RESEARCH

Language proficiency analysis of Turkish children from high-income and highly educated families aged 5 in Antalya

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Abstract

In this study, we examine the mother tongue proficiency of pre-school children from high-income and highly educated families in Antalya, Turkey. The study used the Turkish version of the Hamburger Instrument for the Analysis of the Language Level of 5-year olds (HAVAS 5) linguistic-level diagnostic tool that is originally employed to form the basis of individually customized language support programs. The study group of this research was made up of 41 pre-school children ($n= 41$; 29 boys, 12 girls). Furthermore, a semi-structured interview (SSI) form was developed by the authors and finally conducted with 3 mothers and their husbands ($n=6$). Our study results show that the majority of the children (33/41) from high-income and highly educated families showed an advanced level of language proficiency especially in the realm of vocabulary acquisition. In particular, the children were observed to be self-confident when using their mother tongue and that they did not hesitate to take initiatives during the HAVAS 5 storytellings. Our qualitative results suggest also that a small group of children who are either introverts or having lower level language proficiency may have a specific trait, condition or characteristic. Based on the data from interviews, emotional atmosphere of the family, parenting styles, speech sound disorder (SSD) or excessive screen-based media use might reasonably be suspected of having some influence on mother tongue proficiency.

Keywords: Pre-school education, Diagnostic evaluation, Language acquisition, Language assessment, Socioeconomic status

Introduction

The gaps in the language development and speech impairments are common among children but remain underdiagnosed (Helot & Young, 2002). In this regard, diagnostics can play a central role not only in plurilingual but also in monolingual education in for at least two reasons. First, its procedures can help learners and teachers themselves to find out about learners' language competences, for example, within the categories of vocabulary, morphology and syntax, what they have achieved so far and what needs further development. Second, it helps to establish links between educational goals and individual performance and proficiency (Lee, 2015; Little, 2010; Maragkaki & Hessels, 2017; Pınar, 2016). Over the last 10 years, numerous studies have shown that the gaps

in the language development of immigrant children are documented by comparing mainstream pupils with immigrant children (See Akoğlu & Yağmur, 2016) and the competence in the first language (L1) has received little attention in the literature (Vanbuel et al., 2018). Furthermore, some studies examined L1 and second language (L2) performance of pre-schoolers (Jeuk, 2011) and the relation between the languages (Demirci & Güven, 2020; Ertanir et al., 2018; Peets et al., 2019; Schaefer et al., 2019). And some researchers and fields of study have habitually investigated the effects of Turkish immigrant children's bilingualism on executive functions (Jaekel et al., 2019). Some studies have subsequently investigated the environmental predictors and cognitive and social determinants of language proficiency in bilingual children (Cat, 2020). A recent study demonstrated the frequency of code-switching by bilingual children as a function of language proficiency in each language and diagnosis (Kapantzoglou et al., 2021). In this study, we attempt, as far as possible, to bridge the research gap mentioned above and present the findings of our study by comparing results of monolingual Turkish children in Turkey and mean values of bilingual Turkish immigrant children in Germany and show the standard deviation and differences. The sociolinguistic assumption in this work is that monolingual Turkish children from upper-middle and upper class families might have a higher level of academic language proficiency in contrast to Turkish immigrant children in Germany. In other words, one of the main reasons for the differences in performance and proficiency are the demographic and socioeconomic factors. Although more research is needed, the results of this study support the theories put forward by Bernstein (1971) especially within the framework of several linguistic indicators. Various comparative analyses that we conducted within the framework of the research have shown that the children living in Turkey have a higher language level especially in the realm of vocabulary acquisition in contrast to their peers in Germany. These results are also supported by previous studies on effect of socioeconomic status on language development (Eisenwort et al., 2018; Loboda et al., 2016; Perry & McConney, 2010; Tomul & Savasci, 2012; UNESCO, 2012; OECD, 2016). This study is expected to particularly benefit other researchers working with immigrant children who are interested in issues such as language acquisition, language support (Becker, 2006; Jung, 2012) and integration (Kaltenbacher & Erika Klages, 2006; BGBl, 2009).

A closer look at publications reveals that limited number of tools have been used to effectively diagnose the language proficiency of pre-school children in Turkey. Among these tools, the Test of Early Language Development Third Edition (Hresko et al., 1999) is in focus as a test that is used for the assessment of the comprehension and production of Turkish spoken language (Güven & Topbaş, 2014). Apart from that, there are tools, such as the Peabody Picture Vocabulary Test (Katz et al., 1972) and Turkish Expressive and Receptive Language Test (Berument & Güven, 2013), which are used as individual performance tests. On the one hand, it is necessary to emphasize that the increasing use of tests to assess academic competences has been associated with higher levels of test anxiety in children (Donolato et al., 2020), and on the other hand, it must be pointed out that normative tests may not be able to measure speech-language capacities and/or expressive language skills but merely sample mutual performance (Moss & Moss-Racusin, 2021). Test anxiety is part of situation-specific anxiety which is based on emotional factors related to specific situations (Huberty & Dick,

2006). Test anxiety can be considered as a type of anxiety concerning apprehension over academic evaluation which emanates predominantly from fear of failure (Joy, 2013). Research has shown that test anxiety emerges during the pre-school period and is linked to parental supportiveness (Gentile, 2000).

In contrast, when assessment procedures are associated with authentic objects and context, interest and motivation of children then increase (Liu, 2009; Schraeder et al., 1999). According to O'Malley and Pierce (1996) "Authentic assessment is an evaluation process that involves multiple forms of performance measurement reflecting the student's learning achievement, motivation, and attitudes on instructionally-relevant activities." The literature review reveals interestingly that there are only a few authentic or semi-authentic instruments that elicit oral narrations which based on the method of profile analysis in Turkey. Here, it should be underlined that more research is needed in this field and further studies would have additional value in bridging the gap. It can be stated that the demand for authentic assessment in early childhood does not arise only in Turkey but also in many countries. Neisworth and Bagnato (2004) make a persuasive argument that conventional testing must be abandoned within early childhood, and they recommend authentic alternatives for all forms of early childhood assessment instead. To meet this need, many authentic and semi-authentic diagnostic tools have been developed such as HAVAS 5 (Reich & Roth, 2004), SISMIK (Ulich & Mayr, 2006), Screemik 2 (Schultz-Unsal, 2009) and Multi-Keks (May & Bennöhr, 2013), which aim at gaining detailed insight into different aspects of individual language development. Some of these tools such as HAVAS-5 and SISMIK were pulled up as a research instrument in some research projects to capture the language levels of the children in Europe (Stampf, 2012). HAVAS 5 is suitable for both mono and multilingual 5–7-year-old children and can be used in 8 different languages (Reich & Roth, 2004).

