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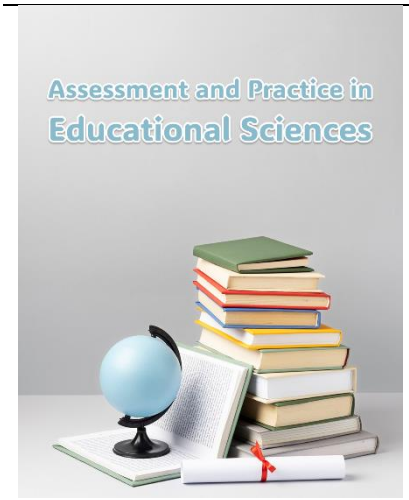

Identification, Evaluation, and Prioritization of Factors Affecting the Identification of Out-of-School Children in Primary Education: A Human Development Index Promotion Approach in Iran

1. Maryam. Hoseinzadeh: Education and Counseling Department, CT.C., Islamic Azad University, Tehran, Iran.
2. Kambiz. Poushaneh*: Education and Counseling Department, CT.C. , Islamic Azad University, Tehran, Iran. (Email: kam.poshneh@iauctb.ac.ir)
3. Alireza. Assareh: Professor, Department of Curriculum Studies, Faculty of Humanities, Shahid Rajaee Teacher Training University, Tehran, Iran.
3. Mohammad Bagher. Nobakht: Professor Tamma, Department of Economics, Center for Development and Foresight Research, Tehran, Iran.
3. Hamidreza. Rezazadeh Bahadoran: Education and Counseling Department, CT.C., Islamic Azad University, Tehran, Iran.

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ABSTRACT

The present study was conducted with the aim of identifying, evaluating, and prioritizing the factors influencing the identification of out-of-school children in primary education, with a focus on enhancing the Human Development Index in Iran. In terms of objective, the study is applied; in terms of data type, it is a sequential mixed-methods study with an exploratory approach; in terms of paradigm, it follows a pragmatic orientation; and in terms of nature, the qualitative part involves qualitative content analysis with a thematic analysis approach, while the quantitative part is descriptive-analytical and survey/correlational in type. The study population in the qualitative phase consisted of theoretical experts (faculty members in the field of educational sciences) and practical experts (relevant officials from the Ministry of Education). Based on the principle of data saturation and purposive sampling, 15 interviewees were selected. In the quantitative phase, the statistical population included all staff from the Deputy for Primary Education and the Deputy for Cultural and Educational Affairs. Using the minimum sample size formula for confirmatory factor analysis and a combined (multi-stage) sampling method, 242 employees were selected. Data collection methods included semi-structured interviews in the qualitative phase and researcher-developed questionnaires in the quantitative phase. The validity and reliability of the instruments were examined and confirmed in both phases. Data analysis methods included thematic analysis using Maxqda-V18 in the qualitative phase and descriptive and statistical analysis (confirmatory factor analysis) using SPSS-V27 and SmartPLS-V3 in the quantitative phase. The findings revealed that the dimensions of identifying out-of-school children in primary education with a Human Development Index promotion approach include social, economic, and educational dimensions. The results also showed that the economic dimension was the top priority, while the social dimension was ranked last.

Keywords: Education, Out-of-School Children, Human Development, Primary Education.

Introduction

Education is universally recognized as a cornerstone of human development, playing a fundamental role in enabling individuals to achieve their full potential and contribute meaningfully to society. Yet, despite the global consensus on its importance, a significant number of children worldwide—particularly in developing contexts—remain excluded from formal schooling systems. Out-of-school children (OOSC) represent a critical gap in educational equity and human development, particularly at the primary level where foundational learning occurs. The consequences of early school dropout reverberate far beyond the individual, affecting families, communities, and national development indices. In Iran, addressing the phenomenon of OOSC is increasingly viewed through the lens of the Human Development Index (HDI), which encompasses indicators related to health, education, and income (1).

Global and regional studies have demonstrated that identifying and addressing the causes of school dropout is essential to advancing inclusive education and ensuring the right to education for all children, as emphasized by UNESCO's evolving educational rights framework (2). In contexts marked by socio-economic inequality, geographic disparity, and cultural conservatism, OOSC are disproportionately affected by systemic barriers (3, 4). In Iran, provinces with lower HDI scores, such as Sistan and Baluchestan, have shown higher rates of educational dropout due to a combination of social, cultural, and economic pressures (5). Therefore, the identification of out-of-school children cannot be divorced from broader structural and policy factors and must be approached as a multidimensional issue.

One of the primary barriers to sustained school attendance is poverty. As Subramanian (2024) notes, urban poverty not only affects enrollment but also has deeper implications for students' learning experiences and continuation rates (6). Similar evidence from Pakistan underscores how economic deprivation, compounded by inadequate public spending and gender disparities, restricts educational access for vulnerable populations (7, 8). In rural and underdeveloped regions of Iran, families frequently prioritize short-term economic survival over long-term educational investment, resulting in increased dropout rates. The correlation between household income and educational attainment is not only evident in empirical data but also critical to modeling interventions for OOSC.

Social determinants also significantly influence dropout patterns. These include family structure, parental involvement, community attitudes, and broader socio-cultural norms. Research in Uganda and Bangladesh illustrates that socio-economic background, parental education, and household dynamics are powerful predictors of children's access to education (3, 9). Moreover, family involvement—both emotional and logistical—has been identified as a key enabler of retention in school. In the Iranian context, low levels of parental literacy, single-parent households, and child labor exacerbate the vulnerability of children to school exclusion. According to Hanane et al. (2024), in regions where child labor laws are weak or unenforced, children are often pulled from school to support household incomes, especially in rural and border provinces (10).

In terms of gender-specific challenges, evidence from Zimbabwe and Pakistan highlights that girls are more likely to drop out due to early marriage, domestic responsibilities, and cultural restrictions on female mobility and education (10, 11). Similarly, in Iran, although girls have made significant educational gains in urban centers, in conservative rural areas they are still subject to early exit from schooling due to familial and cultural constraints. Programs that integrate gender-sensitive approaches are thus critical to any model aiming to identify and re-engage out-of-school girls.

Institutional factors further complicate the landscape. Poor school infrastructure, insufficient teaching resources, and a lack of tailored pedagogy for marginalized students often contribute to disengagement and eventual dropout. Wanti et al. (2024) argue that the institutional capacity of schools to respond to the needs of low-SES students is a decisive factor in educational continuity (12). In Iran, schools in economically disadvantaged regions often suffer from overcrowded classrooms, limited

access to learning materials, and underqualified staff—conditions that reduce educational quality and increase dropout risks. These structural deficiencies also interact with psychological factors, such as students' perceived sense of belonging and academic self-efficacy, which are crucial to maintaining engagement in school (13).

