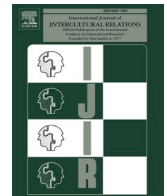




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Brief report

The cultural correlates of learning poverty: The roles of long-term orientation and power distance

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ABSTRACT

Learning poverty, defined as being unable to read and understand a simple text by the end of primary school, is a critical social problem. Past studies on learning poverty have mostly focused on the role of economic and demographic factors but have seldom explored the role of culture. To address this gap, we examined whether national cultural values (i.e., power distance, individualism, masculinity, uncertainty avoidance, long-term orientation, and indulgence) were associated with learning poverty in 45 countries. Ecological analyses indicated that among the different cultural values, long-term orientation was negatively associated with learning poverty, but power distance was positively associated with it. These associations remained robust after accounting for the roles of economic and demographic factors. These findings extend the literature on learning poverty by emphasizing the cultural correlates of learning poverty. Theoretical and practical implications are discussed.

Introduction

Learning poverty refers to being unable to read and understand a simple text by the end of primary school (World Bank, 2021). It was a term coined by the UNESCO Institute for Statistics and the World Bank (World Bank, 2021) and combines schooling and learning indicators. More specifically, it begins with the proportion of children who have not achieved minimum reading proficiency (measured in schools) adjusted by the proportion of children not in school (who are assumed to be unable to read proficiently). A recent World Bank (2021) report indicated that the learning poverty rate is 53% in low- and middle-income countries and as high as 80% in low-income countries. Learning poverty has drastically increased during the COVID-19 pandemic due to school closures (Azevedo, 2020; Azevedo et al., 2021a; Hevia et al., 2022). In countries with high rates of learning poverty, individuals are left behind, economic progress is stymied, and educational systems are unable to deliver for their students (Azevedo et al., 2021b).

Recent research documented that learning poverty varies considerably across countries. Several studies have attempted to explain cross-country variations in learning poverty using an economic perspective, and these studies focused on the roles of economic factors such as country affluence and income inequality (Crouch et al., 2021; Hevia et al., 2022). For example, Hevia et al. (2022) found that learning poverty is higher in less affluent countries. Crouch et al. (2021) noted that income inequality is associated with higher levels

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of learning poverty.

Learning poverty is likely to be determined by multiple factors. Aside from economic factors, national cultural values might also have an important role to play in influencing learning poverty. The cultural context is an important part of the social ecology and has broad-spectrum effects on a wide range of psychological and educational outcomes (King, 2022; King & McInerney, 2014; King, McInerney, & Pitliya, 2018; Oishi, 2014). According to Hofstede et al. (2010), cultural values are comprised of six dimensions including power distance, individualism, masculinity, uncertainty avoidance, long-term orientation, and indulgence. Power distance is defined as “the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally” (Hofstede et al., 2010, p.61). Individualism refers to the degree of interdependence a society maintains among its members (Hofstede et al., 2010). Masculinity, the opposite pole of femininity, pertains to the extent to which “the dominant values in society are masculine including assertiveness, the acquisition of money and things” (Hofstede, 1980, p. 46). Uncertainty avoidance concerns the extent to which the members of a culture feel threatened by ambiguous or unknown situations and try to avoid these situations (Hofstede, 1980, p. 45). Long-term orientation is defined as the degree of emphasis on virtues related to future rewards—in particular, perseverance and thrift (Hofstede et al., 2010). Indulgence stands for the extent to which a society allows for free gratification of human desires for enjoying life (Hofstede et al., 2010).

Some studies have documented key cultural dimensions as potent predictors of academic achievement (e.g., Breton, 2021; Chiu & Chow, 2010; Cidral et al., 2020; Figlio et al., 2019; Hu et al., 2018). For instance, Hu et al. (2018) found that students’ mathematics achievement was positively predicted by long-term orientation even after controlling for demographic factors such as sex and socio-economic status and country-level economic factors such as GDP per capita. Figlio et al. (2019) noted that students from countries with high long-term orientation had higher academic achievement relative to those from countries that scored lower in long-term orientation. Additionally, students residing in countries with a large power distance were likely to have lower academic achievement compared with those students in smaller power distance countries (Chiu & Chow, 2010).

