Received: 29 September 2024 | Revised: 22 November 2024 | Accepted: 18 December 2024 | Published online: 2 January 2025

RESEARCH ARTICLE

International Journal of Changes in Education
2025, Vol. 00(00) 1–8
DOI: 10.47852/bonviewIJCE52024458

BON VIEW PUBLISHING

Children from Low Socioeconomic Status Families in Greece: Can Learning and Language Aptitude Predict Language Achievement?

Constantinos Vouyoukas[1], Maria Tzouriadou[1,*] and Eleni Anagnostopoulou[1]

[1]*School of Early Childhood Education, Aristotle University of Thessaloniki, Greece*

Abstract: In recent years, it has been argued that for compensating children's difficulties in school achievement their underlying cognitive and learning strengths and weaknesses should be considered. This requires a different approach to evaluating children's difficulties in school learning, which should include not only their school achievement but also the underlying cognitive abilities or aptitudes. The aim of this study was to examine if underachievement or low language school achievement of children from low socioeconomic status families can be predicted by their learning and language aptitude. One hundred and ten 10–12 years old primary school students from the area of Macedonia, Greece, were assessed with a psychometric standardized learning aptitude test (DTLA-4) and a psychometric standardized language aptitude test LaTo Level II. Their language school achievement was assessed with an informal language test based on the school curriculum. Research findings indicated that both learning and language aptitude may predict students' oral and written language achievement. More specifically, general mental and language aptitude significantly predicted total language school achievement ($p = 0.006$ and $p = 0.000$), the receptive language system significantly predicted reading comprehension achievement ($p = 0.000$), the organization language system significantly predicted argumentative achievement ($p = 0.002$), the expressive language system significantly predicted written expression achievement ($p = 0.002$), the semantic language modality significantly predicted written expression achievement ($p = 0.005$), and the morphological language modality significantly predicted syntax and spelling achievement ($p = 0.001$ and $p = 0.004$). Recommendations highlight the importance of students' difficulties early identification and the critical role of school-based evaluation teams.

Keywords: learning and language aptitude, language achievement, children from low socioeconomic status families, at-risk student populations, Greek educational system

1. Introduction

In the contemporary school, achievement is contingent on school, professional, and social success. It is difficult to define the concept of school achievement because it is usually reflected in its assessment. In this context, school achievement includes skills developed during teaching and is illustrated by rating the acquired knowledge into grades [1]. School achievement is also illustrated by changes in learning behavior, which are assessed by quantitative and qualitative assessment methods. When children's achievement is good, parents and teachers are satisfied with their children's and students' success because they think that they are developing their potential according to social and school demands. On the other hand, when children poorly perform teachers and parents are often disappointed, and children may be marginalized.

Low school achievement may lead to school failure and dropout, which causes frustration not only to children and their parents but also to society at large. Low school achievement is operationalized by low school grades or children's inability to perform well in a school subject, both due to intrinsic and environmental factors [2]. The intrinsic factors may be due to low intellectual potential, attention disorders, specific deficits in learning and cognitive processes, such as specific learning disabilities (SLDs), dyslexia, and so forth. These factors may lead to difficulties irrespective of children's families' socioeconomic status (SES). Environmental factors include family, school, and the community.

1.2. Research on school achievement of children from low socioeconomic status families

As all children, children from low-SES families are influenced both by intrinsic and environmental factors. However, school achievement of children from low-SES families may be mainly affected by environmental factors, such as perinatal and health problems, lack of motivation, and family income [3]. Some studies have associated difficulties as well as low school attainment and achievement with vulnerable life conditions of

*Corresponding author: Maria Tzouriadou, School of Early Childhood Education, Aristotle University of Thessaloniki, Greece. Email: tzour@nured.auth.gr

low-SES families, such as perinatal problems due to poor care, parental education, and family income [4]. In addition, low-SES families provide a linguistically poor educational environment, as well as limited opportunities for leisure activities for their children [5].

Researchers used data from the UK Millennium Cohort Study of children born at the turn of the 21st century and found that children born into poverty had significantly lower test scores at ages 3, 5, and 7 years than children who have never experienced poverty [6]. These difficulties become apparent when children enter school and increase as they progress. Thus, children from low-SES families are less likely to experience school success because they start school with a lower level of knowledge and skills than their privileged peers [4]. At older ages, these children devalue classroom activities and are not interested in either rewards or punishments. Research data from the US for the period between 1999 and 2011 highlight that children from low-SES families enter high school with average literacy skills 5 years behind those of high-income families [7]. Between 2011 and 2019, poor students were five times more likely to drop out of high school than high-income students [8].