Recent literature has emphasized the necessity of adopting a holistic, systems-level perspective in addressing school dropout. For example, Ezaki (2024) highlights how patterns of grade repetition and late school entry contribute cumulatively to dropout, especially when combined with socio-economic disadvantage (14). Similarly, Eranıl's (2024) analysis of the Turkish education system found that the risk of dropout increases sharply at transition points between educational stages, particularly for students who have already experienced academic delay (15). Such insights are particularly relevant for Iran, where a significant proportion of children enter school late or with limited pre-school preparation—factors that correlate with higher attrition in early grades.

From a policy standpoint, there is growing recognition of the importance of targeted interventions that align with HDI-based strategies. Jatmiko et al. (2024) demonstrated how regional movements in Indonesia, such as the Gerakan Ayo Sekolah campaign, have effectively improved human development outcomes by reducing dropout rates and enhancing school re-entry mechanisms (16). These interventions typically combine social protection (e.g., conditional cash transfers), educational reform (e.g., flexible learning programs), and community mobilization to foster inclusive education ecosystems. Drawing on this model, any effective framework for Iran must integrate intersectoral collaboration among education, health, and social welfare institutions.

Cultural sensitivity is another critical component of effective policy implementation. In contexts with high ethnic or religious diversity, as seen in Germany and India, addressing the unique needs of minority communities through inclusive policy design significantly enhances educational participation (17, 18). In Iran, multicultural and multilingual realities—particularly in provinces such as Khuzestan, Kurdistan, and Sistan and Baluchestan—necessitate locally adapted strategies that reflect regional sociocultural specificities. As Mansouri et al. (2022) emphasize, improving HDI outcomes in such contexts requires policies that go beyond uniform national metrics and focus instead on locally nuanced drivers of exclusion (1).

Education policies that are responsive to local realities also depend heavily on the quality and availability of data regarding OOSC. However, data scarcity remains a persistent challenge in many countries, including Iran. As UNESCO (2022) notes, reliable disaggregated data are essential to ensure accountability and to monitor the fulfillment of educational rights across all segments of the population (2). In this respect, integrating qualitative insights from educators, local officials, and communities into national monitoring systems may help bridge data gaps and better inform targeted interventions.

Importantly, addressing OOSC is not merely a remedial educational goal—it is foundational to the realization of broader social justice and equity imperatives. As Dave (2024) and Reshi et al. (2022) argue, social determinants such as health status, early nutrition, and maternal education significantly influence educational outcomes, and addressing them is necessary for sustainable human development (19, 20). Therefore, interventions must adopt a lifecycle approach, beginning with early childhood development and extending through primary and secondary education, with particular attention to vulnerable populations such as children with disabilities, refugees, and nomadic communities.

In sum, the identification and inclusion of out-of-school children in Iran requires an integrative, multidimensional strategy aligned with HDI priorities. This includes economic interventions to alleviate poverty, social policies to promote inclusion, educational reforms to enhance quality and access, and institutional mechanisms to monitor and sustain progress. The current study is situated within this broader policy and theoretical landscape and seeks to design a model for identifying and prioritizing the key factors affecting OOSC in Iran's primary education system. By leveraging both qualitative insights and quantitative evidence, and grounding the framework in HDI-related indicators, this research aims to inform more equitable and effective

educational planning in Iran. In doing so, it contributes to ongoing global efforts to realize the right to education for all, particularly those children most at risk of being left behind.

Methods and Materials

Given the main objective of the present study, the research is classified as applied in terms of its goal, as it aims to identify the dimensions, components, and indicators of identifying out-of-school children at the primary education level with an approach focused on enhancing the Human Development Index in Iran, which can have practical applications.

Furthermore, in terms of the research paradigm, this study falls under pragmatic or mixed paradigm research, since it initially employs a qualitative method based on the interpretivist paradigm and subsequently uses a quantitative method rooted in the positivist (empirical) paradigm.

In terms of data type, this study is a sequential exploratory mixed-methods research, as it first uncovers qualitative data using content analysis, and then, based on the qualitative findings, gathers and analyzes quantitative data through descriptive (survey/correlational) methods using questionnaires.

In terms of its nature (data collection method), the study involves qualitative content analysis with a thematic and literature-based approach in the qualitative phase, and descriptive-analytical research of the survey/correlational type in the quantitative phase.

From another perspective, the study is categorized as both library-based—due to the systematic review of the literature—and field-based—due to the direct data collection from experts through semi-structured interviews and questionnaires.

Additionally, in terms of the scale of the study, this research is considered large-scale since data were collected from 242 respondents, indicating a relatively broad scope of research.

The qualitative phase sample consisted of both theoretical and practical experts. This group included university professors and researchers specializing in educational sciences, education systems, human development, and child and adolescent-related topics. Also included were educational officials, school principals, and social counselors as qualitative experts.

In this study, the sample size for semi-structured interviews was determined based on the principle of data saturation. Accordingly, 15 participants were ultimately selected for interviews.

Regarding age, the highest frequency was among participants aged 49–56 years (5 individuals), and the lowest frequency was in the under-40 age group (1 individual). In terms of work experience, the highest frequency was in the "more than 23 years" category (6 individuals), and the lowest was in the "less than 7 years" group (2 individuals). Concerning gender, 12 experts were male and 3 were female, indicating a predominance of males in this group. Regarding job position, the highest frequency (6 individuals) belonged to education officials, while the lowest (1 individual) belonged to social counselors and researchers. Finally, in terms of academic field, most participants (9 individuals) held degrees in educational sciences, while the fewest (2 individuals) specialized in psychology (educational and child), indicating a high level of specialization in education-related fields.

In the quantitative phase of this study, the statistical population included all staff members of the Deputy for Primary Education and the Deputy for Cultural and Educational Affairs as key respondents. Given the use of the minimum sample size required for confirmatory factor analysis, 250 questionnaires were distributed. However, 8 were excluded due to incompleteness, and statistical analysis was conducted on the remaining 242 respondents.