The aim of the current study is to carry out the standardized semi-authentic instrument HAVAS 5 to elicit oral narrations and capture productive oral data in different language domains of Turkish pre-school children from upper-middle and upper class families in Antalya, Turkey. The present study also attempts to crystallize the possible reasons why some of the children in the study group show lower levels of oral language skills and receive a score less than the cut-off score of HAVAS 5. While determining the study group, which consisted of children from educated families, a quite homogeneous group has been chosen. It should be emphasized that the Kindergarten, which was data collected from, was preferred (is still preferred) by families with high socioeconomic status. The obvious reason for the selection of the study group was to show the possible high performance or high language proficiency of children from socioeconomically above-average class and educated families. Another reason was to have an opportunity to select or diagnose the specific cases of this homogeneous group (participants who deviate from the group norms) which show lower language proficiency by comparing the results with the cut-off scores of HAVAS 5.

Research questions and sub-questions
The following research and sub-questions were addressed:

RQ1: Which scores achieve the children from high-income and highly educated families aged 5 in Antalya? Are these scores higher or lower than the cut-off scores of HAVAS 5?

RQ2: What could be the possible reasons that some children in the study group show lower levels of oral language skills or lower language proficiency (LLP)?

SQ1: Is there a significant relationship between Task Performance and Communication Competence?

SQ2: Is there a significant relationship between Task Performance and Vocabulary?

SQ3: Is there a significant relationship between Grammar and Sentence Formation?

Method

HAVAS 5 as a research instrument were pulled up in some interdisciplinary research projects to capture the language levels of the children in Europe (Stampf, 2012). Children's language proficiency in Turkish was measured using the standardized instrument HAVAS 5. In order to use the diagnostic tool HAVAS 5, practitioners must receive theoretical and practical training from the Hamburg State Institute in Germany. Thus, all researchers were trained in 2016 at the Hamburg State Institute and obtained their practitioner certificates. Data was collected from the target subjects in a private Kindergarten, preferred by families with high socioeconomic status. The data and obtained from HAVAS 5 was recorded with the Audacity software transcribed using GAT conventions (Selting et al., 1998); subsequent coding procedures were conducted by trained raters. Statistical analysis was done through SPSS.

In order to get a comprehensive impression of the parents' view of their child, of the family environment, the use of language outside of kindergarten, etc., interviews were held with the parents of the children with LLP who scored below norm in Turkish language. Mothers and fathers were interviewed at a suitable location of their choice, e.g., own home or university premises. Interviews were varied in time, but typically lasted around 1–1.5 h. A semi-structured interview (SSI) form was developed by the authors and finally conducted with 3 mothers and their husbands (*n*=6), and the interviews were audiotaped, transcribed verbatim and content analyzed (Bowen, 2009) to cultivate a deep understanding of the possible reasons why some of the children in the study group show lower levels of language skills. Transcripts were analyzed and coded by three authors using consensual coding from a grounded theory approach (Strauss & Corbin, 1998). A minimum of two coders reviewed each of the interviews line by line. It should be borne in mind that this research has a number of limitations. Our qualitative results (based on the data from interviews) demonstrate only possible associations and cannot conclusively show causation.

HAVAS 5 linguistic-level diagnostic tool

While the HAVAS 5 linguistic-level diagnostic tool used in the research was being developed, work was carried out with Turkish and German children studying at 7 different primary schools based on a model of bilingual education in the city of Hamburg, Germany. HAVAS 5 is used to obtain information about the linguistic levels of children

ages 5–7 who have either 1 year left before they start school or who have just started school, and it is conducted in the form of an interview. HAVAS 5 is applied not only to determine the language levels of multilingual children but also monolingual children as well, and it is grounded in the principle of face-to-face interviews with the children. This diagnostic tool was applied at all primary schools in Hamburg in 2003 and is available in German, Turkish, Italian, Russian, Portuguese and Polish (see Reich & Roth, 2007, p. 75, Stampf, 2012).

During the HAVAS 5 interviews, children are asked to verbally describe a picture story named "Cat and Bird" and are asked questions that encourage them to talk when deemed necessary such as "Okay, what is the bird doing here?" or "What else do you see in this picture?" and the entire interview is recorded on a voice recorder. The picture story is comprised of six sections, and it describes the events that occur between a bird and a cat. The pictures are regarded as prompts that will encourage children to talk. During the test, these pictures, comprised of six sections, are shown to the children and they are asked to describe the story.