These studies show that cultural values, particularly long-term orientation and power distance, might be closely associated with key educational outcomes. However, to our knowledge, no prior study has examined the role of culture in understanding learning poverty. To address this gap, we examined the role of different dimensions of cultural values in predicting learning poverty across 45 countries. This investigation could provide a more nuanced understanding of the cultural correlates of learning poverty.

The present study

This study aimed to explore how national cultural values are associated with learning poverty. We also included a range of control variables including country affluence, income inequality, sex, and duration of compulsory education as these variables were found to be associated with learning poverty in past studies (Crouch et al., 2021; Hevia et al., 2022; Psaki et al., 2018). Fig. 1 displays the conceptual framework of the current study.

Method

Data source

Learning poverty. Data on the learning poverty rate were retrieved from the World Bank website (<https://datatopics.worldbank.org>). The identification of learning poverty is reflected in the deprivation of schooling and learning (World Bank, 2019). It combines the percentage of students below minimal reading proficiency and is adjusted by the proportion of students out of school (World Bank, 2021). Given that the learning poverty rate in 2016 was available for most countries, we focused specifically on those countries with available data. In total, 45 countries from East Asia and Pacific ($n = 5$), Europe and Central Asia ($n = 26$), Latin America and the Caribbean ($n = 1$), North America ($n = 2$), and the Middle East and North Africa ($n = 11$)⁴ were involved.

Cultural values. Data on national cultural values involving power distance, individualism, masculinity, uncertainty avoidance, long-term orientation, and indulgence were taken from Hofstede et al. (2010) (<https://www.hofstede-insights.com/country-comparison>). Cultural values do not change significantly over time. Hence, the cultural values data can be used together with other databases collected in different years (Hofstede et al., 2010). Cultural values range from 0 to 100.

Control variables. Control variables entailing economic factors (i.e., economic development and income inequality), sex, and duration of compulsory education were taken from the World Bank website. For the sake of consistency, all data were drawn from 2016. We included these variables as control variables because of prior research indicating a close relationship between reading proficiency and these control variables such as economic factors, sex, and duration of compulsory education (e.g., Crouch et al., 2021; Hevia et al., 2022; Psaki et al., 2018; World Bank, 2021).

For economic factors, GDP per capita in 2016 was employed to represent country affluence (<https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD>). We then log-transformed this variable due to skewness in the data. The Gini index (<https://data.worldbank.org/indicator/SI.POV.GINI>) was used to operationalize income inequality. GDP per capita was log-transformed and standardized to facilitate interpretation. The Gini index ranged from 0 (*perfect equality*) to 100 (*perfect inequality*). For sex and the duration of

⁴ Due to the wide diversity in GDP for the Middle East and North African countries, we isolated this region and obtained the ecological correlations to see if the results continue to be supported. Results indicated that power distance was positively correlated with learning poverty, but long-term orientation was not significantly associated with it. Please see Table S1.

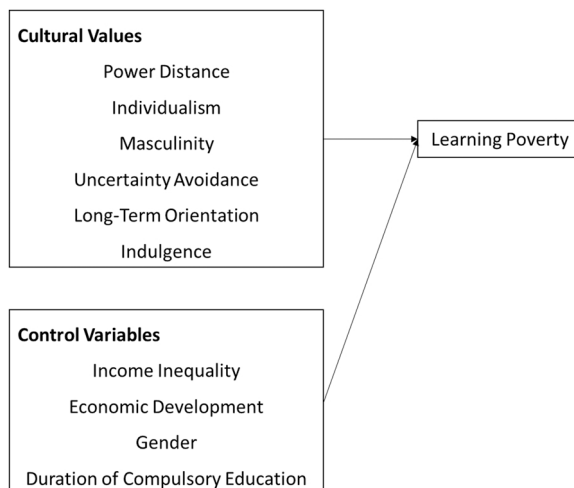


Fig. 1. Conceptual Framework.

compulsory education, the percentage of female students and years of compulsory education were used.