Based on descriptive results of the demographic characteristics of Ministry of Education staff, the gathered data were analyzed and interpreted. Regarding age, the highest frequency belonged to the 40–45 age group, accounting for 41% (99 individuals), and the lowest was in the over-50 age group, accounting for 14% (34 individuals). In terms of gender, 61% (148

individuals) were male and 39% (94 individuals) were female. Regarding education level, most had a bachelor's degree (39%, or 94 individuals), while the fewest had education below the bachelor's level (11%, or 27 individuals). Finally, regarding years of work experience, the highest frequency was in the 14–20 year group (47%, or 114 individuals), and the lowest was in the "less than 7 years" group (11%, or 26 individuals).

To identify out-of-school children (at the primary level) with a focus on enhancing the Human Development Index in Iran, semi-in-depth interviews were employed. Each interview lasted approximately 60 to 90 minutes and was recorded using an audio recorder.

Additionally, for data collection in the quantitative phase, researcher-developed questionnaires were used to assess the internal and external validity of the model. To assess the model's validity from the perspective of respondents in the quantitative phase, a researcher-developed questionnaire was constructed based on the qualitative phase, which included a literature review, semi-structured expert interviews, and derived codes.

This questionnaire included close-ended questions and was distributed both online and in-person among the quantitative sample, and the collected data were analyzed using statistical software. It is important to note that the questionnaire’s content validity was confirmed before distribution to the primary target group, and its reliability was assessed through a pilot test with 30 individuals. Necessary revisions were subsequently implemented.

This section of the questionnaire was adapted from Shoghi and Karimi (2024), comprising two sections: external validity (24 items) and internal validity (10 items), totaling 34 items. Responses were measured using a five-point Likert scale ranging from "very low" to "very high" to assess the model’s validity.

The questionnaire was distributed both online and in-person, and respondents were asked to provide their opinions on each item. To ensure response accuracy, theoretical and empirical documentation supporting the model, along with the designed model itself and relevant instructions regarding the research purpose and questionnaire completion method, were presented to the experts.

Finally, the collected data were analyzed using appropriate statistical methods to assess the validity of the model.

To assess validity in the qualitative phase, alignment with prior studies, inter-researcher agreement, and participant validation were used. Reliability was assessed through precise documentation of the research process and internal consistency among researchers.

As a result, inter-rater reliability yielded a coefficient of 77.65%, indicating acceptable reliability. To answer the research questions and analyze the interview data, a flexible thematic analysis method was applied using MAXQDA Analytics Pro version 2018.

Findings and Results

Initially, to identify the indicators and components, content analysis of the interview transcripts was employed. A sample of the interview text is as follows:

"Look, many parents are actively involved in their children's studies and help them, as if they themselves are sitting in the classroom!"

"Nowadays, parents are much more involved in their children’s education than before. For example, you can see that when children are studying, the parents sit next to them and help. This makes the children feel that they are not alone and that someone cares about them. When parents pay attention to their children, it increases their motivation to learn. In fact, this parental involvement can have a positive effect on children’s academic progress."

"Experts also emphasize that this type of parental support is very important. They say that when children see that their parents are engaged with their studies, they become more interested in learning. This means that parents are not only supporters but also act like classmates alongside their children. This cooperation can help children feel more secure and confident. In summary, the role of parents in their children's education is very crucial and influential."

The outputs from Maxqda version 2018 software are presented below, followed by the visual representation of the model and a summary of the coding reports.

The Shannon matrix is used as a tool for displaying and analyzing qualitative data. In this matrix, various components and themes are presented in a structured manner, which helps identify relationships between the components and different dimensions of the study.

The identification of out-of-school children includes social, economic, and educational dimensions, which are clearly illustrated in the Shannon matrix.

Based on the sub-themes (semantic units) extracted from the interview texts, the following table presents the dimensions, components, and indicators related to the identification of out-of-school children at the primary level, using a Human Development Index enhancement approach in Iran.

Table 1. Dimensions, Components, and Indicators of Identifying Out-of-School Children in Primary Education with a Human Development Index Promotion Approach

Dimension	Component	Indicator	Sub-Theme (Semantic Unit)	Development Dimension	Interview Code
Social	Family Role	% of parents involved in children's education	"Look, many parents are actively involved in their children's studies and help them, as if they themselves are sitting in the classroom!"	Education	I1, I2, I3
		Parents' awareness of the importance of education	"Parents now understand more than before how important education is for their children's future, and therefore encourage them more."	Education	I4, I5, I6
		% of single-parent households	"Many children are growing up in single-parent households, meaning only one parent is present."	Economic Well-being	I7, I8, I9
		Access to family counseling	"Families now have greater access to family counseling and can resolve issues more easily."	Economic Well-being	I10, I11, I12
	Cultural Attitude Toward Education	% of children with a positive attitude toward education	"Children now have a more positive view of education and understand that it is beneficial for them."	Education	I13, I14, I15
		Influence of local culture on schooling	"Local culture has a significant influence; in some places, children are encouraged to study, but in others, not as much!"	Social	I1, I2, I3, I4
		Cultural programs supporting education	"Cultural programs really help children value and support education."	Social	I5, I6, I7, I8
		Dropout due to negative cultural attitudes	"Unfortunately, some children drop out of school because of negative cultural attitudes, which is not good at all."	Social	I9, I10, I11, I12
	Access to Social Services	% of children with access to social services	"Children now have more access to social services and can benefit from these resources."	Economic Well-being	I13, I14, I15, I1
		Existence of support programs for needy families	"Needy families now have more support programs that help them."	Economic Well-being	I2, I3, I4, I5
		Community involvement in educational support	"The community values children's education more than before and takes action to support them."	Social	I6, I7, I8, I9
		Access to counseling for parents and students	"Parents and students now can easily access counseling services and ask their questions."	Social	I10, I11, I12, I13
	Family Social Class	% of families living under poverty line	"Many families still live below the poverty line, and this affects their children's education."	Economic Well-being	I14, I15, I1, I2, I3

