



INVISIBLE INEQUALITIES IN ADULT SKILLS: THE RELATIONSHIP BETWEEN CULTURAL CAPITAL AND SKILLS IN PIAAC DATA

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Abstract:

This study examines the relationship between individuals' cultural capital accumulation (number of books at home) and their cognitive skill levels in adulthood (literacy, numeracy, and problem solving) using PIAAC (Programme for the International Assessment of Adult Competencies) data from the Turkish sample, within the framework of Pierre Bourdieu's theory of capital. It should be noted that this calculated index captures only a specific and important aspect of the concept of cultural capital and does not represent other forms, such as integrated or institutionalized capital. Assuming that skill inequalities stem from social reproduction mechanisms rather than individual failures, the study aims to discuss the deep inequalities in Turkey's socio-economic structure. The study's sample was taken from PIAAC data for Turkey (N=5,110, N=2,885). IDB Analyser and SPSS programs were used in the study's analysis. In the analyses, the cultural capital index was correlated with skill scores using Pearson correlation. The findings of the study revealed moderate to high positive correlations between the cultural capital index and the three skill domains. The correlations found in the study are consistent with Bourdieu's (1986) theoretical framework. Indeed, forms of cultural capital shape an individual's cognitive development in the long term, supporting the acquisition of skills such as literacy, numeracy, and problem-solving. Based on the results obtained from the study, future research could analyze longitudinal data (such as national cohort data) to examine individuals' skill development. Furthermore, future studies could examine the impact of cultural capital on subgroups by including variables such as gender, age, and migration status, thereby expanding Bourdieu's theory and integrating economic and social capital dimensions into research.

Keywords: PIAAC, cultural capital, Bourdieu's theory of capital

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1. Introduction

In the knowledge-based economies of the twenty-first century, the basic skills possessed by individuals are of critical importance not only for individual development but also for social welfare, economic growth, and democratic participation. In this context, the Programme for the International Assessment of Adult Competencies (PIAAC), conducted by the OECD, provides important data by measuring the basic competency levels of a country's adult population in literacy, numeracy, and technology-based problem solving. However, these measurements are mostly interpreted through technical data, and the underlying socio-cultural dynamics of the results are not sufficiently analyzed.

PIAAC results reveal not only "how much individuals know," but also the extent to which societies provide opportunities to individuals. At this point, French sociologist Pierre Bourdieu's theoretical framework on types of capital (cultural, economic, and social) allows us to approach PIAAC data from a different perspective. Bourdieu argues that individuals' educational and cultural achievements are determined not only by individual effort but also, to a large extent, by social structure, resources inherited from the family, and habitus. From this perspective, Turkey's low performance in the PIAAC results cannot be explained solely by individual inadequacies; rather, it should be considered a reflection of social inequalities.

Turkey participated only in the first application of the PIAAC survey (2011–2012), and these data were published in 2015. The latest reports published by the OECD in 2023 do not cover Turkey. This situation indicates that there is a lack of direct comparative data on Turkey's current situation regarding adult skills. However, in this article, the available data on Turkey is analyzed within a structural and theoretical framework, aiming to reveal the persistent dynamics of social inequalities rather than focusing on the timeliness of the data. In other words, the aim of this study is not only to provide data-driven analysis but also to offer a theoretical discussion on how PIAAC data can be interpreted sociologically. In other words, based on PIAAC data, it aims to discuss the low performance in adult skills not only at the cognitive level but also in the context of social structure and capital accumulation. When explaining the differences in the skill levels of adults in Turkey, it is important to reveal the persistent dynamics of social inequalities.

PIAAC (Programme for the International Assessment of Adult Competencies), as its name suggests, is a skills test administered to adults by an organization affiliated with OECD countries that aims to influence policies designed to renew economic conditions (OECD, 2025). While countries work to improve literacy skills in their societies, the increasing importance of human capital makes them strive to be more sensitive to maintaining productivity and social cohesion. Since the quality of human capital is closely related to the quality of knowledge, skills, and characteristics of the adult population, countries are seeking ways to improve in this area. Recognizing this situation, the OECD has developed an international comparative survey called PIAAC.