Children from low-SES families have been found to slow down in the development of their spoken language compared to middle-class children. Furthermore, difficulties in language ability and competence have been associated with low school achievement [9]. In the early 70s, research in the UK [10] had referred to differences between children from low- and high-SES families in terms of language proficiency, especially in the language codes used by children of different SES. It was found that low-SES children lacked the appropriate language code competence for accessing school learning, which led to the reproduction of social inequalities. In the US, the study of low achievement was focused on minority students' populations [11]. Research among children from low-SES families and middle-class or upper-class children has shown that low school achievement or underachievement is attributed to poor language skills [5]. Research has shown that the main difficulties of children from low-SES families were due to a slow rate of vocabulary development; it was found that weaknesses in this domain of language at the age of 3 years were documented in low school achievement at the age of 9–10 years [12]. It was also documented that children from low-SES families in the UK may experience twice the rates of receptive language delays than children of middle- or high-SES families [13]. Moderate or severe expressive language delays are more than five times higher as likely in children from low-SES families. In another research, it was found that the low school achievement of children from low-SES families in preschool age can double in the first grade of high school [14].

During the school years, reading is a key element of language because it is the crossing into the written language and influences the overall school achievement. The reading difficulties of children from low-SES families according to a significant amount of research are related not only to environmental factors but also to intrinsic linguistic skills such as letter understanding, rapid naming, and phonemic awareness [15]. These underlying skills influence the reading achievement of all children, not only those from low-SES families. In the higher grades in primary and high school, language achievement is assessed in written language, especially reading comprehension. The underlying skills of this aspect of language are related to high-order cognitive and linguistic skills (inferencing, comparing and contrasting, problem-solving, argumentation, etc.). For children from low-SES families with academic difficulties, especially in language, the intervention, as shown by many surveys, focuses mainly on social resources, because the causes of their difficulties and failure are attributed to well-being factors [16]. Most of the studies undertaken on school underachievement or low achievement of students from low-SES families compare these students with students of middle- or high-SES families, and some of them have even been considered biased due to the measurement tools used [17].

1.3. Learning and language predictors of language achievement

As mentioned above, low school achievement or under-achievement of children from low-SES families is associated with weaknesses and delays in language development. Language comprehension, which is one of the most important underlying cognitive aptitudes of learning, has been found to be limited in some advanced levels of learning in children from low-SES families [18]. Research has shown that weaknesses in abilities or aptitudes such as working memory, goal setting, problem-solving, and so forth, especially in language, interfere in low school achievement in children from low-SES families, and that these abilities or aptitudes are essential for success in reading, writing, and spelling [19].

Ability and aptitude are concepts surrounding ambiguities in their definition. Ability is an individual's potential to perform, and aptitude is an individual's potential for performance or the possibility of the individual being trained up to a specified level of ability [20]. The two concepts of ability and aptitude are overlapped, and aptitude is based to some degree on the previous learning. Aptitude is not a unitary ability but an underlying componential ability related to academic learning and therefore is associated with academic achievement [20]. In fact, a reciprocal relationship between achievement and ability has been established. If both are low, then we can consider that they are due to a common factor, which usually concerns language and is also associated with low SES [21]. Research has shown that children from lower SES families demonstrate lower performance in their cognitive abilities than children from higher SES families [22].

In recent years, it has been argued that for compensating children's difficulties in school achievement, their underlying cognitive and learning strengths and weaknesses should be considered [23]. This requires a different approach to evaluating children's' difficulties in school learning, which should include not only their school achievement but also the underlying cognitive abilities or aptitudes. In this case, the Patterns of Strengths and Weaknesses (PSW) Model proposed for the identification of SLD may be included in the evaluation procedure. According to this model, the measurement of academic achievement and underlying abilities and aptitudes can detect a specific profile of intraindividual strengths and weaknesses of each child [23].

For this reason, in Greece, interdisciplinary teams comprised of school psychologists, educators, and other specialists assess not only students' school achievement but also their cognitive and learning underlying abilities to determine special education eligibility or plan appropriate interventions. However, educational policy in Greece for these children is focused on social and financial resources. Children from low-SES families are usually referred for assessment to interdisciplinary evaluation teams when they study mainly in secondary education, and only if they have severe academic difficulties because academic delays or other difficulties are attributed mainly to environmental restrictions [24].

2. Research Methodology

2.1. Research questions and hypotheses

In the current study, the predictive utility of language and learning aptitude tests to language achievement was investigated. The main research questions were the following: (a) do children from low-SES families have a specific profile of aptitudes? (b) do learning and language aptitude predict language school achievement? and (c) which language aptitude domains predict corresponding domains of language school achievement?

It is expected that children from low-SES families have a low aptitude profile without discrepancies, that is, low general learning aptitude without significant intraindividual differences. It is also expected that learning and language aptitudes can predict language achievement in children from low-SES families. Finally, it is expected that specific language aptitude domains (receptive, organizational, expressive, morphological, and conceptual) can correspond to domains of language achievement (comprehension, reasoning, oral and written expression, syntax, and vocabulary) [25].