		Household per capita income	"Average household income has changed, and this can affect children's schooling."	Economic Well-being	I4, I5, I6, I7, I8
		Parents' employment status and impact	"If parents have stable and good jobs, their children also tend to value education more."	Economic Well-being	I9, I10, I11, I12, I13
		Family economic status and school continuation	"The family's economic condition is crucial; if it is good, children study more easily."	Economic	I14, I15, I1, I2, I3
Economic	Household Economic Status	Total household income	"The total household income can determine how far children will go in their education."	Economic Well-being	I4, I5, I6
		Education costs borne by families	"Families bear significant costs for their children's education, and this can be problematic."	Economic Well-being	I7, I8, I9
		% of families needing financial aid	"Many families need financial support to send their children to school."	Economic Well-being	I10, I11, I12
		Access to educational loans	"Families can now use educational loans to cover schooling costs."	Economic Well-being	I13, I14, I15
	Education Expenses	Ancillary costs (uniforms, stationery)	"Costs like clothes and school supplies are burdensome and must be considered."	Economic Well-being	I1, I2, I3
		Dropout due to cost of education	"Some children drop out because of high educational expenses, which is heartbreaking."	Economic Well-being	I4, I5, I6
		Access to financial aid for education	"Families need financial assistance to help their children continue schooling."	Economic Well-being	I7, I8, I9
		Cost impact on family economic choices	"Schooling costs can influence family spending priorities and redirect resources elsewhere."	Economic Well-being	I10, I11, I12
	Parental Job Opportunities	% of parents with stable jobs	"Many parents now have stable jobs, which supports their children's education."	Economic Well-being	I13, I14, I15
		Employment effect on academic success	"Working parents encourage children to study and make progress."	Economic Well-being	I1, I2, I3, I4
		Access to vocational training (parents/students)	"Parents and students should access vocational training to develop essential skills."	Education	I5, I6, I7, I8
		Labor market influence on education	"The local job market significantly impacts children's education and shapes their future."	Economic	I9, I10, I11, I12
	Supportive Policies	Support programs for at-risk students	"Support programs exist to help children at risk of dropping out."	Economic Well-being	I13, I14, I15, I1
		Impact of government policy on education	"Government policies greatly affect children's schooling and should be prioritized."	Social	I2, I3, I4, I5
		% of state budget allocated to education	"The budget the government allocates to education is crucial and should increase."	Education	I6, I7, I8, I9
		Effect of economic policy on quality of education	"Economic policies can influence education quality and must be monitored."	Economic	I10, I11, I12, I13
Educational	Education Quality	Teacher-student ratio	"The teacher-student ratio is very important; smaller ratios improve teaching quality."	Education	I14, I15, I1, I2, I3
		% of teachers with advanced degrees	"The number of highly educated teachers greatly affects children's learning."	Education	I4, I5, I6, I7, I8
		Existence of quality-improvement training for teachers	"There are training programs that help teachers enhance teaching quality."	Education	I9, I10, I11, I12, I13
		Student satisfaction with education quality	"Students are now more satisfied with the quality of education they receive."	Education	I14, I15, I1, I2, I3
	Access to Educational Resources	% of schools with libraries/resources	"Schools must have libraries and materials for better student learning."	Education	I4, I5, I6
		Internet and online learning access	"Access to the internet and online tools helps children learn more effectively."	Education	I7, I8, I9
		Availability of proper classroom equipment	"Proper classroom equipment is crucial and supports better learning."	Education	I10, I11, I12
		Access to extracurricular activities	"Extracurricular activities motivate children to be more interested in learning."	Education	I13, I14, I15
	Learning Environment	Physical and hygienic school conditions	"School buildings should be physically sound and hygienic for a healthy learning environment."	Education	I1, I2, I3

	Safety and security in schools	"Safety is critical; students need a secure space to learn comfortably."	Health	I4, I5, I6
	Counseling programs in schools	"School counseling helps children resolve issues and study better."	Education	I7, I8, I9
	School environment's impact on motivation	"A good learning environment boosts student motivation and fosters academic success."	Education	I10, I11, I12
Academic Support	Support programs for at-risk students	"There are supportive programs to prevent dropouts."	Economic Well-being	I13, I14, I15
	Community participation in education	"Communities should engage in education and nurturing activities."	Social	I1, I2, I3, I4
	Motivational programs to encourage schooling	"Motivational programs can inspire children to pursue education with greater enthusiasm."	Education	I5, I6, I7, I8
	Access to academic and career counseling	"Career counseling helps students make informed decisions about their futures."	Education	I9, I10, I11, I12

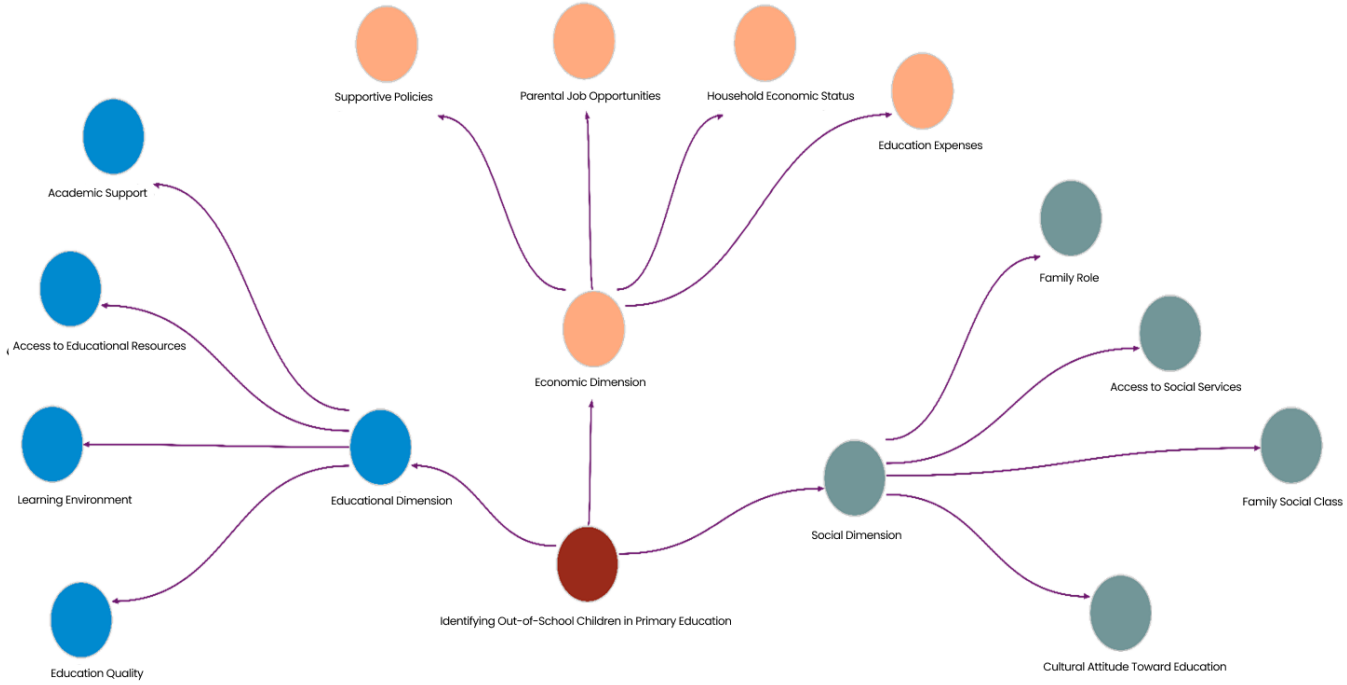

Figure 1. Conceptual Model of the Study

In line with presenting the model of factors influencing the identification of out-of-school children in primary education with a Human Development Index promotion approach in Iran, the validity of this model was assessed. A 34-item questionnaire using a 5-point Likert scale (ranging from "Very Low" to "Very High") was distributed among 15 experts (participants from the qualitative phase). In this study, a one-sample *t*-test was used to examine the validity of each component. It is worth noting that, given the normal distribution of the data (with skewness and kurtosis statistics within the range of -2 to +2) and the interval nature of the scale, the one-sample *t*-test was deemed appropriate.