This survey aims to provide a basic profile of the skills of adults in OECD member countries. It contributes to the formulation of policies on how this profile of adults affects the social and economic conditions of countries and what can be done to develop the competencies of adults (OECD, 2025).

The accurate measurement of human capital is related to the fact that economies worldwide are increasingly dependent on human capital. PIAAC is essentially a survey that aims to classify and measure human capital through indicators such as education, work experience, and career choice. Thanks to PIAAC, various investment strategies, such as education and training, can be more effective for countries (Schleicher, 2008). Thus, PIAAC aims to contribute by providing countries and policymakers with a macro-level profile of the total human capital stock within their national borders (Rappleye and Komatsu, 2019).

PIAAC is an international computer-based household survey conducted in ten-year cycles. The first research cycle was completed in 39 countries in three separate rounds between 2011 and 2018. In this round, it conducted its work with approximately 245,000 adults representing 1.15 billion people. Thirty-one countries participated in the second cycle. The first round of data collection was completed in 2022-2023. The results of the latest cycle were published in 2024 (OECD, 2025).

Turkey participated in the adult skills survey in 2015. The countries participating in this cycle were Chile, Greece, Indonesia, Israel, Lithuania, New Zealand, Singapore, Slovenia, and Turkey.

Table 1: Countries included in the PIAAC 2015 (2nd cycle)
data and their average scores (OECD, 2016)

Country / Economy	Average Literacy	Average Numeracy	Problem Solving (% Level 2 or 3)
Chile	220	206	15
Greece	—	—	14 %
Indonesia	200	210	—
Lithuania	267	267	18 %
Singapore	258	257	37%
Turkey	227	219	8 %

According to Table 1, the average literacy score in Turkey is 227 points, which is 41 points below the OECD average. The average numerical ability or arithmetic score in Turkey is 219, which is 44 points below the OECD average. In terms of problem-solving skills, only 8% of Turkey's population has reached Level 2 or 3. The OECD average is 31%.

The PIAAC 2015 report also states that adults in Turkey perform below the OECD average in literacy, numeracy, and problem-solving skills. In the PIAAC 2015 report, the young adult population aged 25-34 in Turkey scored 234 points in literacy, while the OECD average is 277. In numeracy, they scored 43 points less than the OECD average (272). Young adults scored higher than their older counterparts (aged 55-65) in numeracy and literacy. In addition, 38% of adults (aged 16-65) stated that they had no previous

computer experience or lacked even basic computer skills. As a result, 45.7% of adults in Turkey scored at the lowest levels in literacy, while 50.2% scored at the lowest levels in numeracy (PIAAC, 2015).

As can be seen, Turkey performs well below the OECD average in all three skill areas. These differences are understood to be related not only to the outputs of the education system but also to structural reasons such as socioeconomic inequalities, differences in cultural capital, and the inadequacy of lifelong learning policies. In other words, the PIAAC results show that adults in Turkey perform significantly below the OECD average in literacy, numeracy, and problem-solving. This gap cannot be explained solely by individual cognitive abilities; it requires a different paradigm. At this point, Pierre Bourdieu's concept of *cultural capital* provides a powerful theoretical framework for understanding the structural origins of these skill gaps.

1.1 Cultural Capital and PIAAC

Cultural capital consists of symbolic wealth and property acquisition tools that are worth seeking and possessing (Bourdieu, 1973). Bourdieu presents three different approaches to cultural capital and makes three distinctions. These are incorporated, institutionalized, and objectified cultural capital (Bourdieu, 1979). According to him, incorporated cultural capital is a natural and permanent tendency passed down from the family. Institutionalized cultural capital is mostly represented by academic titles or status. Objectified cultural capital, on the other hand, consists of tangible elements such as books or artworks owned (Sieben and Lechner, 2019). According to Bourdieu and Passeron (2015), families possessing all three types of cultural capital also have high cultural capital, and these accumulated forms of cultural capital are transformed into cultural capital passed on to children. With the cultural capital transferred from their families, these children can easily access higher levels of education (Atmaca and Aydın, 2020; Schwartz, 2013; Sieben and Lechner, 2019) and have more qualified education and work careers. This social status is then legitimized by being reproduced in society through various means, such as education.