2.2. Participants

In this research, students from low-SES families were selected according to parental education, income, and occupation. This population consists of industrial and unskilled workers with low educational levels in the Western Thessaloniki area, Macedonia, Greece, which is an industrial area. The sample was targeted on the students' low achievement or underachievement according to schoolteachers' records, that is, low grades in all school subjects, especially in language. Students diagnosed by interdisciplinary teams as developmentally disordered (SLDs, mild intellectual disability, autism, attention disorder, or other kind of handicap) were excluded. The study sample included 110 primary school students, all of which were Greek monolingual speakers, from the fifth and sixth grades (10–12 years old; 60 boys, 50 girls with an average age of 10.6 years) who were enrolled in 12 elementary schools all located in a low-SES area (purposive sampling).

2.3. Data collection tools

In this study, the following tools were used: the Greek standardization of the psychometric test Detroit Test of Learning Aptitude (DTLA) (version DTLA-4) [26]; the Λ-α-Τ-ω (LaTo) psychometric test of Language Acquisition Competence (LaTo, Level II) [27]; and an informal language achievement test developed by the researchers.

The DTLA-4 is a battery of subtests that measure different but interrelated mental abilities [28]. In the Greek standardization of DTLA-4, nine of the ten subtests were maintained, and the age range was set to 8–15.11 years. The DTLA-4 provides a general mental ability quotient (GMAQ), which is merely a numeric representation of overall performance on the particular abilities measured by DTLA-4, and it may be used to refer to a student's general aptitude for school work or even to his/her basic intelligence (Table 1). Because of this, it is usually the best predictor of most kinds of achievement [26]. The DTLA-4 also provides three ability domains: a Verbal and a Non-Verbal Composite in the Linguistic Domain, an Attention-Enhanced and an Attention-Reduced Composite in the Attentional Domain, and a Motor-Enhanced and a Motor-Reduced Composite in the Motoric Domain. Because two dichotomous composites are provided for each domain, strengths and weaknesses in specific areas of learning can be detected.

Table 1
General mental and language acquisition rating scores and standardized composite rating scores

GMAQ/GLAQ	Descriptive rating
130	Very high
121–130	High
115–129	Above normal average
85–114	Normal average
75–84	Under average
60–83	Poor
<60	Very poor
Standardized language acquisition scores	Descriptive classification
17–20	Very high
15–16	High
13–14	Above normal average
8–12	Normal average
6–7	Below average
4–5	Poor
2–3	Very low

Note: GMAQ: general mental ability quotient, GLAQ: general language acquisition quotient

The LaTo Level II Language Acquisition Competence Test was used for the assessment of language aptitude. This psychometric test was developed and standardized in the Greek student population because the Greek language has different roots, structure, and content from other languages [27]. LaTo Level II considers language aspects involved in the learning-cognitive process and is based on the developmental approach of language acquisition and the cognitive approach [28]. The LaTo Level II for children aged 8–15.11 years consists of seven subtests and provides a general language aptitude quotient (GlAQ) (Table 1) and five composite scores in language ability domains (two modalities: morphological, conceptual, and three systems: receptive, organizational, and expressive).

Both DTLA-4 and LaTo Level II tests according to their standardization in a representative sample of the general Greek population, including low-SES students, have internal coherence and homogeneity, and convergent validity with each other, as they are based on similar conceptual construction [26, 27]. Further, the reliability of GMAQ of DTLA-4 for children of 10–11 years old is Cronbach's $\alpha = 0.98$ and for children of 11–12 years old is Cronbach's $\alpha = 0.96$; the reliability of GLAQ of LaTo Level II for children of 10–11 years old is Cronbach's $\alpha = 0.97$ and for children of 11–12 years old is Cronbach's $\alpha = 0.96$ [26, 27].

Since there are no standardized achievement tests available in the Greek educational system, students' language achievement was assessed with an informal language achievement test. This test was developed by the researchers according to the Greek primary language school curriculum for Grades 5–6 (10–12 years old) (Cronbach's $\alpha = 0.73$). Focus was placed on the assessment of achievement in written language because in Greek school education it is considered the main evaluation criterion for students' referral to special education services. The language school curriculum of grades 5–6 focuses on the following school subjects: reading comprehension, written expression, arguments, and grammar, (syntax and spelling). Narrative and explanatory texts of progressive difficulty which included vocabulary based on the Greek school curriculum context were selected to measure

students' reading comprehension. Written expression was assessed by an essay, which was accompanied by justification and documentation requirements on students' written aspects to enable the assessment of students' arguments (i.e., describe the characteristics of their best friend and write arguments supporting their choice). In assessing written production, the sequence and coherence of ideas, views, and arguments was considered. Grammar and syntax were assessed by increasing difficulty exercises, which had already been taught in school (e.g., main clauses, subordinate clauses, and sentence construction, etc.) The content validity of the language achievement test was assessed in a pilot sample of 20 primary school students by two teachers who reached 91% agreement. The scoring of the language achievement test was based on school weighting factors and by two evaluators who reached 87% agreement. After the pilot study implementation, a score of 100 was set as the maximum possible score for total language achievement, and the scores were divided into four quartiles (high achievement: 76–100, average achievement: 51–75, low achievement: 26–50, and underachievement: <25). All achievement scores were transformed to z scores to run valid statistical analyses.