Pictures are presented as printed on an A4 cardboard at high resolution and on two sides of a page (3 pictures on every page). The first picture shows a bird on a wall singing a song and a cat that seems to be approaching the bird quietly from the edge of the wall. The second picture shows the cat jumping up on the wall and approaching the bird with its tongue sticking out; the bird seems to have been scared as soon as it has spotted the cat. Following this, the cat makes a move toward the bird and jumps up whereupon the bird escapes from the cat and flies over to the tree. After a discussion about the first page comprising these three pictures, the back of the page is observed. The first picture on the other side of the page shows the bird on top of the tree and the cat trying to climb up the tree. The next pictures show that the cat has succeeded in going up the tree but the bird escapes once again and flies back onto the wall. The last picture shows that the cat is crying and the bird is once again singing a joyful song. The relevant pictures are as follows (Fig. 1):
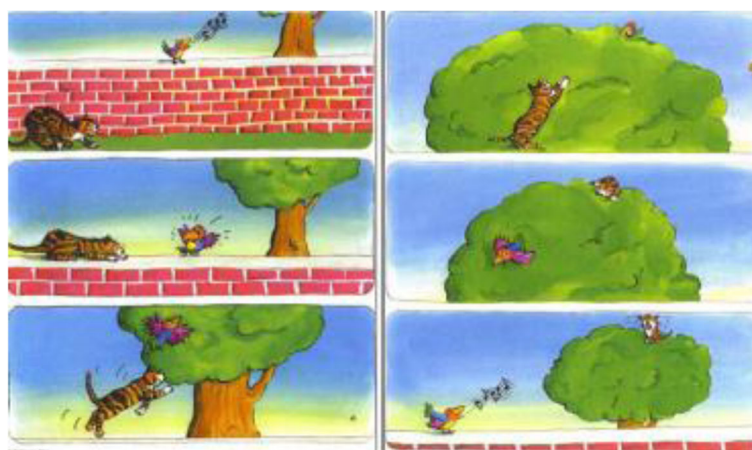
Fig. 1 Picture story named "Cat and Bird" (Reich & Roth, 2004).
Source: http://www.foermig.uni-hamburg.de/web/de/all/mat/diag/havas/index.html

After the interview is over, the discussion is transcribed and analyzed with the help of a detailed evaluation form. Analyses are conducted in the following categories in light of the evaluation form.

A. Task Performance
B. Communication Competence
C. Vocabulary
D. Grammar
E. Sentence Formation

Process

An Ethics Committee Permission has been obtained from Akdeniz University and a Legal Permit from Antalya Directorate of National Education for the purposes of this research. The participants took part in the study completely on a voluntary basis and the participating children were included in the study on the condition that their parents fill out a Consent Form. Pre-school children registered in the kindergarten of a school located in the Muratpaşa district of Antalya were selected for the research using the random sampling method. The number of children included within the scope of the study is 41 (n= 37; 29 boys, 12 girls). Within the framework of the research, findings obtained from the HAVAS 5—all voice records—were initially transcribed, and then, the data were evaluated with the help of a detailed evaluation form.

Limitations

As the number of girls and boys among the participating children could not be balanced and the study was conducted with children in the upper and upper-middle socioeconomic classes, these factors could be considered as limitations of the study. On the other hand, working with a population that was homogeneous in terms of social status, education level, financial income, etc. provided guidance in assigning the upper limits of language competences in particular for different studies to be conducted in the future with pre-school children from various social backgrounds or immigrant children and in comparing data between groups. It should be underlined that the results obtained via parent interviews are only possible associations and cannot conclusively show causation. Further longitudinal observational studies and triangular researches are needed to better elucidate our findings and results.

Findings

Demographics

At the time HAVAS 5 was applied, the mean age of the children was calculated as 5.5 (5 years and 6 months). Two of the children were dizygotic twins with genetic differences who were benefiting from the pre-school opportunities at the institution by attending two different kindergarten classes. Thirty-two of the children who participated in the study were born in Antalya, 3 were born in Istanbul, 2 were born in Ankara, 1 child was born in Izmir and 1 was born in Eskişehir, whereas 1 was born in the capital city of Addis Ababa, Ethiopia and 2 (the dizygotic twins) were born in the state of North Carolina in the United States. One of these children did not have any

Table 1 Demographics of the children who participated in the study

	n	%
Girls	12	29.27
Boys	29	70.73
Duration of pre-school education[a]		
None	1	2.44
1 year	7	17.07
2 years	19	46.34
3 years and above	14	34.15
Number of siblings		
None	23	56.09
1 sibling	15	36.59
2 or more siblings	3	7.32
Foreign language knowledge[b]		
Yes	36	87.80
No	5	12.20
Total	41	100

[a]Points to the duration of pre-school education that the child had prior to the date that the study was conducted
[b]This question asks whether the child received systematic foreign language training at the educational institution s/he attended

institutional education previously while the remaining 40 children had attended other pre-school educational institutions. 87.8% of the participating children (*n*=36) had attended foreign language courses in pre-school education institutions. The demographics of the children who participated in the study are as follows (Table 1):

The number of children with both parents being university graduates was 25 (61%). Four children had both parents with postgraduate degrees. One of the other parents was a high school graduate while the other one was a university graduate. Four of the mothers were high school graduates and 5 fathers were high school graduates (Table 2).

When the occupational distribution of the mothers is examined, it is seen that the occupations are diverse, ranging from the medical professionals to engineers and teachers. The number of mothers who were housewives was 8 (19.5%), 5 of whom were university graduates and 3 high school graduates. The following table shows the distribution of the mothers according to their occupation (Table 3).

Table 2 Demographics of the mothers of the children who participated in the study

	n	%
Age		
26–30	3	7.32
31–35	17	41.46
36 and above	21	51.22
Education level		
High school	4	9.76
College/university	31	75.61
Postgraduate	6	14.63
Total	41	100

Table 3 Distribution of the mothers of participating children based on their occupations

	Frequency	%
German teacher	1	2.44
Lawyer	1	2.44
Pulse vegetables producer	1	2.44
Banker	2	4.88
Farmer	1	2.44
State employee	1	2.44
Language and speech therapist	1	2.44
Physician	3	7.32
Pharmacist	1	2.44
Housewife	8	19.51
Finance manager	1	2.44
Exhibition/event planner	1	2.44
Security officer	1	2.44
Nurse	2	4.88
English teacher	3	7.32
Business owner	1	2.44
Manager	2	4.88
Financial consultant	1	2.44
Engineer	4	9.76
Self-employed	2	4.88
History teacher	1	2.44
Tennis trainer	1	2.44
Tourism professional	1	2.44
Total	**41**	**100.0**

It was learned that the parents of 7 of the participating children (17.1%) were separated. When the table is reviewed in general, it is observed that 90.2% of the mothers ($n=37$) had either an undergraduate or a postgraduate degree. This rate was calculated as 87.8% among the fathers of the children ($n=36)$ (Table 4).