The legitimization of social reproduction is also evident in the indicators of PIAAC studies, which aim to measure adult competencies. International studies such as PIAAC show that not only individuals' cognitive skills but also cultural resources derived from their social origins can influence individuals' skills (PIAAC, 2015). From a Weberian perspective, this shows that in modern societies, status groups are determined not only by economic capital but also through cultural privileges and lifestyles (Weber, 1978). In this context, the differences observed in literacy, numeracy, and problem-solving skills in PIAAC data reveal the form that cultural capital takes. This form of status, influenced by cultural capital, leads to the continuity of reproduction in the social structure.

In explaining the social reproduction of cultural capital, Bourdieu's contribution is undeniable alongside Weber's status analysis. Bourdieu (1986) emphasizes the intergenerational transmission of cultural capital through family, the education system, and habitus, arguing that individual skills are not "natural" but rather a set of socially

constructed privileges. From this perspective, the skill differences revealed in the PIAAC data () can be seen not only as individual performance differences but also as an indicator of cultural capital inequalities reproduced by the education system (Desjardins and Ederer, 2015). In Weberian terms, status determines the forms of social legitimacy of cultural capital as conceptualized by Bourdieu. Therefore, both approaches make it possible to understand the adult skills measured by PIAAC (2015) as a product of a social field.

When considered on a national basis, it can be argued that the Turkish sample embodies this theoretical intersection. Indeed, Turkey's PIAAC performance being below the OECD average points not only to educational indicators but also to the structural nature of socio-cultural inequalities (Atmaca and Aydın, 2020; OECD, 2019). Education or schools reward students according to their cultural capital, and cultural capital is related to individual education (Kingston, 2001; Sullivan, 2001; Lareau and Weininger, 2005). High-status groups, in the Weberian (1978) sense, reproduce cultural capital through the family, as Bourdieu (1986) points out; linguistic and symbolic skills acquired at an early age translate into competencies measured in adulthood (Schwartz, 2013). This situation is an indication of how regional and socio-economic differences have deepened in PIAAC data. Therefore, when Weber's (1978) status-based stratification and Bourdieu's (1986) conceptualization of cultural capital are considered together, the distribution of skills among adults at the national level can be interpreted not only as educational failure but also as a result of the systematic reproduction of cultural privileges.

Based on Bourdieu's (1986) concept, cultural capital can be measured using indicators such as the number of books in the home, as found in the PIAAC (2015) socio-economic status survey (Background Questionnaire). These parameters reflect individuals' cultural capital emerging in early life. Indeed, studies have indicated that indicators such as the number of books in the home and the educational status of families can be valid and reliable indicators of cultural capital (Sieben and Lechner, 2019). However, it should be noted that these indicators capture only a specific and important aspect of the concept of cultural capital and do not represent other forms, such as integrated or institutionalized capital.

This study aims to examine the effect of individuals' cultural capital accumulation (number of books at home index) on their skill levels in adulthood, based on Bourdieu's concept of cultural capital, in the context of the PIAAC (2015) data for the Turkish sample.

The study seeks to answer the following questions:

- What is the cultural capital indicator in the adult population of Turkey?
- What is the relationship between the cultural capital indicator and the PIAAC skill areas of literacy, numeracy, and problem-solving skills?

2. Method

This section explains the methodological elements of the analysis based on PIAAC 2015 Turkey data. The research adopts a secondary data analysis approach and is designed in accordance with OECD standards.

2.1 Research Design

This study is a quantitative survey study. PIAAC (Programme for the International Assessment of Adult Competencies) data were used with a secondary data analysis method. The study aims to correlatively examine the relationship between individuals' cultural capital accumulation (number of books at home) and their skill levels in adulthood (literacy, numeracy, and problem solving). Due to the complex sampling design of the PIAAC data (stratified, clustered sampling), final weights (e.g., SPFWT0), replicate weights (80 replicates with BRR or JK2, SPFWT1-SPFWT80), and plausible values (PV; e.g., PVLIT1-PVLIT10) are required in the analyses. The most practical method for the IEA IDB Analyzer () recommended by the OECD (2015) and IEA is the IEA IDB Analyzer tool. This tool is Windows-based and automatically generates SPSS syntax; it calculates PVs separately for each and combines them using Rubin's (1987) rules, integrating BRR weights for variance estimation.