The description of variables and detailed statistics for each country are displayed in Table 1 and Table 2, respectively. Countries varied widely in their cultural values. For example, masculinity ranged from 5 (Sweden) to 100 (Slovak Republic) and power distance ranged from 11 (Austria) to 100 (Slovak Republic).

Data analysis

Missing values were missing completely at random (Little, 1988). To estimate the values for missing data, we adopted Markov Chain Monte Carlo multiple imputations. It is considered more effective than other methods such as listwise deletion (Marjoram et al., 2003). To facilitate data analysis, other indices were standardized with a mean of 0 and a standard deviation of 1. Then, two linear regression analyses were carried out to answer the primary research questions. The first model only include the control variables and the second model included the cultural values. According to Cohen (1988), R^2 equals 0.01, 0.09, and 0.25 were viewed as small, medium, and large effect sizes, respectively.

Results

Preliminary analyses. Results of the correlational analyses are presented in Table 3, which shows significant associations between learning poverty and the different cultural values. There was a positive correlation between learning poverty and power distance ($r = .39, p < .01$), and a negative relationship between learning poverty and individualism ($r = -.31, p < .01$), and between learning poverty and long-term orientation ($r = -.38, p < .05$). Regarding the covariates, only country affluence had a significant relationship with learning poverty ($r = -.47, p < .01$).

Primary analyses. Results of linear regression analyses (Table 4) suggested that covariates including sex, duration of compulsory education, country affluence, and income inequality accounted for 30% of the variance in learning poverty (Adjusted $R^2 = .23$), $F(4, 40) = 4.28$ ($p < .05$). Among these covariates, only country affluence was a significant predictor for learning poverty.

When added to the model, cultural values significantly improved the amount of variance accounted for (Adjusted $R^2 = .42$), $F(6, 34) = 4.20$ ($p < .001$), as it explained 25% of the variance in learning poverty. This effect size is considered large (Cohen, 1988). Among the six cultural values, power distance and long-term orientation were found to be significantly associated with learning poverty. These results remained significant after controlling for sex, duration of compulsory education, and economic factors, implying that countries lower in power distance and higher in long-term orientation reported lower learning poverty.⁵

This finding demonstrates the pivotal roles of long-term orientation and power distance in shaping learning poverty. Once cultural values were included in the model, country affluence no longer had a significant effect on learning poverty. The scatterplot in Fig. 1 displays how countries with higher long-term orientation have lower learning poverty. The scatterplot in Fig. 2 shows how countries with higher power distance have higher learning poverty. (Fig. 3).

⁵ We ran supplementary analyses where only five cultural values were used, and indulgence was excluded from the model due to questions about the usefulness of indulgence as a variable in some prior cultural studies (Fang et al., 2013; Hu et al., 2018). The substantive results remained the same (see Table S2).

Table 1
Descriptive Statistics of Variables.

Variables	Mean	SD	Definition	Description
<i>Dependent Variable</i>				
Learning poverty	14.91	17.26	The ratio of students being unable to read and understand a simple text by the end of primary school	learning poverty ratio. Min = 14.91, Max= 17.26
<i>Cultural Values</i>				
Power distance	55.95	23.24	The extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally	min= 11, max= 100
Individualism	53.27	22.42	The degree of interdependence a society maintains among its members	min= 16, max= 91
Masculinity	48.52	21.02	The extent to which the dominant values in society are masculine including assertiveness, the acquisition of money and things	min= 5, max= 100
Uncertainty avoidance	65.17	21.66	The extent to which the members of a culture feel threatened by ambiguous or unknown situations and try to avoid these situations	min= 23, max= 99
Long-Term Orientation	50.24	22.11	The degree of emphasis on virtues related to future rewards—in particular, perseverance and thrift	min= 13, max= 87
Indulgence	41.84	22.40	The extent to which a society allows for free gratification of human desires for enjoying life	min= 0, max= 80
<i>Control Variables</i>				
Log GDP per capita	10.01	0.87	Indicates a country's economic affluence; log-transformation was applied	the log of gross domestic product per capita in 2016 US dollars
Gini coefficient	24.80	67.50	The level of income inequality in the country	Gini coefficient in 2016
Sex			% of female and male students in a country	female (48.57%)
Duration of compulsory education	6	15	Number of years that basic education is mandated by the government	years

Note. The definitions of cultural values were derived from Hofstede et al. (2010).