Overall, the results of the test indicated a high level of validity for the various components of the model for identifying out-of-school children (at the primary level) from the perspectives of both internal and external validity. The statistical findings of the one-sample *t*-test are presented in detail in the table below.

Table 2. One-Sample *t*-Test Results for Assessing the Validity of the Proposed Model

Component	No. of Indicators	Mean	SD	Skewness	Kurtosis	df	t	Sig.	Mean Difference	Lower Bound	Upper Bound
External Validity	23	4.20	0.85	0.50	-0.30	14	5.00	0.000	1.20	3.80	4.60
Objective	4	4.25	0.75	0.30	-0.20	14	6.00	0.000	1.25	3.90	4.60
Research Design	4	4.35	0.80	0.40	-0.10	14	9.80	0.000	1.35	4.10	4.60

Control of Confounding Variables	8	4.10	0.90	0.60	-0.40	14	4.80	0.000	1.10	3.70	4.50
Alignment	7	4.30	0.70	0.20	-0.10	14	6.50	0.000	1.30	3.90	4.70
Internal Validity	10	4.45	0.85	0.50	-0.30	14	10.20	0.000	1.45	4.20	4.70
Logical Review	3	4.20	0.60	0.10	-0.20	14	5.80	0.000	1.20	3.80	4.60
Expert Feedback	4	4.25	0.70	0.30	-0.10	14	6.10	0.000	1.25	3.90	4.60
Sensitivity Analysis	3	4.65	0.65	0.20	-0.15	14	11.00	0.000	1.65	4.40	4.90

Based on the table above, it can be concluded that the *p*-values for both internal and external validity, as well as for all related components, are less than 0.001. Furthermore, the calculated means range from 4.10 to 4.65, clearly indicating statistically significant findings with 99% confidence. This implies that the results did not occur by chance and affirm the high validity of the proposed model. Therefore, it can be inferred that the presented model possesses substantial validity.

In addition to the above, based on expert opinions, the internal validity of the proposed model—with a mean of 4.45 and a *t*-value of 10.20—was rated higher than its external validity. Among the components of external validity, "Research Design" had the highest validity (M = 4.35, $t = 9.8$), while among the components of internal validity, "Sensitivity Analysis" scored the highest (M = 4.65, $t = 11$). The following table presents the main constructs of the study (latent variables) described using central tendency, dispersion, and distribution indices based on the questionnaire data. The analysis was conducted using IBM SPSS Statistics version 27 (2015).

Table 3. Descriptive Statistics of Main Constructs (Latent Variables) Based on Central Tendency, Dispersion, and Distribution (Sample Size = 242 Respondents)

Construct	Latent Variable	No. of Indicators	Mean (Likert)	Total Score Mean	SD	Skewness	Kurtosis	Min	Max	Range
Identification	Social	14	3.3	46.2	0.8	0.5	-0.4	14	70	56
	Economic	15	2.3	34.5	0.7	0.3	-0.2	15	75	60
	Educational	16	2.7	43.2	0.6	0.4	-0.3	16	80	64

The total mean score for the social variable was 46.2, for the economic variable 34.5, and for the educational variable 43.2. The standard deviations were 0.8, 0.7, and 0.6 respectively, indicating low dispersion. The skewness values for the social, economic, and educational variables were 0.5, 0.3, and 0.4 respectively, and the kurtosis values were -0.4, -0.2, and -0.3, all of which fall within acceptable ranges. The range of variation was 56 for social, 60 for economic, and 64 for educational variables.

In addition to validating the model from the perspective of qualitative-phase participants, the validity of the model was also assessed from the perspective of quantitative respondents. Both internal and external validity were evaluated using Confirmatory Factor Analysis (Measurement Model). The output related to identifying out-of-school children in primary education with a Human Development Index promotion approach in Iran is presented in the diagram below.