Cultural Capital Indicator: number of books in the home (J_Q08; 1-6). Categories are 10 or fewer, 11-25, 26-100, 101-200, 201-500, and more than 500 books. This is based on Bourdieu's (1986) concept of objectified capital. It can be stated that this indicator captures only a specific and important aspect of the concept of cultural capital and does not represent other forms, such as integrated or institutionalized capital.

PIAAC skill scores: Literacy (continuous, 0-500), numeracy (continuous, 0-500), problem-solving skills (continuous, 0-500).

Analyses were performed after filtering out missing values. The Kolmogorov-Smirnov test results reject the hypothesis of normal distribution for the index ($p < 0.001$). The skewness value is positive (approximately +1.2), confirming right-skewness. Therefore, the non-parametric Spearman rank correlation was preferred in the analyses. Although similar values were observed in the Pearson alternative, Spearman's rank was preferred because it is more suitable for the ordered structure of ordinal data.

2.2 Sample

In this study, an index was created based on Bourdieu's concept of cultural capital, using the Turkish sample ($N = 4,098-4,103$) from the PIAAC (2015) data. Table 2 was calculated for $N = 2,885$ complete data observations by deleting all rows (observations) containing missing data from the dataset (*listwise deletion*); using the available data for each variable pair for correlation; and considering the missing data only for that specific pair (*pairwise*) for maximum utilization of $N = 4,103$. Descriptive statistics for the sample are provided below.

Table 2: Demographic Distribution of the Sample (Gender and Education Level)

Variable / Category	Frequency (N)	Percentage (%)	Cumulative Percentage (%)
Gender			
Male	2,260	45.1	45.2
Female	2,687	53.7	100.0
Missing	107	2.1	-
Total	5,110	100.0	-
Highest Level of Education (ISCED)			
No formal qualification / ISCED 1	13	0.3	0.3
ISCED 1	68	1.4	1.7
ISCED 2 (A-B+C2+)	547	10.9	12.9
ISCED 3B	334	6.7	19.6
ISCED 5A Bachelor's Degree	846	16.9	36.5
ISCED 5A Master's Degree	514	10.2	46.7
Foreign Qualification	89	1.8	48.5
Incomplete	1 + 6	0.1	-
Total	4,989	100.0	100.0

*For gender, N=5,110 (raw sample); for education, N=4,989 (due to slight data filtering). Percentages are calculated based on valid values; cumulative percentages for education are accumulated sequentially.

The demographic structure of the sample was examined in terms of gender and highest level of education (based on ISCED) (Table 2). In terms of gender distribution, women (53.7%) constitute the majority, while men account for 45.1%. In terms of educational level, the highest rates were observed for ISCED 5A Bachelor's degree (16.9%) and ISCED 2-A/B+C2+ (10.9%), indicating that the sample consisted of individuals with medium-high education. Low education groups (ISCED 1: 0.3%; ISCED 2: 1.4%) are limited, and foreign qualifications (1.8%) are also low. Missing values are low for both variables (2.1% for gender, 0.1% for education), which increases the reliability of the data.

2.3. Data Analysis

Analyses were performed using SPSS 22 software. Due to PIAAC's complex sampling structure, design weights and resampling weights were considered for the accurate estimation of error variances. The following steps were followed in the process:

- **Data Preparation.** Raw data were filtered (age 16–65, complete responses); unweighted frequencies were reported to show sample characteristics in descriptive statistics, while the final weight provided by PIAAC (SPFWT0) and 80 replication weights (SPFWT1–SPFWT80) were used in analytical statistics. Sample differences (N=5,110 raw, N=4,103 pairwise, N=2,885 listwise) are consistent with the methods recommended in OECD technical reports (OECD, 2016). In problem-solving skill analyses, the relevant subsample was used, taking into account the participation rules for the computer-based module.
- **Weighting and sampling structure.** The Balanced Repeated Replication (BRR) method was applied to account for standard errors arising from mixed sampling.