Discussion

This study attempts to unpack the relationship between cultural values and learning poverty. Results showed that learning poverty was negatively associated with long-term orientation but positively associated with power distance after accounting for the economic (i.e., country affluence and income inequality) and demographic factors (i.e., sex composition and duration of compulsory schooling). This means that learning poverty was less likely in countries with a high long-term orientation and low power distance.

Countries with higher levels of long-term orientation are more willing to invest in education, which is necessarily a long-term project (Figlio et al., 2019). It is only years later into the future that educational investments pay off and countries with higher long-term orientation might be more willing to make such investments. Furthermore, long-term-oriented countries believe in effort and put more emphasis on the value of education. Parents are also more likely to plan for the future and secure better educational opportunities for their children. (e.g., Fang et al., 2013; French et al., 2015; Leung, 2014). Hence, learning poverty is lower. In contrast, people living in short-term-oriented societies might be less willing to delay gratification, which is inimical to the educational enterprise. Education is inherently a long-term investment and the rewards of education in terms of social mobility and professional advancement are only attained much later.

Power distance was also a key correlate of learning poverty (e.g., Chiu & Chow, 2010; French et al., 2015; Taras et al., 2010). Compared with low-power-distance countries, high-power-distance countries are characterized by uneven resource distribution and lower social mobility (Gelfand et al., 2011; Fang et al., 2013). In high power-distance countries, power is concentrated at the top and decision-making is more hierarchical (Huber et al., 2019). Hence, it is possible that educational resources are diverted to the elites and the more economically advantaged students as the decision-makers in such societies leverage their social position.

Social mobility might also be lower in high power distance societies. People are separated into more rigid strata, and they are less likely to strive for high academic goals to pursue mobility between social classes (Day & Fiske, 2017). Individuals in low-power-distance countries could benefit from shared resources, smaller status differences, and social mobilizability (Chiu & Chow, 2010).

The inclusion of covariates including sex, duration of compulsory education, and economic status reinforce the robustness of the findings. Only country affluence was identified as a critical predictor in shaping learning poverty, corroborating past studies (e.g., Condron, 2011). We found that more affluent countries had lower learning poverty (e.g., Crouch et al., 2021; Hevia et al., 2022). This might be because of the more learning opportunities offered and professional teaching teams equipped in wealthy countries. Notably, once the cultural values were accounted for, country affluence no longer had a significant association with learning poverty.

Moreover, income inequality had a nonsignificant effect on learning poverty. This was a surprising finding given past studies documenting the strong relationship between inequality and learning poverty. More research is needed to unpack the associations among economic factors, cultural values, and learning poverty. Nonsignificant relations between sex, duration of compulsory education, and learning poverty were also found. This study spotlights the critical role of cultural values in understanding learning poverty. Perhaps, culture might be as important as or even outweigh demographics and economics in understanding learning poverty.

Three major limitations need to be noted. First, all our data were at the country level (e.g., learning poverty and cultural values) and what we examined are ecological relationships. Ecological studies, however, do not directly translate into individual-level findings.

Table 2
Learning Poverty, Economic Indicators, and Cultural Values Across Countries.