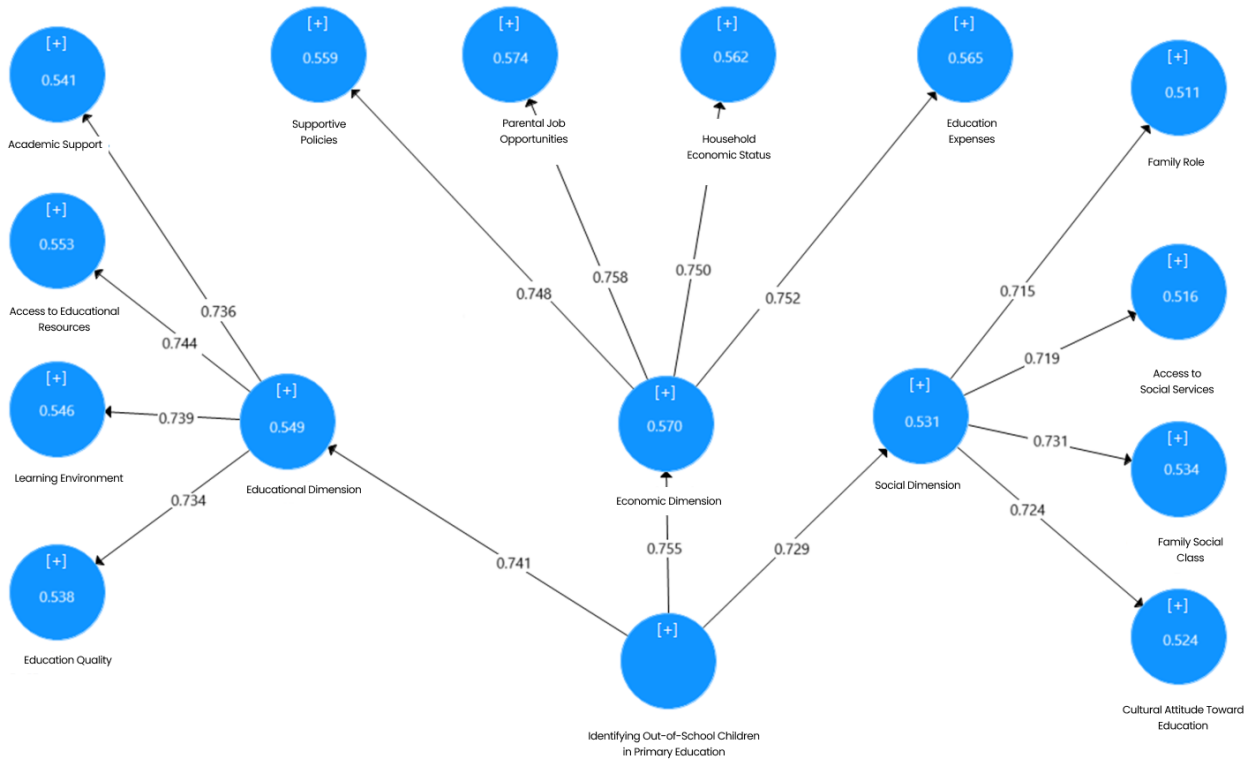

Figure 2. Graphical Representation of Factor Loadings in the Measurement Model for Identifying Out-of-School Children in Primary Education with a Human Development Index Promotion Approach

The measurement model for identifying out-of-school children includes educational, economic, and social dimensions with factor loadings of 0.741, 0.755, and 0.729 respectively. These values demonstrate a strong correlation with the identification of out-of-school children. Among these, the economic dimension had the highest factor loading, while the social dimension had the lowest.

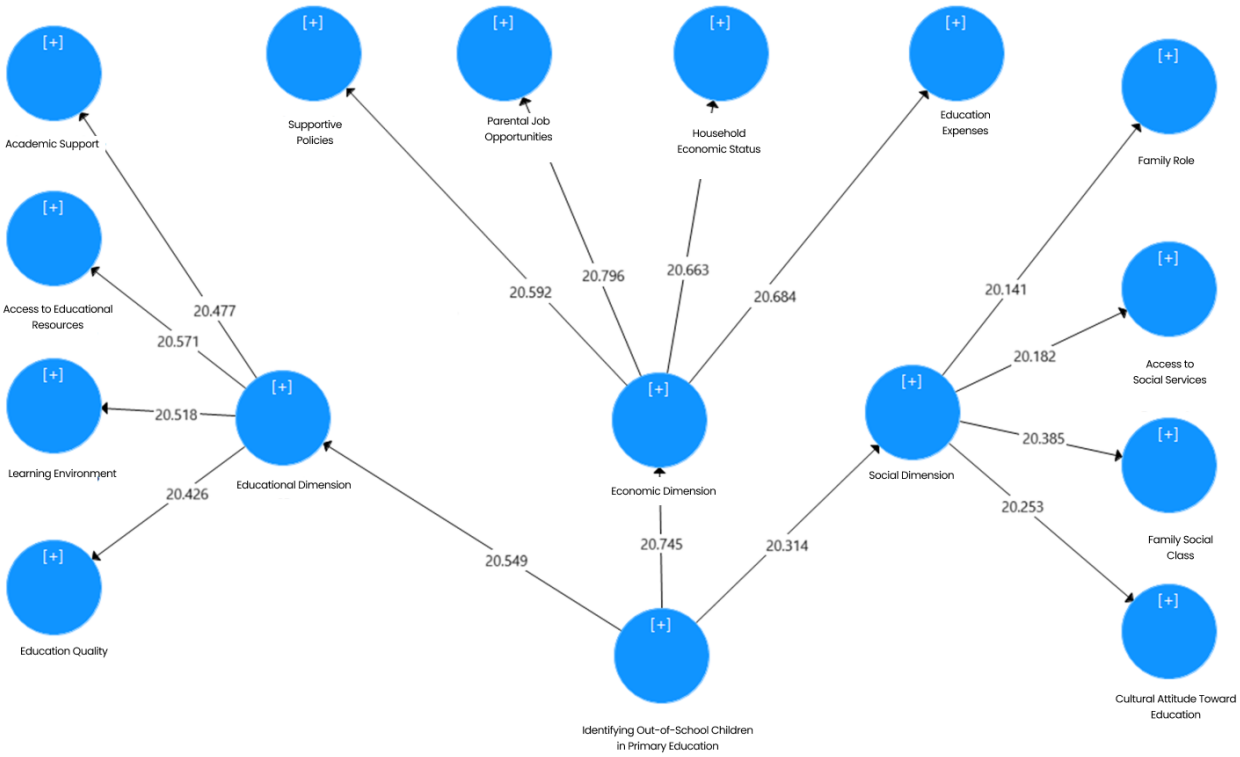

Figure 3. Graphical Representation of Significance Coefficients in the Measurement Model for Identifying Out-of-School Children in Primary Education with a Human Development Index Promotion Approach

As shown in the figure above, the *t*-statistic significance coefficient for each of the indicators and components exceeds 2.58. Therefore, with 99% confidence, all indicators are validated for their respective components, and all components are validated for their corresponding dimensions. Thus, no indicator or component requires elimination.

Subsequently, the overall model fit was evaluated. Structural Equation Modeling (SEM) combines confirmatory analysis with multivariate regression. In this method, the overall model test includes the measurement model (evaluating reliability and validity) and the structural model (path coefficients and explained variance).

The coefficient of determination (R^2) for dependent latent variables reflects the extent to which an independent variable influences a dependent variable. Threshold values of 0.19, 0.33, and 0.67 are commonly considered indicative of weak, moderate, and strong R^2 values, respectively. In this study, R^2 values were calculated as follows:

- Educational dimension: **0.549**
- Economic dimension: **0.570**
- Social dimension: **0.531**

Communality index indicates how much variance of the indicators (items) is explained by their corresponding constructs. The average communality index used to assess convergent validity in this study is **0.52**.

Goodness of Fit Index (GOF), calculated based on the geometric mean of R^2 and average communality across the entire model, was determined to be **0.533**. Since this GOF value exceeds 0.36, it reflects a good overall model fit for the main research hypothesis.