When the occupational distribution of the fathers is examined, it is seen that 12.21% ($n=5$) were self-employed or engaged in free trade. Again parallel to the occupational

Table 4 Demographics of the fathers of the participating children

	N	%
Age		
26–30	-	-
31–35	5	12.2
36 and above	36	87.8
Education level		
High school	5	12.2
College/university	30	73.2
Postgraduate	6	14.6

Table 5 Distribution of the fathers of the participating children based on their occupations

	Frequency	%
Lawyer	3	7.32
Physical education teacher	2	4.89
Farmer	1	2.44
Dentist	2	4.89
Physician	3	7.32
Economist	1	2.44
Electronic engineer	1	2.44
Physiotherapist	1	2.44
Business owner	1	2.44
Manager	1	2.44
Financial consultant	1	2.44
Public servant	1	2.44
Engineer	4	9.76
Contractor	1	2.44
Teacher	1	2.44
Pilot	1	2.44
Police officer	1	2.44
Self-employed	3	7.32
Free trade	2	4.89
Insurance expert	1	2.44
Trade	4	9.76
Tourism professional	5	12.20
Total	**41**	**100.0**

distribution observed with the mothers, fathers showed diversity in their occupations (Table 5).

It is seen that 60.98% of the families who participated in the study had a monthly income of TRY 7001 [sic] and above. Approximately 29.27% of the families had a monthly income of TRY 12,001 and above. Two families preferred not to disclose their income (Table 6).

Table 6 Monthly income of the families who participated in the study

Monthly income	*n*	%
Between TRY 3001 and TRY 4000	2	4.89
Between TRY 4001 and TRY 5000	5	12.20
Between TRY 5001 and TRY 6000	6	14.63
Between TRY 6001 and TRY 7000	1	2.44
Between TRY 7001 and TRY 8000	3	7.32
Between TRY 8001 and TRY 10,000	7	17.07
Between TRY 10,001 and TRY 12,000	3	7.32
Above 12,001	12	29.27
Unknown	2	4.89
Total	41	100.0

Findings of research sub problem 1

Spearman rank correlation coefficient (Spearman's r_{ho}) is calculated to reveal whether there is a significant relationship among the scores of categories Task Performance (A) and Communication Competence (B). The results indicate that there is indeed a highly significant positive correlation $r_s = .79$, $p = .000$. between categories A and B. It may be possible to say that as Task Performance scores of children increase, their scores of Communication Competence increase, or as Communication Competence scores increase, their Task Performance scores increase in parallel. The coefficient of determination in this case was $r_s^2 = .63$. This result shows that there is 63% common variance between these two categories. In other words, it can be concluded that the 63% of the total variance in communicative competence arises from task performance. The same situation can be interpreted within the category of Task Performance.

Findings of research sub-problem 2

To determine whether the correlation between the scores of categories Task Performance (A) and Vocabulary (C) is significant, Pearson product–moment correlation coefficient (r) was calculated. The analyses revealed moderate positive and significant relationships between these sub-categories, $r = .57$, $p = .000$. The coefficient of determination in this case was $r^2 = .32$. The result indicates that there is 32% common (shared) variance between these two categories.

Findings of research sub-problem 3

Spearman's r_{ho} is calculated to reveal whether there is a significant relationship among the scores of children among categories Grammar (D) and Sentence Formation (E). The results suggest that there is a moderate positive and significant relationship between these categories $r_s = .61$, $p = .000$. The coefficient of determination was $r^2 = .37$. The results show that there is 37% common (shared) variance between these two categories.

   All of these data and the fact that 59% of the participating children scored above the mean score obtained by the participants in Hamburg across all categories, or in other words, that they showed competence in all skills, point out that there is a significant relationship and interaction between language categories. Put differently, it can be stated that an advanced level of competence observed in one of the linguistic skill areas has a positive impact on the other area. On the other hand, observing a low linguistic performance in 1 or more than 1 category and competence in other fields, in spite of this, can be considered as an indicator that the child is facing a difficulty in certain language categories specifically. That E4, E11, E13, K1 and K6 among the participating children showed low language performance only in category A – Task Performance and showed competence in other skills constitutes an example of the characteristic situation described above. In those cases where these and similar results are obtained, specific studies are conducted on the linguistic skill where non-competence has been observed. If the child is facing a difficulty only in category A – Task Performance, then this is related to the fact that s/he could not explain the actions of the main characters in the pictures consecutively within a logical order. This situation can be perceived as an

indicator of the child not being familiar with picture stories and it can be supported with activities that aim to improve the child's verbal presentation skills.

HAVAS 5 providing an opportunity to conduct such an evaluation also allows language support programs to be structured in a way that would fulfill the child's requirements (see Reich & Roth, 2007). In the remaining parts of the study, the results obtained by a participating child who has shown an advanced language performance level within the Antalya sample in HAVAS 5 will be examined and explained from a multiple perspective. This will be followed by other sections containing certain findings regarding children who have the tendency to obtain language support.

Findings from interviews with mothers and fathers

In order to get an impression of the family environment and of the language used by the children outside the kindergarten, interviews were carried out with the parents of E1, E5 and K4 by a researcher of the present study.

Interview with the mother of E1 Age of the child: 5 years and 9 months

Gender: Male

Scores in categories: A: 11, B: 9, C: 13, D: 3, E: 0

The interview begins with an open narrative question about the mother's life story. Mother of E1 is a banker who works long hours (50–55 h per week) in Antalya continuously for 7 years. She has a boy. In the first part of the interview, the mother tells how they moved to Antalya:

> M: My father was a senior civil servant in Ankara. I was born there. My mother was a housewife, but she was very encouraging about everything.
> I: Have you moved to Antalya with your parents?
> M: No. After I got married, I moved to Antalya. My father has moved to Isparta.
> I: What about your mother? Hasn't she moved with your father?
> M: My mother died. My father married for the second time and moved with his wife to Isparta.
> I: My sincere condolences to you. Did you lose your mother very young?
> M: Yes. I was eighteen. It was a car accident […] (Transcription -T- E1m, p. 4)

During interview session, the mother adds that she lost her mother in an accident while they were going on vacation. Almost nothing happened to her father in the accident, but she was seriously injured. After the accident, she had to stay in the hospital for months. She lost an ear and an eye. The interviewer asks what E1 does on an average day and how he spends his time. The mother's answers gave us the impression that E1's everyday life was idealized. According to the mother, there are many picture books at home, E1 can speak about these books in different versions, plays with Lego and is very fond of drawing. He can also reproduce the contents of the stories etc. The child does not own any type of screen-based media, such as phone or gaming consoles etc. When asked: "Does he like playing computer games or mobile games?" The mother replies as follows:

"He does not have his own smartphone. We have computers at home, but he cannot watch too much digital media, which includes TV, the internet, and smart devices. Age-appropriate and enjoyable movies maybe but not violent movies!" (T. E1m, p.4).