2.4. Procedure

This study was reviewed and approved by the ethics committee of the master's degree program "Psycho-pedagogy of inclusion: a school for all," Aristotle University of Thessaloniki. Informed consent was obtained from all individual participants included in the study. The research was conducted from November 2019 to February 2020 school year so that teachers had a complete idea of children's learning behavior. School principals and teachers were informed of the aims of the research, as well as parents who gave their written consent for their children to participate in the research. The data collection took place within the schools. The researchers asked the schoolteachers to indicate students with low language achievement according to their school records, that is, low grades in all school subjects, especially in language. First, the DTLA-4, second the Lato Level II, and lastly the informal language achievement test were administered individually to these children.

3. Findings

3.1. Students' learning and language aptitude, and language achievement

3.1.1. Learning aptitude

Overall, as shown in Table 2, GMAQ according to DTLA-4 descriptive rating was poor (Mean = 72,39). The DTLA-4 dichotomic composite scores did not present significant discrepancies, but they were indicative of low performance because they fall into the poor and below-average performance categories (Tables 1 and 2). However, they could not provide students' profiles of strengths and weaknesses. This finding showed that an aptitude test may be associated with general school achievement, but it cannot highlight strengths and weaknesses in underlying abilities, which need to be identified for the design and implementation of an appropriate educational intervention [29].

3.1.2. Language aptitude

As aforementioned, students must be evaluated more comprehensively in terms of their cognitive and linguistic processes and their school achievement [30]. Accordingly, LaTo Level II test was administered, which revealed strengths and weaknesses in language aptitude. As shown in Table 3, GLAQ according to LaTo Level II is poor (68,79). The lowest scores were found in the expressive language system (4,34) and the morphological language modality (4,34) (Table 3). These findings relate to other research findings, which indicated that children from low-SES families slow down the development of their oral language [15]. In other studies, it was found that children from low-SES families have moderate or severe expressive delays [12].

Table 2
Descriptive statistics of general mental ability quotient and composites

N = 110	M	STD	Range
GMAQ	72,39	11,70	54,00
Verbal Enhanced Composite	4,65	2,22	12,00
Verbal Reduced Composite	6,02	2,46	9,00
Attention Enhanced Composite	5,69	2,41	9,00
Attention Reduced Composite	4,92	2,35	11.00
Motor Enhanced Composite	6,35	2,54	10,00
Motor Reduced Composite	4,80	2,90	12,00

Note: GMAQ: general mental ability quotient, M: mean, STD: standard deviation

Table 3
Descriptive statistics of general language acquisition quotient, composites, and modalities

N = 110	M	STD	Range
GLAQ	68,79	7,35	25,00
Receptive Language System Composite	4,62	1,87	6,00
Organization Language System Composite	4,78	1,77	6,00
Expressive Language System Composite	4,34	0,98	4,00
Semantic Language Modality Composite	4,77	1,29	6,00
Morphological Language Modality Composite	4,34	1,65	6,00
GLAQ	68,79	7,35	25,00

Note: GLAQ: general language acquisition quotient, M: mean, STD: standard deviation

3.1.3. Language achievement

As shown in Table 4, the total language achievement mean score fell into the quartile of low performance (43,99). The lowest performance was found in spelling (30,21) and in syntax achievement (36,60) (Table 4). In the Greek language, spelling and syntax are not only based on rules that should be learned but also on words' conceptual rules. Accordingly, grammar interrelates with language organization and conceptual meanings. According to research findings, children from low-SES families lack the appropriate language code for accessing school learning [4, 5, 10, 11]. The use of vocabulary by these children is negatively affected because grammar is associated with semantics, which is in accordance with other research findings [18, 31].