Predictive relevance index (Q^2) evaluates the model's predictive power for dependent variables. Interpretation thresholds for Q^2 are 0.02 (weak), 0.15 (moderate), and 0.35 (strong). The Q^2 value calculated for the main variable in this study is **0.220**,

indicating a satisfactory level of predictive relevance. Based on this, the model's predictive capability for the variables is deemed acceptable.

Normed Fit Index (NFI), a non-normed fit index, shows how well the proposed model improves fit compared to a null model. NFI values should exceed 0.90 for acceptable fit. In this study, the NFI value was **0.966**, indicating excellent model fit.

Based on these findings, it can be concluded that the tested model demonstrates good fit within the studied sample. Furthermore, since the factor loadings of all observed variables are greater than 0.4 and the significance values exceed 1.96, the construct under study exhibits acceptable construct validity.

Discussion and Conclusion

The findings of the present study provided a multidimensional model for identifying out-of-school children (OOSC) in Iran's primary education system, structured around three core dimensions: economic, social, and educational. Using a Human Development Index (HDI) promotion approach, each of these dimensions was evaluated in terms of internal and external validity, with statistical significance demonstrated for all components and indicators. Factor loadings and measurement model fit indices confirmed the robustness of the proposed model, while confirmatory factor analysis (CFA) indicated that the economic dimension had the highest explanatory power, followed by the educational and social dimensions. These findings confirm the hypothesis that dropout and exclusion from primary education in Iran are not rooted in a single cause but rather stem from an interplay of financial constraints, sociocultural dynamics, and institutional deficits.

One of the key findings was the prominence of economic variables as predictors of school dropout and non-enrollment. Indicators such as household income, educational costs, and parents' employment status demonstrated strong associations with children's school attendance. This aligns with previous research emphasizing the fundamental role of economic insecurity in impeding access to education. For instance, studies in Bangladesh and Uganda also revealed that poverty is a principal factor leading to OOSC, especially among marginalized rural communities (3, 9). In particular, the lack of stable income among parents and the direct costs of schooling—such as uniforms, textbooks, and transportation—have been cited as major deterrents (6, 7). The present study corroborates these findings and further highlights that, in the Iranian context, the economic variable not only predicts dropout but also inhibits school re-entry for previously excluded children.

Closely intertwined with economic hardship are social factors, including parental involvement, family structure, and societal attitudes toward education. The findings revealed that children from single-parent households, or from families with low awareness of the value of education, are more likely to be excluded from schooling. This aligns with earlier research indicating that the home environment plays a significant role in a child's educational continuity (21). Parental education levels, cultural expectations, and even the presence of household labor demands all interact to determine the degree of support a child receives for their learning journey. As emphasized by Hanane et al. (2024), when child labor is normalized or education is perceived as non-essential—especially for girls or in rural areas—the likelihood of dropout increases substantially (10). Similar trends have been identified in Pakistan and Zimbabwe, where female students are particularly vulnerable to early school exit due to socio-cultural norms and gender-specific barriers (8, 11).

The third dimension—educational factors—was also shown to significantly influence OOSC identification. Indicators such as teacher–student ratios, quality of educational resources, and access to learning support were all positively correlated with children's sustained enrollment. These findings reflect broader international trends showing that institutional quality and the learning environment have a profound impact on educational retention (12). When schools are overcrowded, under-resourced, or lack trained teachers, students are more likely to become disengaged and ultimately drop out. As Liao and Xie (2024)

observed, students' sense of academic self-efficacy and belonging are crucial for their persistence, and schools must foster environments that support both cognitive and emotional development (13).

The statistical validation of the model through indices such as R^2, Q^2, GOF, and NFI further affirms the model's robustness. R^2 values above 0.5 across all three dimensions indicate strong explanatory power, while the GOF index exceeding 0.36 suggests a high overall model fit. The Q^2 statistic also supports the predictive validity of the model, confirming that the proposed dimensions are not only explanatory but also useful for anticipating risk factors for dropout. Such statistical strength lends credibility to the argument that interventions addressing OOSC must be multi-pronged and tailored to target economic, social, and educational domains simultaneously. In doing so, this model reflects the findings of Jatmiko et al. (2024), who emphasized the effectiveness of integrated community-based programs in enhancing HDI outcomes by simultaneously addressing material, social, and institutional barriers to education (16).

Notably, the study's model resonates with global policy frameworks such as UNESCO's 21st-century vision for educational rights, which advocate for inclusive and context-responsive strategies that prioritize the needs of marginalized populations (2). The model's emphasis on educational access as a function of broader human development goals underscores the interconnectedness between education and indicators such as health, income, and social inclusion. This is particularly relevant in regions of Iran where ethnic, linguistic, and geographic diversity challenge the one-size-fits-all approach to education policy. As Mansouri et al. (2022) demonstrated in Khuzestan Province, improving HDI outcomes requires locally tailored solutions that reflect the complex realities of underserved populations (1).

The study's findings also confirm the value of using a mixed-method approach for constructing educational models. Qualitative interviews captured nuanced sociocultural insights that would have been overlooked in purely quantitative studies, while the use of CFA and structural equation modeling ensured analytical rigor. This aligns with the recommendations of Ezaki (2024), who argues that understanding dropout patterns requires both statistical mapping and context-sensitive narratives (14). Likewise, the identification of transition-related dropout risks—highlighted by Eranıl's (2024) study of grade-level attrition in Turkey—was mirrored in this research, which found that school disengagement often begins with academic repetition or poor teacher–student interactions (15).

Furthermore, the emphasis on community participation and institutional collaboration is consistent with findings from comparative education literature. Zulkarnain et al. (2024) highlight the importance of cultural inclusion and minority rights in educational settings, particularly in multicultural societies (17). In Iran, where ethnic minorities often reside in socioeconomically disadvantaged provinces, the need for culturally relevant pedagogy and language-sensitive instruction becomes vital. Integrating these considerations into national and regional education policy is essential for reducing disparities in access and outcomes.

Lastly, the proposed model is timely and policy-relevant. It offers Iranian policymakers a comprehensive framework for identifying and prioritizing interventions targeting OOSC. Given the importance of education to national development goals and international human rights commitments, using this model can support Iran in advancing equity, inclusion, and social cohesion through targeted educational planning.

Despite the strengths of this study, several limitations should be acknowledged. First, the research was geographically constrained, with data collected from specific provinces that may not fully represent the national context. While the qualitative and quantitative methods provided a robust dataset, the findings may not generalize to provinces with different socio-political or cultural profiles. Second, the study relied heavily on self-reported data from stakeholders, which may be subject to bias or social desirability effects. Third, while the model accounted for major dimensions of dropout, it may not capture all contextual variables, such as political instability or environmental crises, which can also affect educational access. Lastly, the cross-

sectional nature of the data limits causal inference; longitudinal studies are needed to track changes over time and evaluate the long-term effectiveness of interventions.