During the conversation, the mother adds that the family uses the internet especially for information (T. E1m, p4). The interview with E1's mother does not provide any concrete information about the child's use of language in the family or about the child's language skills. The mother claims that E1 can express himself very well in his mother tongue (T. E1m, p.5).

Interview with the father of E1 During interview session, the father stated that he was an army officer and later became a civil servant in Antalya. He also added that he was satisfied with his new job and have a positive working environment. In the second part of the interview, the father explained what E1 does in his everyday life, with whom and what he likes to play, etc.

I:What does he particularly like to play with at home?
F:He especially plays games.
I:What kind of games does he play?
F:Games with smart phone or laptop.
I:Does he have a smartphone?
F:No, he doesn't have his own, but he takes my second smartphone whenever he wants.
I: What kind of movies or TV programs does he like most?
F:Cartoons and movies. Sometimes we watch boxing matches together.
I:Do you or your spouse read picture stories or fairy tales to your child before bed?
F:My wife ermm my wife opens stories from her smartphone every night, so he listens them. (T.E1f, p.3).

In contrast to the mother, the father says that E1 watches cartoons and plays mobile games for about 2–3 h a day (T. E1f, p3f.). The father explains that his wife has had a traumatic experience in adolescence and experiences emotional exhaustion as a result of accumulated stress from her personal and work lives (T. E1f, p5.). In summary, it can be said that the child's parents give conflicting answers. It seems that in the interview the family tries several times to present themselves and their family in a way that corresponds to the social expectations and norms.

Interview with the mother of E5 Age of the child: 5 years and 11 months
Gender: Male
Scores in categories: A: 21, B: 6, C: 12, D: 2, E: 3
In the first part of the interview, mother of E5 expressed that she is a clinical scientist working in medical physics in Antalya. Furthermore, the interviewee revealed that she has divorced when E5 was 3 years old and go on to marry again. At the beginning of the interview, the interviewee expressed that she wants to receive information about

HAVAS 5 results of E5. Then, the following dialogue can be read in the transcript of the interview:

> I:One moment. I have to take a quick look at the evaluation sheet. (About 5 s later) generally speaking, we can say that we got positive feedbacks from some indicators about language proficiency of E5. He can use infinitive forms like "the cat is trying to fly." This could be an indication that he can demonstrate advanced oral proficiency in his mother tongue. On the other hand, we have observed some difficulties ermm some ermm related to…
> M: Sorry! what type of difficulties?
> I: We had difficulties to understand child's speech. Substituting "T" for "K", e.g., "thuş" instead of "kuş" (bird) or, e.g., "taplan" instead of "kaplan" (tiger).
> M: A speech language pathologist had diagnosed "kapasizm" a phonological disorder when he was 4 years old. I decided to begin a therapy. My child started receiving individual therapy services even if it's a little late (T. E5m, p.2).

Interviewee revealed that her son is diagnosed with a phonological disorder, a type of speech sound disorder (SSD). SSD is part of a cluster of diagnoses called communication disorders (Unicomb et al., 2020), and the child regularly makes certain word speech mistakes. This diagnosis may provide an important clue to the understanding of possible reasons of E5's low performance especially in the category of Communication Competence (B). On the other hand, interviewee also expressed that she takes initiative and responsibility by saying, "I decided to begin a therapy" (instead of we).

Interview with the father of E5 The father of E5 is a clinical scientist, a busy physician working in medical physics like his ex-wife. We managed to get an appointment, after long struggle and many setbacks, with the father for the interview in his office.

The interview with E5's father does not provide any information about the child's use of language in the family or about the child's language skills. When asked: "Did E5 sing or speak rhyming words?" the father answers as follows:

> F:First, I would like to ask a few questions. Is there a validity and reliability study about the test that you performed on my child?
> I:(The interviewer is confused about the question for a few seconds.) First of all, it's not a test to…
> F:Please do not misunderstand me. It's about my child and I have to ask these questions.
> I: Please don't worry about it. It is not a test to find out your child's deficits, but to show his capacities and what he can do. Did E5 sing or speak rhyming words?
> F:I do think he would do that. His mother would know better. Did you ask her? She certainly knew (T. E5f, p1).

As can be seen in the quotation, the father focuses on technical details. The father of E5 expressed that he avoids taking initiative by saying "His mother would know better".

Interview with the mother of K4 Age of the child: 5 years and 3 months

Gender: Female

Scores in categories: A: 18, B: 4, 9: 12, D: 2, E: 0

Analysis of the evaluation form of K4 demonstrates that the child produces speech disfluent (lacking fluency), interruptions and response time latencies during the HAVAS 5 interview. The combining sentences using an infinitive from like "ıı kediyi yemeğe çalışıyo" (trying to eat the bird) (T. K4, p2) point out that K4 may have sufficient proficiency in her mother tongue and, on the other hand, reinforces the idea that there may be possible reasons other than linguistic factors.

Mother of K4 was born in Antalya and has besides K4 two more children, aged 8 and 9. The mother has a BA degree in English language teaching, although she never practiced his profession. Instead, she decided to bring up their children. In the second part of the interview, the mother explained what K4 does in her everyday life, with whom and what she likes to play, etc.

I:What does she particularly like to play with at home?

M:She watches mostly Frozen princess Elsa from her computer and plays smart phone games like fashion and dress up games.

I:I see. Does she sing or speak rhyming words?