3.2. The predictive utility of students' learning and language aptitude on their language achievement

As mentioned above, aptitude is an underlying componential ability that may predict academic achievement [20]. Accordingly, a series of linear regressions were applied to estimate the

Table 4
Descriptive statistics of language achievement scores

N = 110	M	STD	Range
Total Achievement Score	43,99	15,51	70,50
Reading Comprehension Achievement Score	47,61	17,96	72,58
Written Expression Achievement Score	43,34	18,64	83,33
Argumentative Achievement Score	47,65	18,93	85,00
Spelling Achievement Score	30,21	17,61	80,00
Syntax Achievement Score	36,60	21,42	100,00

Note: M: mean, STD: standard deviation

predictive utility of learning and language aptitude on school language achievement (Table 5). It was found that students' GMAQ and GLAQ significantly predicted their general language achievement. It was also found that language systems and modalities significantly predicted corresponding domains of language achievement.

More specifically, the receptive language system significantly predicted students' reading comprehension. This system assesses a high-order underlying cognitive skill related to reading comprehension achievement. Similar findings were found in other studies indicating that children from low-SES families face difficulties in the understanding of the argumentative thinking at older ages, as school demands increase. These difficulties play a significant role in their low school achievement [14].

The organization language system significantly predicted students' argumentative achievement. According to the design of the LaTo Level II test, the language organization system assesses the ability to connect and organize linguistic information into categories, as well as the ability to recall preexisting knowledge. This refers to the cognitive aspects of language. Organizational mediation strategies are required for the acquisition of these abilities [27, 31].

The expressive language systems and semantic language modality significantly predicted students' written expression achievement, a finding rather expected. Language expression at the age of the students' study sample (10–12 years old), and according to the theoretical background and design of the LaTo Level II test, is reflected in students' written expression [27]. Poor written expression, low level of acquisition and use of concepts, and limited abstract thinking are associated with poor language achievement and use of vocabulary, which are considered the main obstacles for children from low-SES families in reaching school success [19].

The morphological language modality significantly predicted students' syntax and spelling achievement. Syntax and spelling are overlapping achievement areas and may be predicted by similar underlying abilities. In addition, as already mentioned, the use of grammar in the Greek language is based on structure and concepts, which are associated with both the acquisition of vocabulary and the structure of the written language [27].

4. Conclusions

Research has consistently suggested that low school achievement of children from low-SES families is associated with school failure and dropout. As a result, these children are unable to improve their status as adults, which leads to the reproduction of social inequalities ("Matthew effect") [32]. During the 60s in the US, a new approach, called "compensatory education," was developed. Based on this approach, the Head Start, founded in 1965, has been a program of large scale and duration with promising positive results [33]. Since then, research findings have indicated that this approach compensated mostly for socioeconomic factors, such as financial support, food and health provisions, and residential facilities' improvement. Research has shown that compensatory education for educational recourses as tutoring, differentiated instruction, etc., was limited, even though these recourses might enhance the school achievement and/or prevent academic difficulties of students from low-SES families [16]. These difficulties, as mentioned earlier, are largely due to language deficits or to the restricted language code, which does not improve school language achievement [10].

This research study has found that the targeted study sample of students had poor and below-average learning aptitude, poor language aptitude, and low, or below their school grade-level language achievement. It is well documented that children from low-SES families have low language achievement, but they may also be at risk for other types of disabilities related to poverty factors. Accordingly, it is important to identify as early as possible the learning and language difficulties of children from low-SES families and implement appropriate early intervention educational programs. Language is involved in all school subjects and if children's potential for learning is identified from early childhood, their learning and language difficulties may be addressed comprehensively and more effectively. This study has highlighted that the weaknesses identified in the learning and

Table 5
Regression results

Independent variables	R^2	Sig	Beta	Sig	Language achievement dependent variables
GMAQ	0.290	$p = 0.000$	0.242	$p = 0.006$	Total Achievement Score
GLAQ			0.351	$p = 0.000$	
Receptive language system composite	0.191	$p = 0.000$	.347	$p = 0.000$	Reading Comprehension Achievement Score
Organization language system composite	0.143	$p = 0.000$	0.307	$p = 0.002$	Argumentative Achievement Score
Expressive language system composite	0.165	$p = 0.000$	0.307	$p = 0.002$	Written expression Achievement Score
Semantic language modality composite			0.271	$p = 0.005$	
Morphological language modality composite	0.141	$p = 0.000$	0.370	$p = 0.000$	Syntax Achievement Score
Morphological language modality composite	0.123	$p = 0.001$	0.290	$p = 0.004$	Spelling Achievement Score

Note: GMAQ: general mental ability quotient, GLAQ: general language acquisition quotient, *Sig*: statistical significance

language aptitude of children from low-SES families may predict their low language achievement or underachievement. As shown by OECD [34], early child support creates a solid foundation for learning in the early years of life because it enables the acquisition of basic school readiness skills. This may be feasible on the conditions that: (a) the difficulties in children's aptitudes and abilities are detected as early as possible from the preschool age, and (b) the significant factors of low school achievement are identified.