All point estimates were weighted, standard errors were calculated using BRR, and results were presented with a 95% confidence interval.

- **Plausible value (PV) aggregation.** The plausible value approach recommended by the OECD was followed for the variables literacy (PVLIT1–PVLIT10), numeracy (PVNUM1–PVNUM10), and technology-based problem solving (PVPSL1–PVPSL10). Statistics for each skill area were obtained separately for each of the 10 PVs; the point estimate PV average and uncertainty were combined using Rubin's (1987) rules: total variance was calculated as $T = \bar{U} + (1 + 1/M)B$.
- **Cultural capital indicator.** Included in the analysis based on the number of books in the home.
- **Normality and correlation technique.** Variables were technically converted into ordinal scores, weighted correlations were calculated for each PV, and results were reported using BRR + Rubin pooling. Pearson's correlation was used as similar directions and magnitudes were observed. For correlations, point estimates, standard errors, 95% CI, and PV number (M=10) were specified.

3. Findings

This section presents the relationships between the cultural capital index and skill scores based on the Turkish sample of the PIAAC (2015) data. In the study conducted by Sieben and Lechner (2019), the number of books at home was stated to be both a valid and reliable tool for measuring objectified cultural capital. In this context, looking at the cultural capital index in the current study.

Table 3: Descriptive statistics for variables

Variable	N	M	SD	Skewness	Kurtosis
Literacy - PV Status	5,277	1.02	0.124	7,786	58,651
Numeracy - PV Status	5,277	1.02	0.124	7,786	58,651
Problem Solving - PV Status	5,277	2.13	0.984	-0.253	-1.920
Background - Number of Books at Home	5,160	1.81	1,062	1,346	1,539

Table 3 shows that the data set reveals similar distributions for literacy (Literacy - PV Status) and numeracy (Numeracy - PV Status) scores (M = 1.02, SD = 0.124). These scores are concentrated in the range of minimum 1 and maximum 2, and the high positive skewness (skewness = 7.786) indicates that the distribution is right-skewed and that there are more low-performing individuals. Problem-solving (Problem Solving - PV Status) scores, on the other hand, are distributed over a wider range (M = 2.13, SD = 0.984) and exhibit a slightly left-skewed structure with negative skewness (-0.253). The number of books at home (J_Q08) was calculated as an average of 1.81 (SD = 1.062) for 5,160 participants. Positive skewness (1.346) and kurtosis (1.539) confirm that the distribution is concentrated towards homes with fewer books (Table 3).

Table 4: Weighted Average Literacy Score
by Number of Books in the Home (PVLIT, N=5160)

Number of Books Category	N (Weighted)	Average Score (SE)	95% CI	SD (SE)	Percentage (%) (SE)
10 or less	27,123,777	213.85 (1.93)	210-218	43.43 (1.09)	54.62 (1.26)
11-25	11,386,207	236.17 (1.35)	234-239	39.44 (1.57)	22.93 (0.80)
26-100	7,851,450	246.21 (2.08)	242-250	38.01 (1.39)	15.81 (0.64)
101-200	2,183,128	253.18 (3.14)	247-259	35.21 (2.45)	4.40 (0.35)
201-500	763,458	261.45 (5.22)	251-272	31.59 (3.33)	1.54 (0.21)
Over 500	353,550	268.64 (8.39)	252-285	34.91 (6.12)	0.71 (0.15)

Table 4 shows a consistent positive relationship between the number of books in the home and weighted average literacy scores. The group with the fewest books (10 or fewer books, $M = 213.85$, $SD = 43.43$) represents 54.6% of the population and has the lowest average literacy scores. As the number of books increases, the average literacy scores rise steadily, peaking in the highest category (more than 500 books) ($M = 268.64$, $SD = 34.91$). Standard deviation values are higher in groups with fewer books (43.43). Confidence intervals are wider in categories with small N (e.g., 500+ books) (33-point range), highlighting the uncertainty of the estimates.

