular educational approach that has significant implications for the children involved and for society as a whole. From this perspective, it is very important to continue to study this field in order to guide the families as well as the supervisors of these families.

In the present research, a number of limitations should be considered. The present research contributes to the understanding of this field, but it is also important to note that there are significant differences between countries and regions in terms of the character of homeschooling and school education. The present research was conducted in Israel, where reading is taught in Hebrew and where homeschooling is extremely rare compared with some other countries. In contrast, a large portion of the previous research on this subject has been carried out where students learn to read English. Naturally, the differences in language, education systems, and the characteristics of the homeschooling populations are likely to have a considerable effect on the differences in reading acquisition between homeschooled children and those who attend school. Against this background, it is hoped that the present research will serve as a basis for further studies that compare these aspects in different regions and, perhaps, also regarding different languages. The translations of the instruments into several languages, with standardization for each of them, makes it relatively easy to conduct such research and this could significantly contribute to the knowledge in this field.

Another important subject for future research is the examination of reading skills of older children. In the present study,

we focused on elementary school ages, but the picture may change in older age groups. Even though we did not find significant interaction between age of the children and type of education, the gaps between the groups in reading comprehension did diminish with age: as presented in the Results section, the mean difference between groups in the age group of grades 1-2 was 2.96, and in the age group of grades 5-6 it declined to 0.48. In other words, there was no significant interaction in these groups, but it would be interesting to examine whether such an interaction is found among children of older ages.

In considering the present research, a few limitations should be considered. First, it is impossible to examine all the factors that may affect disparities in reading skills in a single study. For example, we did not examine the time the children read daily; the differences in the time that children spent reading, and not the method of reading instruction could be responsible for the differences between the groups. Future research should also examine other potentially influential dimensions that were not included in the present research.

Another limitation of the research was that it did not differentiate between the types of homeschooling defined by some researchers (e.g., Klein & Poplin, 2008). It would be interesting to examine whether the different types of homeschooling, such as the degree of structure and type of structure (Guterman & Neuman, 2016), might affect the gaps between children in reading skills. In addition, we focused on specific reading skills; consideration of other aspects, such as vocabulary or memory, may shed further light on the differences between groups and their sources.

The findings of the present research, like others in the field and those that will be conducted in the future, promote better understanding of homeschooling and may also help in the practical guidance of professionals and parents. We hope that the data presented here will serve as a basis for further research in this field.

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