Future studies should consider expanding the geographical scope to include a nationally representative sample, allowing for regional comparisons and more comprehensive policy implications. In addition, longitudinal designs could offer insights into how interventions impact dropout rates over time and which dimensions are most responsive to change. Further research should also explore the role of technology and digital inclusion in preventing dropout, particularly in post-COVID education systems. Investigating the specific needs of children with disabilities, refugee populations, and nomadic communities would further enhance the inclusiveness of the model. Finally, interdisciplinary studies that integrate health, social services, and educational data could provide a more holistic understanding of the complex factors influencing school exclusion.

To address the issue of out-of-school children effectively, policymakers should implement integrated strategies that target economic support, community engagement, and educational reform simultaneously. Programs such as conditional cash transfers, school feeding schemes, and vocational training for parents can alleviate financial barriers. Schools should also invest in teacher training, reduce class sizes, and ensure access to psychosocial support services to improve educational quality. Community-based awareness campaigns that challenge harmful cultural norms and promote the value of education—especially for girls and minority children—are essential. Finally, education authorities should establish data-driven monitoring systems that allow for early identification and intervention for at-risk children. These practical steps, grounded in evidence, can support more inclusive and equitable educational systems across Iran.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adheried in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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References

1. Mansouri SA, Afghah SM, Aghaei Jannat Makan H, Sharifzadeh Ahvazi S. Simulating the Human Development Index in Khuzestan Province with Emphasis on Healthy Living and Access to Knowledge: A Comparison with Iran. Quantitative Economics. 2022;19(1):101-26.
2. Unesco. The right to education in the 21st century: findings from the international seminar on the evolving right to education. 2022.
3. Akatwijuka HIA. Socio-Economic Factors and Access to Higher Education in Uganda: A Case of Public Higher Education Institutions in Kigezi Sub Region. International Journal of Research and Innovation in Social Science. 2024;VIII(IIIS):1099-108. doi: 10.47772/ijriss.2024.803076s.
4. Mbabazi A, Aisha A, Mwesigye A. The Influence of Regional Location of Kasese District on Access to University Education. Idosr Journal of Arts and Management. 2023:15-26. doi: 10.59298/idosr/2023/12.1.5892.
5. Heidari A, Sedaghat M, Mirzaei A. The Processes of Production and Reproduction of Educational Dropout in Sistan and Baluchestan Province. Strategic Research on Social Problems in Iran. 2022;11(2):47-70.
6. Subramanian B. Beyond Enrolment: How Urban Poverty Affects Educational Experiences. Review of Development and Change. 2024;29(2):242-60. doi: 10.1177/09722661241291164.
7. Sabir M. Gender and Public Spending on Education in Pakistan: A Case Study of Disaggregated Benefit Incidence. The Pakistan Development Review. 2022:477-93. doi: 10.30541/v41i4iipp.477-493.
8. Butt M, Park S. The Influence of Cultural and Social Factors on Education in Pakistan. International Journal of Academic Research in Progressive Education and Development. 2024;13(2). doi: 10.6007/ijarped/v13-i2/21336.
9. Mamun MZ. Factors Affecting Urban Women Empowerment in Bangladesh. Ulbec. 2024;01(02):31-40. doi: 10.70315/uloap.ulbec.2024.0102006.
10. Hanane M, Xiang-he G, Ali D. Contextual Analysis of Child Labor Laws and Educational Rights for Children in Pakistan With a Focus on KPK Province. Discover Global Society. 2024;2(1). doi: 10.1007/s44282-024-00105-0.
11. Nkomo T. Factors Influencing Girl Child School Dropout Rates: A Contextual Analysis Of Optional Schools In Masvingo Region. International Journal of Pedagogics. 2024;4(05):06-11.
12. Wanti M, Wesselink R, Biemans HJA, Brok Pd. Further Insight Into Social Factors Affecting Access to and Equity for Low-Ses Students in Higher Education. European Journal of Inclusive Education. 2024;3(1):61-82. doi: 10.7146/ejie.v3i1.140295.
13. Liao Y, Xie X. Research on Strategies of Colleges and Universities to Enhance the Sense of Acquisition of College Students' Ideological and Political Education in the Context of Deep Learning. Applied Mathematics and Nonlinear Sciences. 2024;9(1). doi: 10.2478/amns-2024-0673.
14. Ezaki N. Analysing the dropout patterns of individual children in Nepal: Relationship between school dropout and grade repetition/entrance age. International Journal of Comparative Education and Development. 2024. doi: 10.1108/IJCED-04-2023-0028.
15. Eranıl AK. School Dropout Causes in Turkish Education System (2009-2022): A Pareto Analysis by Grade Level. Journal of Theoretical Educational Science. 2024;17(2):451-77. doi: 10.30831/akukeg.1291174.
16. Jatmiko H, Asriati N, Syamsuri S, Ulfa M, Achmadi A. Analysis of the Implementation of Gerakan Ayo Sekolah Movement in Improving the Human Development Index in Ketapang District. Education Achievement: Journal of Science and Research. 2024:374-86. doi: 10.51178/jsr.v5i2.1900.
17. Zulkarnain Z, Ulinnuha R, Abdullah R. Social Inclusion as a Challenge of Multiculturalism in Germany: A Study on Muslim Minorities. Alfuad Jurnal Sosial Keagamaan. 2024;8(2):135. doi: 10.31958/jsk.v8i2.12052.
18. Kirichok O, Amankeldi N, Parmanova R, Doohan NV. Overcoming Barriers in It Education: Academic and Social Challenges in India and Kazakhstan. The Journal of Economic Research & Business Administration. 2025;1(151):73-85. doi: 10.26577/be202515116.
19. Dave P. The Impact of Social Determinants of Health on Vaccination Uptake. Asian Journal of Dental and Health Sciences. 2024;4(2):61-6. doi: 10.22270/ajdhs.v4i2.90.

20. Reshi IA, Sudha DT, Dar SA. Women's Access to Education and Its Impact on Their Empowerment: A Comprehensive Review. Morfai Journal. 2022;1(2):446-50. doi: 10.54443/morfai.v1i2.760.
21. Ugobueze AN. Factors Affecting Primary School Population and the Influence of Socialization Agents. Inisiatif. 2024;3(2):157-70. doi: 10.61227/inisiatif.v3i2.214.