Table 5: Weighted Average Numerical Ability Score
by Number of Books at Home (PVNUM, N=5160)

Number of Books Category	N (Weighted)	Average Score (SE)	95% CI	SD (SE)	Percentage (%) (SE)
10 or less	27,123,777	203.03 (2.31)	199-208	55.45 (1.48)	54.62 (1.26)
11-25	11,386,207	230.34 (2.25)	226-235	49.51 (2.13)	22.93 (0.80)
26-100	7,851,450	245.23 (2.28)	241-250	48.01 (1.81)	15.81 (0.64)
101-200	2,183,128	260.68 (4.22)	252-269	41.46 (2.75)	4.40 (0.35)
201-500	763,458	263.88 (6.18)	252-276	41.98 (4.47)	1.54 (0.21)
Over 500	353,550	262.97 (8.02)	247-279	37.30 (4.70)	0.71 (0.15)

Table 5 confirms a significant positive relationship between the number of books at home and weighted average numerical skill scores. The group with the fewest books (10 or fewer books, $M = 203.03$, $SD = 55.45$) constitutes 54.6% of the population and has the lowest average numerical skill scores. As the number of books increases, the average

numerical skill scores rise consistently (e.g., $M = 263.88$, $SD = 41.98$ in the 201–500 book group), but a slight plateau effect is observed in the highest category (more than 500 books) ($M = 262.97$, $SD = 37.30$) and the 95% confidence interval widens (247–279). Standard deviation values are higher in groups with fewer books (55.45), indicating greater individual variation (socioeconomic heterogeneity) in these categories.

Table 6: Weighted Average Problem-Solving Score
by Number of Books at Home (PVPSL, $N=5160$)

Number of Books Category	N (Weighted)	Average Score (SE)	95% CI	SD (SE)	Percentage (%) (SE)
10 or less	8,065,415	241.34 (2.17)	237-246	42.64 (2.17)	37.40 (1.47)
11-25	5,857,752	254.73 (2.80)	249-260	41.45 (2.34)	27.16 (1.16)
26-100	5,109,039	262.92 (2.36)	258-268	43.65 (2.38)	23.69 (0.91)
101-200	1,611,533	266.78 (5.17)	257-277	44.34 (3.50)	7.47 (0.60)
201-500	613,909	279.01 (6.20)	267-291	35.70 (4.89)	2.85 (0.41)
Over 500	306,776	259.88 (12.84)	235-285	42.07 (8.08)	1.42 (0.31)

As seen in Table 6, there is generally a positive relationship between the number of books at home and the weighted average problem-solving skill score. In groups with a low number of books (10 or fewer books, $M = 241.34$, $SD = 42.64$), the problem-solving skill score is at the lowest level, and this group constitutes 37.4%. As the number of books increases, the problem-solving skill score rises (e.g., in the 201–500 book group, $M = 279.01$, $SD = 35.70$), but scores unexpectedly decrease in the highest category (more than 500 books) ($M = 259.88$, $SD = 42.07$) and the 95% confidence interval widens significantly (235–285). This decline may be due to the small sample size ($N = 306,776$) and possible heterogeneity (e.g., factors other than cultural capital). Standard deviation values are similar across all groups (between 41 and 44), indicating high individual score variation within each category and that the number of books alone does not determine performance. Confidence intervals are wider in groups with low N (e.g., 500+ books) (50-point range), highlighting the uncertainty of the estimates.

The relationships between the cultural capital index and individuals' skills (literacy, numeracy, and problem-solving skills) are shown below (Table 4).