M:Not really. She doesn't speak much. I think it's her character! (she smiles). So, she is different from her siblings.

I:Does she play board games with her siblings?

M:Ermm aa ermm big sister and big brother don't have the same interests. She sometimes plays with her dolls.

I: Do you play with her or read picture stories?

M:Ermm unfortunately I don't have enough time. Running three children and a household is very exhausting. Also, because my husband is a businessman, we get a lot of guests. Everything is very exhausting (T. K4m, p.2).

During the interview, the interviewer asks whether K4 has CDs or picture books at home. The mother's answer is:

"My children don't need CDs or picture books; they download everything from the Internet. Although my little daughter cannot read or write, she can do everything on her own. She can use the computer ((laughing))." (T. K4m, p.2).

Although K4 cannot read or write, she can handle the "great" medium computer alone. The mother seems proud that her 5-year-old daughter can operate and use the computer alone. Mother of K4 adds that K4 watches cartoons and plays mobile games for about 2–3 h a day (T. K4m, p3.).

Interview with the Father of K4 During interview session, the father stated that he is a businessman which has more than 300 employees and works with around 70 countries. The interviewer asks the father what K4 does on an average day and how she spends his time.

I: What does your daughter like to play?

F: Everything, I think she plays everything…

I: What are these games? Maybe computer games too?

F: We have everything at home such as computer, laptop or tablet but my children read books in their rooms, my other two children like to read, the little one can still not read but she always has picture books in hand. The use of screen-based media is not permitted.

I: Do you or your spouse read picture stories or fairy tales to your child before bed?

F: Please do not misunderstand me. Running a big company is very demanding! I can not read fairy tales. But my wife is doing her best for the kids. Unfortunately, I'm coming home very late. But I'm sure my wife reads every night. She graduated from faculty of education. It is fair that she should understand pedagogy. Isn't it? (T. K4m, p.2).

Results

To achieve the objective of the research, the study comprised two stages. The first stage used the profile analysis approach applied to oral discourse for tracking native language proficiency (L1) of Turkish children ($n=$ 41; 29 boys, 12 girls) from high-income and highly educated families, and the second used a semi-structured interview (SSI) form conducted with parents of 3 children in our study group with different profiles in terms of language proficiency to elucidate the possible reasons and various factors that could contribute to the children's low proficiency level in L1 (see RQ2).

Of the children included in the study, 59% ($n=24$) scored above the average calculated for Hamburg in all categories. The proportion of the children who scored below the average in more than one language category is 17% ($n=7$). Of the children, 24% ($n= 10$) scored below the Hamburg average only in a single category. The following table shows the distribution of the scores obtained by the children according to the categories (Table 7).

The following table shows the test statistics and normality results of HAVAS 5 within the categories of Task Performance, Communication Competence, Vocabulary, Grammar and Sentence Formation.

When Table 8 is examined, it is observed that the measures of central tendency of the categories are close to each other. It is seen that skewness and kurtosis coefficients of the categories Task Performance (A), Vocabulary (C) and Grammar (D) take on values in the interval ±1. The values of the skewness and kurtosis between ± 1 can be an indication for a normal score distribution (Rosenthal & Rosnow, 2008). On the other hand, it can be seen that the values of skewness and kurtosis coefficients within the categories of Communication Competence (B) and Sentence Formation (E) are not inside the interval ±1. Accordingly, it can be said that the score distribution of the categories Communicative Competence (B) and Sentence Production (E) does not display a distribution close to normal. At a glance, we can see that these data clearly are not normally distributed.

In order to get a general impression about the verbal presentation skills of children and to obtain information on how they use their language skills, evaluations were

Table 7 HAVAS 5 scores of participating children

		A	B	C	D	E
Participating children	E1	11[a]	9[a]	13	3	3
	E10	27	14	14	3	5
	E11	15[a]	12	15	5	5
	E12	25	15	18	5	4
	E13	14[a]	13	14	3	4
	E14	13[a]	6[a]	12	3	4
	E15	18	11[a]	13	2[a]	4
	E16	32	16	22	5	7
	E17	20	13	12	2[a]	3
	E18	22	14	14	4	4
	E19	18	12	16	4	4
	E2	33	15	22	5	6
	E20	28	14	14	3	4
	E21	26	15	10[a]	3	5
	E22	27	15	14	3	5
	E23	21	16	18	4	3
	E24	26	15	20	6	6
	E25	15[a]	11[a]	13	2[a]	3
	E26	20	14	16	3	3
	E27	20	13	15	4	5
	E28	24	16	13	3	4
	E29	20	14	18	2[a]	4
	E3	29	16	21	6	4
	E4	17[a]	12	14	3	4
	E5	21	6[a]	12	2[a]	3
	E6	12[a]	9[a]	11	3	4
	E7	20	12	11	3	5
	E8	18	14	14	5	6
	E9	16	12	10[a]	3	3
	K1	17[a]	13	14	4	5
	K10	18	13	12	2[a]	2[a]
	K11	24	15	12	3	4
	K12	22	16	16	5	3
	K2	25	14	12	3	3
	K3	24	13	13	4	5
	K4	18	4[a]	9[a]	2[a]	0[a]
	K5	23	14	13	3	4
	K6	17[a]	12	14	4	6
	K7	26	16	19	6	5
	K8	22	15	17	3	4
	K9	29	16	19	5	6

A: Task Performance category, B: Communication Competence, C: Vocabulary, D: Grammar, E: Sentence Formation
[a]Values below the average for Hamburg or cut-off scores

Table 8 Test statistics and normality results of HAVAS 5 categories

Categories	Mean	Median	Mode	s	Skewness	Kurtosis
A	21.29	21	18	5.34	.169	.724
B	13.05	14	14	2.85	−1.551	2.459
C	14.61	14	14	3.25	.711	−.078
D	3.56	3	3	1.18	.559	−.585
E	4.17	4	4	1.28	−.485	1.763

conducted within the framework of the Task Performance (A) category. What is expected of the children in this category is for them to describe each picture and the actions of the actors in the pictures and state the links between the pictures verbally. Based on the data obtained from the Task Performance (A) category, it can be claimed that the standard deviation in this section is higher compared to other categories. The maximum score that may be obtained in this field is 36. With regard to the distribution of the scores, 34.15% (*n*=14) of the participating children scored between 20 and 24, 29.27% (*n*=12) scored between 25 and 33, and the remaining 37% scored between 11 and 18. The mean of the scores of the participating children in the Task Performance (A) category was calculated as 21.29. Of the children, 21.95% (*n=9*) scored below 17.6, which is the average score[1] for Hamburg.