5. Recommendations

Detecting children's learning abilities early in life may not only predict their future academic achievement but can also contribute to the early identification of their strengths and weaknesses. The need for early intervention has long been recognized in European countries including Greece [35], and educators have been trained through EU programs in the design and implementation of early intervention programs for children at risk for developmental disabilities. In Greece, for children from vulnerable social groups (e.g., immigrants, refugees, repatriated, Roma), programs and interventions were designed and implemented to reduce social inequalities, and educators have been trained accordingly [36]. Only recently, the need to strengthen children's learning potential has been recognized. In the context of inclusive education and differentiated instruction, school curricula were enriched with learning skills activities, which may be useful for all children, especially for compensating the educational needs of children from low-SES families [37]. In addition, 2-year preschool education (4 to 6 years old) became compulsory making possible the implementation of compensatory early educational programs, which focus on children's strengths and weaknesses and may promote school readiness for all children. This may be accomplished with the use of school programs and interventions which focus on teaching children how to learn and how to apply learning strategies. In this way, it is expected that students can develop their cognitive processes which are underlying the academic achievement. As already mentioned, children from low-SES families are at risk for low school performance and dropout. For this reason, school curricula should already from kindergarten onward focus not only on providing knowledge but also on developing skills and strategies that can compensate for their difficulties and increase their learning and literacy readiness. This perspective of the educational process may be facilitated in the context of inclusive and bilingual education [38] and at different educational levels via differentiated instruction. In this context, teachers should acquire knowledge and skills to enable them to teach children how to learn rather than providing them knowledge. In-service teachers should be trained on how to implement learning skills' school curricula and the university education departments need to reform their courses of study so that they can train future teachers accordingly.

Interdisciplinary evaluation teams, which operate throughout Greece, may play an important role in the early detection, assessment, and diagnosis of children's difficulties from preschool years. Accordingly, the focus is not given on the "wait to fail approach" but on the early intervention approach. As already mentioned, children from low-SES families in Greece are not referred for assessment to interdisciplinary teams unless they have severe academic difficulties to avoid stigmatization and unjustified special education referrals. However, there is a considerable risk that the academic difficulties of children from low-SES families may not be appropriately treated, resulting in school failure and dropout.

6. Study Limitations and Future Research

Study sample was selected from a target population in a specific geographical area (purposive sample); therefore, study participants may not be representative to enable generalizations of the findings. Also, school achievement was assessed with an informal achievement tool based on the school curriculum context. It should be noted that there are no available standardized achievement tests in Greece. Lastly, no comparisons were made between low and middle-/high-SES students. The research targeted low-SES students only.

Future research across different sociocultural and educational settings and age groups may strengthen the validity of the significance effects of learning and language aptitude on school achievement and promote the implementation of appropriate school curricula and interventions. Further, conducting longitudinal studies for tracking the long-term effects of early intervention programs on the academic achievement of low-SES students may be proved to be an interesting avenue for future research.

Ethical Statement

This study does not contain any studies with human or animal subjects performed by any of the authors.

Conflicts of Interest

The authors declare that they have no conflicts of interest to this work.

Data Availability Statement

Raw data were generated at the Faculty of Education, Aristotle University of Thessaloniki. Derived data supporting the findings of this study are available from the corresponding author on request.

Author Contribution Statement

Constantinos Vouyoukas: Writing – original draft, Writing – review & editing, Methodology, Software, Formal analysis, Data curation. **Maria Tzouriadou:** Conceptualization, Validation, Writing – original draft. **Eleni Anagnostopoulou:** Investigation, Writing – original draft.

References

[1] Glatthorn, A. A. (1999). *Performance standards authentic learning*. USA: Eye of Education.

[2] Quintana, R. (2023). The structure of academic achievement: Searching for proximal mechanisms using causal discovery algorithms. *Sociological Methods & Research*, *52*(1), 85–134. https://doi.org/10.1177/0049124120926208

[3] Zhang, F., Jiang, Y., Ming, H., Ren, Y., Wang, L., & Huang, S. (2020). Family socio-economic status and children's academic achievement: The different roles of parental academic involvement and subjective social mobility. *British Journal of Educational Psychology*, *90*(3), 561–579. https://doi.org/10.1111/bjep.12374

[4] Vadivel, B., Alam, S., Nikpoo, I., & Ajanil, B. (2023). The impact of low socioeconomic background on a child's educational achievements. *Education Research International*, *2023*(1), 1–11. https://doi.org/10.1155/2023/6565088

[5] Luo, R., Pace, A., Levine, D., Iglesias, A., de Villiers, J., Golinkoff, R. M., . . . , & Hirsh-Pasek, K. (2021). Home literacy environment and existing knowledge mediate the link between socioeconomic status and language learning skills in dual language learners. *Early Childhood Research Quarterly*, *55*, 1–14. https://doi.org/10.1016/j.ecresq.2020.10.007

[6] Dickerson, A., & Popli, G. K. (2016). Persistent poverty and children's cognitive development: Evidence from the UK Millennium Cohort Study. *Journal of the Royal Statistical Society Series A: Statistics in Society*, *179*(2), 535–558. https://doi.org/10.1111/rssa.12128

[7] Reardon, S. F., Valentino, R. A., Kalogrides, D., Shores, K. A., & Greenberg, E. H. (2013). *Patterns and trends in racial academic achievement gaps among states*, *1999–2011*. USA: Stanford University.