Table 7: Relationship between the cultural capital indicator and individuals' literacy, numeracy, and problem-solving skills

Variables	Mean	SD	Cultural Capital	Literacy	Numeracy	Problem-solving skills
Cultural Capital	.03	.02	1	.27 (.03)	.25 (.03)	.22 (.03)
Literacy	1.12	1.14		1	.76 (.02)	.58 (.03)
Numerical Ability	1.23	1.20			1	.52 (.03)
Problem-solving Skills	1.67	1.74				1

Note: Analyses are weighted (SPFWT0, SPFWT1–80; BRR). p-values are calculated as t-test equivalents using BRR (80 replicates) (df=2264). *p < .01

The correlations in Table 7 were obtained using weighted analyses on PIAAC Turkey 2015 data. In all analyses, standard errors were calculated using the BRR method with the final weight (SPFWT0) and 80 replication weights (SPFWT1–SPFWT80). Skills were analyzed by combining the 10 possible values of the PVLIT/PVNUM/PVPSL variables. These methods comply with the standards recommended in the OECD (2016b, 2013b) PIAAC technical reports.

Table 7 shows moderate positive correlations between cultural capital and skill domains. Cultural capital exhibits significant correlations with literacy ($r = .27$, $SE = .03$), numeracy ($r = .25$, $SE = .03$), and problem-solving skills ($r = .22$, $SE = .03$), confirming that socio-cultural factors influence skill development in adulthood. Strong positive correlations are observed between skill domains; for example, there is a high relationship between literacy and numerical ability ($r = .76$, $SE = .02$) and moderate connections between problem solving and other skills ($r = .52$ – $.58$). Standard errors are low ($p < .01$, BRR t-test equivalent), supporting the statistical significance of the correlations. Mean values indicate low-to-moderate concentration in skill areas ($M = 1.12$ – 1.67), while standard deviations (1.14 – 1.74) highlight high individual variation.

4. Conclusion and Discussion

This study examines the relationship between cultural capital indicators (number of books at home as objectified cultural capital) based on PIAAC 2015 Turkey data and individuals' literacy, numeracy, and problem-solving skills. The first objective of the study is to define levels of cultural capital; the second is to explain the relationships between this capital and skills within Bourdieu's (1986) theoretical framework. The findings reveal that cultural capital is concentrated at low levels in the Turkish context and exhibits moderate positive relationships with skill development. These findings shed light on the reflections of socio-cultural inequalities in adulthood, centering on Bourdieu's (1986) concept of cultural capital (objectified).

The current study has some limitations. The study design is correlational and does not establish causality. Therefore, the current data may need to be supported by longitudinal data (e.g., PIAAC follow-up tests). In addition, indicators such as the number of books owned, which are based on self-reports, may pose problems in terms of

data reliability; instead, relatively more objective measurements, such as home visits, may be healthier in terms of data. Furthermore, differences in the sample size (a decrease from 5,110 to 2,885), although stemming from missing data management (OECD, 2016), may represent lower socioeconomic groups.

Despite the limitations of the study, its findings provide empirical evidence showing the relationship between cultural capital and adult skills in the Turkish context, and these data form an important basis for designing education policies aimed at addressing socioeconomic inequalities. In particular, the correlation coefficients obtained through the local adaptation of PIAAC data, drawing on Bourdieu's (1986) theoretical framework, offer a reliable perspective on the social reproduction mechanisms underlying individual skill differences.

Although the sample's female-dominated nature (53.7%) and medium education level reflect gender-based access differences, the limited representation of low education groups (0.3-1.4%) may be noted. This situation can be assumed to be an indicator of gender inequality. Indeed, there are studies indicating that issues related to gender inequality are reflected in PIAAC results (Yaşar and Kaya, 2022; Yıldız et al., 2018). The fact that Turkey only participated in the first round of PIAAC (2015) and did not participate in subsequent rounds weakens the evidence-based policy-making ground regarding the continuity of these structural inequalities. However, international assessments such as PIAAC (2015) not only provide comparative skill measurements but also help understand which social groups countries exclude, which forms of capital are more easily converted within the education system, and which are suppressed. Staying away from such measurement and assessment tools at the national level can lead to the weakening of evidence-based education policies and the invisibility of structural inequalities.