The Communication Competence (B) category aims to examine the linguistic behaviour that will be displayed by the children against an application that is structured in a semi-artificial and semi-natural format. This way, insight will be obtained about the self-confidence of the children regarding the language that they speak and, in addition, it will be learned whether the child can take initiatives on his/her own, whether s/he requires constant motivation by the interviewer or information will be gained on the fluency, clarity or disruption of the child's speech. The evaluations conducted showed that the arithmetic mean of the scores of the participating children in this category (B) was 13.05, with 6 of the children scoring below 12, which is the mean for Hamburg.

Vocabulary is one of the primary factors in systematic linguistics. The scope and diversity of vocabulary are considered important indicators in the diagnosis of a child's language development level (Reich & Roth, 2004). Children's general vocabulary level can be established by determining and recording the words reporting an action (verbs) that they use during the HAVAS 5 storytelling. The mean score obtained in the Vocabulary (C) category was 14.61, and 3 children scored below the mean in this category. The following radar graph provides a comparative presentation of the data Fig. 2.

Parallel to the vocabulary category, Grammar (D) is also evaluated as an important element in systematic linguistics that is of top priority. Within the framework of this category, statements formed by the children in past, present continuous, future or present tenses and their use of the indicative (reporting) mode and compound suffix were examined. The data obtained from the study conducted in Hamburg with more than 500 children showed that the mean score in this category is 3.3. The maximum score in this category is 7. The participating children had a mean score of 3.56 in the
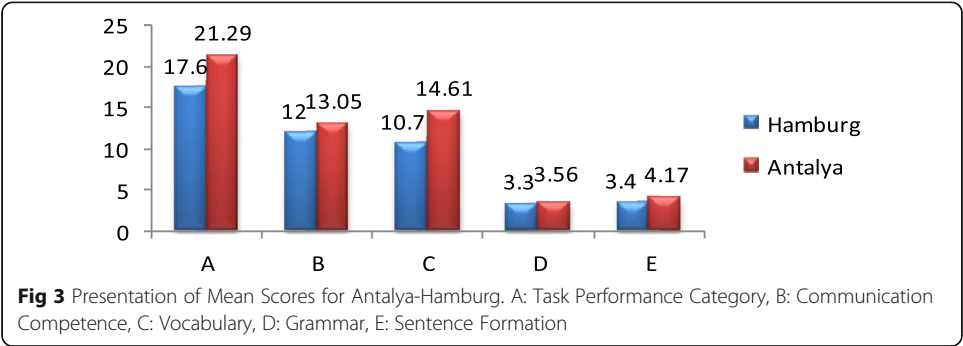
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[1]Average scores of HAVAS-5 are also used as a cut-off scores (A: 17.6, B: 12, C: 10.7, D: 3, E: 3) (Reich & Roth, 2004).

Fig. 2 Comparison of the scores of the children with the average for Hamburg by category

Grammar (D) category. The number of children who scored below the mean obtained in Hamburg in this category is 7.

Another way to determine the competence of children in language development is to examine their ability to connect statements by using various conjunction words and their ability to create texts. At the early stages of language development, children firstly combine simple and single expressions. At the advanced stages, they acquire the ability to associate expressions with each other, establish meaningful links between events, and if there is a situation to be described, then they acquire the skill to present this verbally to another person. We can state that there are a variety of ways to combine expressions in Turkish. It is possible to classify these under two sub-groups. The first group includes the conjunction words that are used to combine two or more sentences together. Other group includes gerunds and verbal nouns. Both groups have simple, common, complicated and rare conjunction types. This makes it possible for us to guess the child's language level. The maximum score that could be obtained in the Sentence Formation category was 7, and the mean score of the Hamburg sample was around 3. The mean score of the participating children in this category was 4.17 and 2 children scored below the mean.

The mean scores obtained by the sample in Antalya and the mean scores of the sample in Hamburg are presented below (Fig. 3).

Fig 3 Presentation of Mean Scores for Antalya-Hamburg. A: Task Performance Category, B: Communication Competence, C: Vocabulary, D: Grammar, E: Sentence Formation
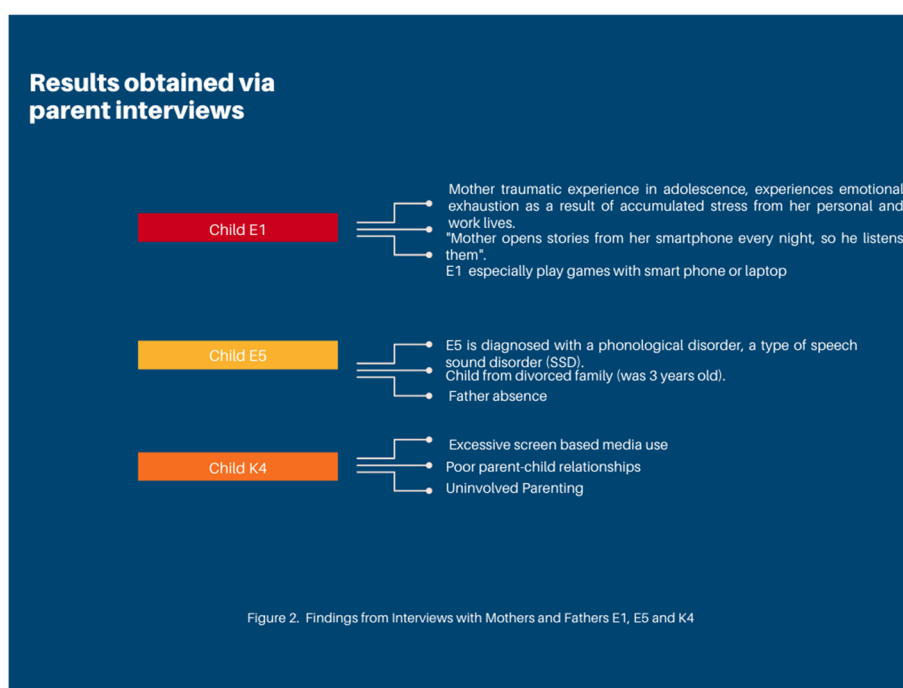
The interview results