[8] McFarland, J., Cui, J., Holmes, J., & Wang, X. (2019). *Trends in high school dropout and completion rates in the United States: 2019*. USA: National Center for Education Statistics.

[9] Gopalan, M. (2019). Understanding the linkages between racial/ethnic discipline gaps and racial/ethnic achievement gaps in the United States. *Education Policy Analysis Archives*, *27*(154), n154. https://doi.org/10.14507/epaa.27.4469

[10] Bernstein, B. (1973). *Class, codes and control, vol. 2: Applied studies towards a sociology of language*. USA: Routledge and Kegan Paul.

[11] Jencks, C. (1972). *Inequality: A reassessment of the effects of family and schooling in America*. USA: Basic Books.

[12] Mendive, S., Mascareño Lara, M., Aldoney, D., Pérez, J. C., & Pezoa, J. P. (2020). Home language and literacy environments and early literacy trajectories of low-socioeconomic status Chilean children. *Child Development*, *91*(6), 2042–2062. https://doi.org/10.1111/cdev.13382.

[13] Peers, I. P., Lloyd, P., & Foster, C. (2000). *Clinical evaluation of language fundamentals – Preschool*. UK: Psychological Corporation.

[14] Jimerson, S., Egeland, B., & Teo, A. (1999). A longitudinal study of achievement trajectories: Factors associated with change. *Journal of Educational Psychology*, *91*(1), 116–126. https://doi.org/10.1037/0022-0663.91.1.116

[15] Dolean, D., Melby-Lervåg, M., Tincas, I., Damsa, C., & Lervåg, A. (2019). Achievement gap: Socioeconomic status affects reading development beyond language and cognition in children facing poverty. *Learning and Instruction*, *63*, 1–10. https://doi.org/10.1016/j.learninstruc.2019.101218

[16] Passaretta, G., Skopek, J., & Van Huizen, T. (2022). Is social inequality in school-age achievement generated before or during schooling? A European perspective. *European Sociological Review*, *38*(6), 849–865. https://doi.org/10.1093/esr/jcac005

[17] Campbell, T. F., Dollaghan, C. A., Needleman, H. L., & Janosky, J. E. (1997). Reducing bias in language assessment: Processing-dependent measures. *Journal of Speech, Language, and Hearing Research*, *40*(3), 519–525. https://doi.org/10.1044/jslhr.4003.519

[18] Schneider, J. M., Abel, A. D., & Maguire, M. J. (2023). Vocabulary knowledge and reading comprehension account for SES-differences in how school-aged children infer word meanings from sentences. *Language Learning and Development*, *19*(4), 369–385. https://doi.org/10.1080/15475441.2022.2081573

[19] Waters, N. E., Ahmed, S. F., Tang, S., Morrison, F. J., & Davis-Kean, P. E. (2021). Pathways from socioeconomic status to early academic achievement: The role of specific executive functions. *Early Childhood Research Quarterly*, *54*, 321–331. https://doi.org/10.1016/j.ecresq.2020.09.008

[20] Katz, L. J., & Brown, F. C. (2019). Aptitude and achievement testing. In G. Goldstein, D. N. Allen & J. DeLuca (Eds.), *Handbook of psychological assessment* (pp. 143–168). Academic Press. https://doi.org/10.1016/B978-0-12-802203-0.00005-5

[21] Peng, P., & Kievit, R. A. (2020). The development of academic achievement and cognitive abilities: A bidirectional perspective. *Child Development Perspectives*, *14*(1), 15–20. https://doi.org/10.1111/cdep.12352

[22] Christensen, D. L., Schieve, L. A., Devine, O., & Drews-Botsch, C. (2014). Socioeconomic status, child enrichment factors, and cognitive performance among preschool-age children: Results from the follow-up of growth and development experiences study. *Research in Developmental Disabilities*, *35*(7), 1789–1801. https://doi.org/10.1016/j.ridd.2014.02.003

[23] Kranzler, J. H., Gilbert, K., Robert, C. R., Floyd, R. G., & Benson, N. F. (2019). Further examination of a critical assumption underlying the dual-discrepancy/consistency approach to specific learning disability identification. *School Psychology Review*, *48*(3), 207–221. https://doi.org/10.17105/SPR-2018-0008.V48-3

[24] Greek Government. (2008). ΝΟΜΟΣ 3699: ΕΙΔΙΚΗ ΑΓΩΓΗ ΓΙΑ ΑΤΟΜΑ ΜΕ ΑΝΑΠΗΡΙΕΣ Ή/ΚΑΙ ΕΙΔΙΚΕΣ ΕΚΠΑΙΔΕΥΤΙΚΕΣ ΑΝΑΓΚΕΣ [Law 3699: Special Education for people with disabilities or special educational needs]. 199/A/2-10-2008. Chapter A, Article 3.