In line with the primary objective of the study, cultural capital levels (Table 3 and Tables 4-6) exhibit a distinctly low and skewed distribution within the Turkish population. The indicator of the number of books in the home is concentrated in households with few books (10 or fewer books). This aligns with Bourdieu's (1986) definition of objectified cultural capital. Material objects such as books symbolize the cultural wealth of the family, and low levels indicate limited access among the lower social classes (Bourdieu and Passeron, 2015; Atmaca and Aydın, 2020). Similarly, the concentration of skill scores at minimum values, with high positive curvature, indicates the representation of low-performing individuals in the sample. These findings parallel the dynamics of cultural capital and educational inequality examined by Schwartz (2013); the author emphasizes that the low level of cultural capital in developing economies stems from its objectified forms (e.g., books). Sieben and Lechner (2019) also accept the number of books as a reliable indicator of objectified capital, and Turkey's low average number of books, falling below OECD (2013) averages, reinforces socio-economic disadvantage (OECD, 2016b). Furthermore, Sikora (2019) documents that access to books during adolescence increases literacy and numeracy skills in adulthood, supporting the argument that low book density in the study leads to long-term skill gaps.

Within the scope of the second objective, the relationships between cultural capital and skills show moderate positive correlations, supporting Bourdieu's (1986) theory of capital conversion. Cultural capital exhibits meaningful relationships with literacy, numeracy, and problem-solving; this reflects the transformation of objectified capital (books) into skills (Bourdieu, 1986). The increase in skill scores as the number of books increases (e.g., from 213.85 to 268.64 in literacy, Table 4; from 203.03 to 262.97 in numeracy, Table 5) evokes Bourdieu's concept of habitus. Indeed, low-book environments lead to low skill habitus through limited cultural practices, while high-book groups create a cycle that enriches the cognitive environment. This is consistent with Bourdieu's (1986) critical perspective. Strong correlations between skill domains (e.g., literacy-numeracy $r = .76$) confirm Bourdieu's view that fields of capital reinforce each other; this coincides with similar situations observed by Schwartz (2013) in the US context. However, Turkey's low correlation values emphasize the limited transformative power of cultural capital. Grotlüschen et al. (2016), discussing the links between literacy and problem solving in PIAAC data, add that the moderate correlations in the current study reflect skill development in adulthood. Similarly, Atasoy and Güçlü (2020) found a moderately positive relationship between verbal skills and educational level, as well as a positive relationship with parental educational level and the number of books at home. In conclusion, the results of this study validate Bourdieu's (1986) theoretical framework in the context of a developing country such as Turkey, concretizing the role of cultural capital in social reproduction. The differences in scores among low-book groups show that socio-economic inequalities translate into skill gaps, which aligns with the national disadvantages mentioned in OECD (2016b) reports. Studies such as Sieben and Lechner (2019) confirm the validity of book count as a measure of cultural capital, which is consistent with the findings of the present study. Shani and Bar-Haim (2025), on the other hand, argue in their work that cultural reproduction stems from dynamics within the national context. Therefore, based on the findings of the current study, it can be stated that individuals with low performance are not only "less knowledgeable" but also "less supported."

In summary, this study examines the decisive role of cultural capital in the skills of Turkish adults and discusses the social reproduction mechanisms behind skill levels by adapting Bourdieu's (1986) theory of capital to the national context. PIAAC data not only provide a measure of individual skills; they also offer important insights into countries' capital distribution, the inclusiveness of their education systems, and equality of opportunity. The study's findings emphasize the need for education policies to be supportive of cultural capital and sensitive to socioeconomic status, providing a fundamental starting point for policymakers seeking transformation.

In this context, the following points are recommended for future research:

- Analyses can be conducted using longitudinal data (such as national cohort data) to examine individuals' skill development.

- By including variables such as gender, age, and migration status, the impact of cultural capital can be examined in subgroups, thereby expanding Bourdieu's theory and integrating economic and social capital dimensions into research. The key points recommended for practitioners or policymakers are as follows:
- Turkey's skill development policies should be restructured not only through technical education regulations but also by considering social determinants such as access to cultural capital, equitable learning environments, and lifelong learning opportunities.
- Regular participation in data-driven international studies such as PIAAC should be ensured so that skill levels can be tracked over time.
- Education policies should include inclusive measures aimed at reducing the gap in capital levels between different social groups.

Conflict of Interest Statement

The author declares no conflict of interest.

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