The study's second research question was answered by using in-depth semi-structured interviews. We found that the content analyzed implied that emotional atmosphere of the family, parenting styles, speech sound disorder (SSD) or excessive screen-based media use might have some influence on mother tongue proficiency, with particular focus on oral language skills and vocabulary. In particular, the children (E1, E5 and K5) were observed to be little self-confident when using their mother tongue and that they hesitated to take initiatives during the HAVAS 5 storytellings (see Additional file 2). However, when analyzing the results obtained, it should be noted that the results demonstrate only possible associations and cannot conclusively show causation. Further longitudinal observational studies and triangular researches are needed to better elucidate our findings and results (Fig. 4).

Discussion and conclusion

The study group of this research was made up of 41 pre-school children registered in the kindergarten of a private school located in the Muratpaşa district of Antalya. The information obtained from the demographics form shows that the academic levels of the parents of the participating children were similar and most of the mothers and the fathers had undergraduate and/or postgraduate degrees. The income levels of the parents of the participating children and their general characteristics point out that they reflect the features of the upper socioeconomic class of the relevant population. All of the children were born in major cities, all except 1 have attended pre-school educational institutions and most of them have taken foreign language classes in pre-school education institutions. Results from HAVAS 5 relieved that more than half of the children were above cut-off scores obtained in Hamburg across all categories, about a

Fig. 4 The main results obtained by parental interviews

quarter of the children scored below cut-off scores of HAVAS 5 only in one category. Consistent with previous research (Bradley et al., 2001; Gatt et al., 2020; Hart & Risley, 1995; Huttenlocher et al., 2007; Montag et al., 2015; Rowe, 2012; Schwab & Lew-Williams, 2016; Vasilyeva et al., 2008) our results indicated that the majority of the children from high-income and highly educated families showed an advanced level of language proficiency.

Within systematic linguistics, "vocabulary" is one of the primary factors of top priority in the diagnosis of pre-school children's language development level (Bruner, 1987; Reich & Roth, 2004). It was observed that the vast majority of the participating children scored above the mean in Hamburg (above cut-off scores of HAVAS 5) in the vocabulary category by using fifteen or more verbs. We believe that the most important determinant for pre-school children is exposure to the language (Zollinger, 2010), and the language exposure can occur in various contexts, such as within the family (Tomasello, 2003), during pre-school, through peer interaction or via media (Rose, 2002; Roseberry et al, 2009; Tracy, 2008). And it appears from studies that the acquisition of the heritage language is mainly determined by the exposure to it within the family (Biedinger et al., 2015; or see Willard et al., 2015) and parenting style influences verbal skills independently of the family language (Chung et al., 2019; Loboda et al., 2016). Recent research has revealed that concerning family variables, both early daycare entry and stimulating home language environment were significant predictors of better L1 and L2 skills. The reasons for this situation have to do with the socioeconomic status (SES), and SES is a critical predictor of student achievement (Liudmila, Markus & Ira, 2017), and that it is even more critical for students in lower grade levels (Tomul & Savasci, 2012; UNESCO, 2012). It might be said that students who suffer from lower SES living conditions are less likely to succeed in elementary and secondary schools (Gonzalez-Ramos et al., 1998; Mistry et al., 2008; Perry & McConney, 2010; Pinquart & Kauser, 2017).

It can be noted that the results of findings from interviews have shown that the children's parents give contradicting answers. The findings demonstrate that the participants tried several times to present themselves and their family in a way that corresponds to social expectations and norms. The parents endeavour to meet the interviewer's supposed expectations with their answers, for example when it is said that the child watches age-appropriate and enjoyable movies, but not violent movies or the use of screen-based media is not permitted etc. It should also be noted that contradicting answers of parents provide important clues. One important result of findings of interviews was that the everyday life of a child in study group was idealized by his mother, which has had a traumatic experience in adolescence and may experiences emotional exhaustion. The mother claimed that her child lives in very good conditions, although the child listens alone stories every night from mother's smartphone or watches boxing matches with his father. A second important finding was the information obtained from parents about the speech sound disorder of a child and excessive screen-based media use (2–3 h per day) by two children in the study group. These could be the possible reasons why some children in study group show lower levels of oral language skills or lower language proficiency in their mother tongue.

Finally, the children that make up the study group in Antalya were observed to be self-confident when using their mother tongue and that they did not hesitate to take

initiatives during the HAVAS 5 storytelling. When the results are reviewed in general, it is concluded that the children have an advanced language proficiency level and only a few may require a language support program. Parallel to this study, working with children from different social classes and living in Turkey and diversifying other studies that include children who do not show a healthy language development progress due to a lack of stimulants can also provide more in-depth information on the Turkish language skills of children. This way, it will be possible to raise awareness on language support (Knapp, 2009; Knapp, Kucharz & Gasteiger-Klicpera, 2010) and consequently and the number of scientific attempts addressing this problem may gain a certain momentum (Reich, 2008).

Abbreviations
SSI: Semi-Structured Interview; HAVAS 5: Hamburger Instrument for the Analysis of the Language Level of 5-year olds; SISMIK: Monitoring tool for speech and language behaviour and language interests of children with a migration background in Kindergarten; Screemik 2: Computer based screening of primary language skills in migrant children; L1: First Language; L2: Second language; LLP: Lower language proficiency; T: Transcription; SES: Socioeconomic status; Spearman's r_{ho}: Spearman's rank correlation coefficient

Supplementary Information
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Additional file 1.

Additional file 2.

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