Country	Learning Poverty	Gini	GDP per capita (dollars)	Power Distance	Individualism	Masculinity	Uncertainty Avoidance	Long-Term Orientation	Indulgence
Australia	8.55	33.70	49,881.76	38	90	61	51	21	71
China (Mainland)	18.20	38.50	8094.36	80	20	66	30	87	24
Macao SAR, China	3.65	35.00 ^a	73,545.76	n/a	n/a	n/a	n/a	n/a	n/a
Hong Kong SAR, China	3.23	46.70 ^a	43,733.92	68	25	57	29	61	17
New Zealand	11.36	67.50 ^a	40,058.20	22	79	58	49	33	75
Austria	2.41	30.80	45,307.59	11	55	79	70	60	63
Azerbaijan	23.28	28.60 ^a	3880.74	85	22	50	88	61	22
Belgium	6.37	27.60	42,012.62	65	75	54	94	82	57
Bulgaria	11.70	40.60	7569.48	70	30	40	85	69	16
Czech Republic	2.96	25.40	18,575.23	57	58	57	74	70	29
Germany	5.70	31.90	42,136.12	35	66	67	65	83	40
Denmark	3.57	28.20	54,664.00	18	74	16	23	35	70
Spain	4.85	35.80	26,523.35	57	51	42	86	48	44
Finland	2.57	27.10	43,814.03	33	63	26	59	38	57
France	7.12	31.90	37,062.53	68	71	43	86	63	48
United Kingdom	3.40	34.80	41,499.56	35	89	66	35	51	69
Georgia	13.85	36.60	4062.17	65	41	55	85	38	32
Hungary	5.91	30.30	13,107.38	46	80	88	82	58	31
Ireland	2.34	32.80	62,861.64	28	70	68	35	24	65
Italy	3.50	35.20	30,960.73	50	76	70	75	61	30
Kazakhstan	2.18	27.20	7714.84	88	20	50	88	85	22
Lithuania	2.98	38.40	15,008.31	42	60	19	65	82	16
Latvia	3.98	34.30	14,331.75	44	70	9	63	69	13
The Netherlands	1.64	28.20	46,039.11	38	80	14	53	67	68
Norway	5.97	28.50	70,460.56	31	69	8	50	35	55
Poland	6.31	31.20	12,447.44	68	60	64	93	38	29
Country	Learning Poverty	Gini	GDP per capita (dollars)	Power Distance	Individualism	Masculinity	Uncertainty Avoidance	Long-Term Orientation	Indulgence
Portugal	6.45	35.20	19,991.97	63	27	31	99	28	33
Russian Federation	3.29	36.80	8704.90	93	39	36	95	81	20
Slovak Republic	8.53	25.20	16,512.29	100	52	100	51	77	28
Slovenia	5.83	24.80	21,678.36	71	27	19	88	49	48
Sweden	2.31	29.60	51,965.16	31	71	5	29	53	78
Trinidad and Tobago	20.68	39.00 ^a	16,241.41	47	16	58	55	13	80
Canada	4.30	32.70	42,315.60	39	80	52	48	36	68
United States	7.85	41.10	57,866.74	40	91	62	46	26	68
United Arab Emirates	34.34	26.00 ^a	38,141.88	74	36	52	66	22	22
Bahrain	32.09	n/a	22,608.45	n/a	n/a	n/a	n/a	n/a	n/a
Egypt	69.57	31.50 ^a	3519.87	80	37	55	55	42	0
Iran	35.66	40.00	5755.80	58	41	43	59	14	40
Israel	11.66	39.00	37,330.26	13	54	47	81	38	n/a
Kuwait	51.04	n/a	27,653.16	90	25	40	80	n/a	n/a
Morocco	65.76	39.50 ^a	2896.72	70	46	53	68	14	25
Malta	28.61	29.10	25,624.54	56	59	47	96	47	66
Oman	41.80	30.75 ^a	16,772.74	n/a	n/a	n/a	n/a	n/a	n/a
Qatar	35.25	41.10 ^a	57,162.97	93	25	55	80	n/a	n/a
Saudi Arabia	38.28	45.90 ^a	19,878.77	72	48	43	64	27	14

Note. (1) n/a= not available; (2) when the 2016 Gini coefficient was not available, we used the Gini in the neighboring year.

Table 3
Ecological Correlations among Variables.