[25] Li, S., & Zhao, H. (2021). The methodology of the research on language aptitude: A systematic review. *Annual Review of Applied Linguistics*, *41*, 25–54. https://doi.org/10.1017/S0267190520000136.

[26] Tzouriadou, M., Anagnostopoulou, E., Toutountzi, E., & Psoinou, M. (2008). DETROIT ΤΕΣΤ ΜΑΘΗΣΙΑΚΗΣ ΕΠΑΡΚΕΙΑΣ (DTLA) [Detroit test of learning aptitude (DTLA)]. *Operational program for training and initial vocational education (EPEAEK). Ministry of Greek Education.*

[27] Tzouriadou, M., Sigkollitou, E., Anagnostopoulou, E., & Vakola, I. (2008). ΨΥΧΟΜΕΤΡΙΚΟ ΤΕΣΤ ΓΛΩΣΣΙΚΗΣ ΕΠΑΡΚΕΙΑΣ (L-a-T-o) [Psychometric test of language competence (L-a-T-o)]. *Operational program for training and initial vocational education (EPEAEK). Ministry of Greek Education.*

[28] Hammill, D. D., & Bryant, B. R. (2005). *Detroit tests of learning aptitude – Primary*. USA: Pro-ed.

[29] Tzouriadou, M. (2022). Assessment and learning disabilities. In M. Tzouriadou & S. Tzivinikou (Eds.), *Learning disabilities: From assessment to intervention* (pp. 38–74). Cambridge Scholars Publishing.

[30] Bloom, L., & Lahey, M. (1978). *Language development and language disorders*. USA: John Wiley and Sons.

[31] Migdalek, M. J., & Rosemberg, C. R. (2020). SES differences in children's argumentative production. *Europe's Journal of Psychology*, *16*(2), 193–209. https://doi.org/10.5964/ejop.v16i2.1665

[32] Ozer, M., & Perc, M. (2020). Dreams and realities of school tracking and vocational education. *Palgrave Communications*, *6*, 34. https://doi.org/10.1057/s41599-020-0409-4

[33] Green, B. L., Ayoub, C., Bartlett, J. D., Furrer, C., Chazan-Cohen, R., Buttitta, K., . . . , & Regalbuto, E. (2020). Pathways to prevention: Early Head Start outcomes in the first three years lead to long-term reductions in child

maltreatment. *Children and Youth Services Review*, *118*, 105403. https://doi.org/10.1016/j.childyouth.2020.105403

[34] OECD. (2024). *Reimagining education, realizing potential*. France: OECD Publishing. https://doi.org/10.1787/b44e2c39-en

[35] De Moor, J. M. H., Van Waesberghe, B. T. M., Hosman, J. B. L., Jaeken, D., & Miedema, S. (1993). Early intervention for children with developmental disabilities: Manifesto of the Eurlyaid working party. *International Journal of Rehabilitation Research*, *16*(1), 23–32. https://doi.org/10.1097/00004356-199303000-00003

[36] Sotiropoulou, P. (2020). Intercultural education initiatives in Greece: A critical perspective. In C. Pica-Smith, C. N. Veloria & R. M. Contini (Eds.), *Intercultural education: Critical perspectives, pedagogical challenges and promising practices* (pp. 1–50). Nova Science Publishers, Inc.

[37] Institute of Educational Policy. (2021). *ΝΕΑ ΣΧΟΛΙΚΑ ΑΝΑΛΥΤΙΚΑ ΠΡΟΓΡΑΜΜΑΤΑ [New school curricula]*. Retrieved from: https://iep.edu.gr/el/nea-programmata-spoudon-arxiki-selida

[38] Lorenzo, F., Granados, A., & Rico, N. (2021). Equity in bilingual education: Socioeconomic status and content and language integrated learning in monolingual Southern Europe. *Applied Linguistics*, *42*(3), 393–413. https://doi.org/10.1093/applin/amaa037

How to Cite: Vouyoukas, C., Tzouriadou, M., & Anagnostopoulou, E. (2025). Children from Low Socioeconomic Status Families in Greece: Can Learning and Language Aptitude Predict Language Achievement?. *International Journal of Changes in Education*. https://doi.org/10.47852/bonviewIJCE52024458