	1	2	3	4	5	6	7	8	9	11	12
1. Learning poverty	1	.39 **	-.31 **	.08	-.01	-.38 *	-.27	-.47 **	.14	-.001	-.25
2. Power distance		1	-.66 **	.14	.38 **	.25	.46 **	-.47 **	-.16	-.25	-.31 *
3. Individualism			1	.03	-.35 *	-.06	.42 **	.44 **	.03	.42 *	.41 **
4. Masculinity				1	.03	.06	-.09	-.12	.11	-.17	.05
5. Uncertainty avoidance					1	.16	-.27	-.26 *	-.13	-.10	.16
6. Long-Term orientation						1	-.33 *	-.07	-.18	-.16	.26
7. Indulgence							1	.61 **	-.001	.24	-.12
8. Country affluence								1	-.03	.32 *	.11
9. Income inequality									1	.03	-.04
11. Sex										1	.09
12. Duration of compulsory education											1

Note. * $p < 0.05$, ** $p < 0.01$.

Table 4
Regression Models Predicting Learning Poverty.

Explanatory Variable	Regressions Predicting Learning Poverty	
	Model 1	Model 2
	β (SE)	β (SE)
Sex	.17 (.14)	.14 (.14)
Duration of compulsory education	-.20 (.13)	.08 (.15)
Income inequality	.11 (.13)	.08 (.12)
Country affluence	-.50 *** (.14)	-.32 (.16)
Power distance		.46 * (.18)
Individualism		-.02 (.19)
Masculinity		.02 (.13)
Uncertainty avoidance		-.20 (.13)
Long-term orientation		-.51 *** (.14)
Indulgence		-.11 (.17)
R^2	.30	.55
ΔR^2	.30	.25

Note. (1) * $p < .05$, ** $p < .01$, *** $p < .001$. The numbers in parentheses are standard errors; (2) Model 1: Control variables only (sex, duration of compulsory education, income inequality, and country affluence); Model 2: Control variables + Cultural values (power distance, individualism, masculinity, uncertainty avoidance, long-term orientation, indulgence).

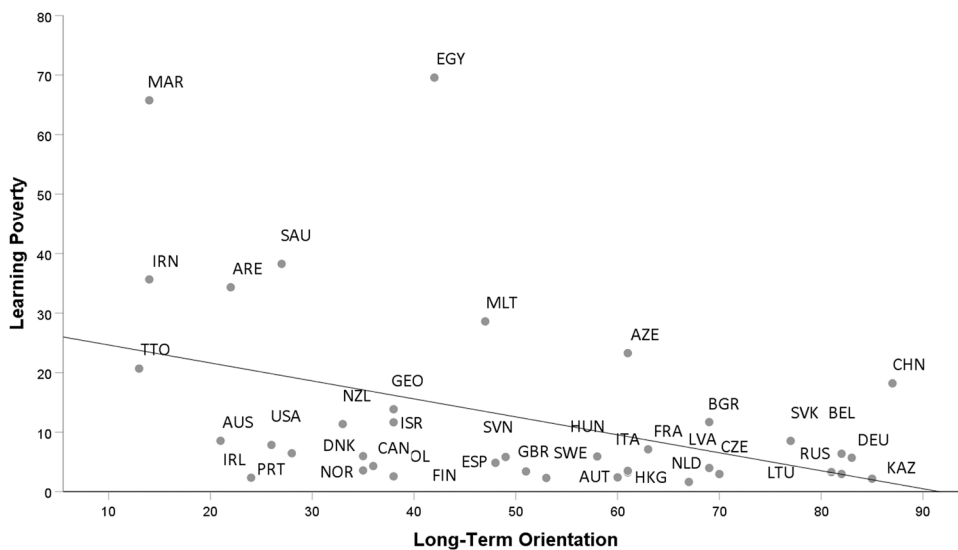


Fig. 2. Scatterplot Depicting the Association between Long-Term Orientation and Learning Poverty Note. $r = -.30$.

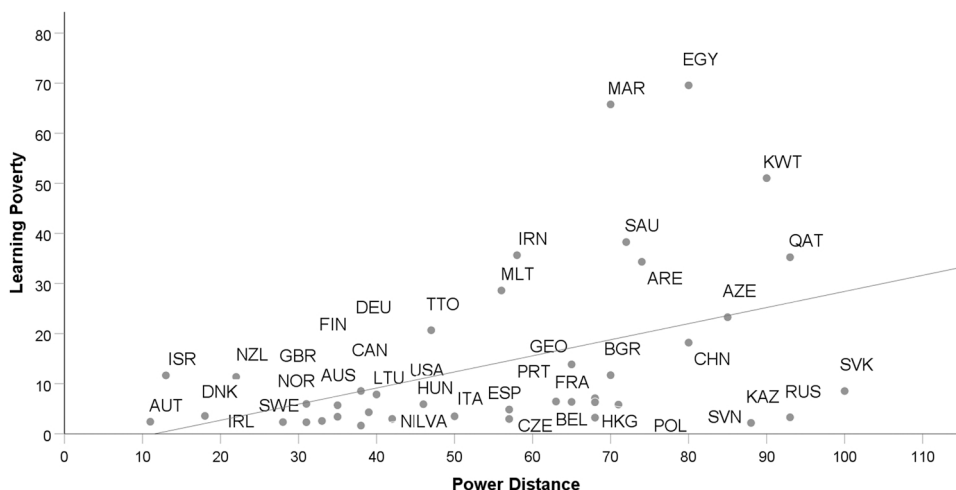


Fig. 3. Scatterplot depicting the association between power distance and learning poverty. Note. $r = .32$. ARE= United Arab Emirates; AUS= Australia; AUT=Austria; AZE=Azerbaijan; BEL=Belgium; BGR=Bulgaria; BHR=Bahrain; CAN=Canada; CHN=Mainland China; CZE=Czech Republic; DEU=Germany; DNK=Denmark; EGY=Egypt; ESP=Spain; FIN=Finland; FRA=France; GBR=United Kingdom; GEO=Georgia; HKG=Hong Kong SAR, China; HUN=Hungary; IRL=Ireland; IRN=Iran; ISR=Israel; ITA=Italy; KAZ=Kazakhstan; KWT=Kuwait; LTU=Lithuania; LVA=Latvia; MAC=Macao SAR, China; MAR=Morocco; MLT=Malta; NLD=The Netherlands; NOR= Norway; NZL=New Zealand; OMN=Oman; POL=Poland; PRT=Portugal; QAT=Qatar; RUS=Russian Federation; SAU=Saudi Arabia; SVK=Slovak Republic; SVN=Slovenia; SWE=Sweden; TTO=Trinidad and Tobago; USA=United States.

Future studies may need to explore whether these cultural values also have implications for individual students' reading proficiency. This might be an interesting research direction as long-term orientation and power distance might also be pertinent at the individual level. Second, given the data used in the study were cross-sectional, causal conclusions cannot be made. Future longitudinal research is needed to draw stronger conclusions. Third, we used Hofstede's (2001) cultural values framework. However, there are other ways of operationalizing culture (e.g., Inglehart, 2004; Schwartz, 1997). Future studies could also explore how other cultural typologies would relate to learning poverty.

Our study also has some implications. Countries that score higher in power distance and lower in terms of long-term orientation may need to rethink their education strategies and develop more policy interventions in promoting students' overall reading proficiency. Decision-makers may need to increase expenditure on education, democratize educational investment, enhance governance, and pay more attention to the less advantaged members of society (Jackson et al., 2021; Shore et al., 2022).

Conclusion

This study highlighted the cultural correlates of learning poverty. Among the different cultural values, long-term orientation and power distance seem to play particularly important roles. Hence, when attempting to understand learning poverty, researchers and policymakers may need to look beyond the role of economic factors and take cultural values into account. Culturally relevant policy interventions might also be needed to enhance student learning and ultimately mitigate learning poverty.

Conflict of Interest

We have no known conflict of interest to disclose.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.ijintrel.2023.101816](https://doi.org/10.1016/j.ijintrel.2023.101816).

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