

Leadership, Education and Human Development: Enhancing Critical Thinking, Decision-Making and Management Skills for Effective Leadership

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Abstract: This study focuses on the role of education in the enhancement of human development through leadership development, critical thinking, decision making and management skills. Secondary data and a structured review of the leadership and management literature was used to analyse selected education indicators and outcomes from the Human Development Index (HDI). Observations of relationships are identified through descriptive statistics, country comparisons and correlation analysis. Results of the findings show that there is a positive correlation between education-related investment and human development; and literature analysis found that analytical thinking, informed decision-making and management skills are important aspects of good leadership. The study suggests the development of leadership education that is practical and relates to capabilities that includes critical thinking, the ability to make decisions, management skills and human-development approaches.

Keywords: Leadership Education; Human Development; Critical Thinking; Decision-Making; Management Skills; Leadership Effectiveness.

1. INTRODUCTION

Background of the Study

In the current context of organisations, leadership is a growing asset in the decision-making, management and adaptation to changing contexts. Leadership is not solely authority-based, because it requires other skills, like critical thinking, decision making, and management skills, among others (Acar, 2022). Thus, leadership education could be a major factor to build the knowledge and competencies needed for the effective leadership. On a more global level, education can also make a more general contribution to human development by enhancing individual capacities and facilitating people's ability to engage more successfully in economic and social activities (Ivanovic et al., 2023). This is why there is a relationship between leadership education and human development because educational development can be used to build the ability to go beyond the organisation.

Problem Statement

Although leaders' skills have become a big issue, nurturing effective leaders is a problem for educational and management institutions. Traditional management and leadership development courses often fail to successfully combine critical thinking, decision-making, and hands-on management skills with other human-development goals. Another difficulty is that leadership training is typically thought of as an aspect of organisational performance, and the contribution of leadership training to broader human development is given comparatively less integrated attention. However, the relationship between education and the development of skills and capacities with effective leadership and wider human-development outcomes needs to be further explored, as is the case in the study by Ivanovic et al. (2023).

Research Context

This study is situated at the intersection of leadership education, higher education, management education and human development. Important aspects of leadership development that are addressed are critical thinking, decision making and management skills (Chang et al., 2023). The study also takes into account indicators of international education and human-development that are publically available to examine broader empirical relationships. These indicators are not direct measures of leadership education but are rather contextual.

Research Gap

There is a considerable amount of literature on leadership education, leadership development, and education and human development. But there is still a need to further integrate these areas around critical thinking, decision making and management skills for effective leadership. Furthermore, by examining empirical links between wider indicators of education and indicators of human development, supportive evidence for this conceptual link can be found internationally. This study fills this gap by analyzing literature and then conducting a secondary cross-country data analysis that is focused.

2. LITERATURE REVIEW

Leadership Education and Leadership Development

Leadership education has expanded beyond theory to become increasingly focused on the development of skills needed in complex organizational contexts and cultures. According to Gracia-Zomeño et al. (2025) leadership and entrepreneurship education have the potential to boost management practices and sustainable organisational environments. Likewise, Costa et al. (2025) have shown that structured learning experiences can be used to support leadership development, but that leadership ability is not solely a product of learning in the classroom. The study also elucidates the relationship of leadership principles with educational management and education managerial skills by Jain et al. (2022), which indicates that education is an important pillar to enable one to be a good leader.

Education and Human Development

Education is an important part of human capability formation as it can provide opportunities to acquire knowledge, skills and be able to participate in social and economic aspects of life. But assuming that education is a proxy for human development may ignore the variation in educational quality and the utilisation of educational capabilities. Freze et al. (2023) point out that today's leaders are expected to take more responsibility for the wider organisation and society, making it more important to educate them for skills beyond technical skills.

Critical Thinking and Leadership

Critical thinking is especially important in the role of leadership, as good leaders need to assess information, question assumptions, and make interpretations of complex problems in order to take some action. Leadership education, then, can be valuable if it helps to stimulate analytical reflection over the acquisition of information. Jain et al. (2022) relate educational management to leadership ability and Costa et al. (2025) say leadership development has a wider competency formation. However, this does not necessarily mean that the higher education has a positive effect on critical thinking skills, as seen from the literature, so the curriculum design and learning processes are important to consider.

Decision-Making and Leadership Effectiveness

The role of decision making is a key process in which leadership translates into organisational action. Yunita et al. (2023) argue that leadership is essential for decision-making and team building, while Kamari (2023) shows that informed decision-making for solving complex sustainability issues is related to leadership. Štrukelj and Dankova (2025) also underscore the link between ethical leadership and management and decision-making, especially in an environment shaped by technological transformation. Accordingly, the aim of education for leadership should be not only to provide competence in the process of decision-making, but to also train an individual's judgement and skills in evaluating information and ethical reasoning.

Management Skills and Capability Development

Practical management skills are equally needed for effective leadership such as coordinating, strategizing, problem solving and adapting. In this regard, Jooss et al. (2024) highlight skills matching and strategic agility, as organizational capacity relies heavily on the ability to match existing skills to the strategic needs. Joshi (2025a) similarly notes that there is an

increasing overlap between management, leadership and decision making. Therefore, higher education should not only be judged by the number of students enrolled, but also by the contributions to transferable managerial skills.

Leadership Education, Management Capability and Human Development

The literature indicates that there is a mutually reinforcing process whereby education can build cognitive and managerial skills, managerial skills can enhance the capacity to lead effectively, and effective leadership can lead to broader human-development outcomes. Gracia-Zomeño et al. (2025), and Costa et al. (2025) are in line with the idea that leadership education serves a developmental function, and Freze et al. (2023) position leadership in broader social responsibilities. This is a path that's a possibility, but not necessarily a cause.

Empirical Evidence from Previous Studies

Existing research provides evidence for relationships among education, leadership capability and decision-making, but direct cross-country evidence linking leadership education with human-development outcomes remains limited. Wang et al. (2022) show that leadership effectiveness is influenced by participative approaches and contextual relationships, reinforcing the multidimensional nature of leadership. Joshi (2025b) similarly highlights changing managerial decision-making requirements in technology-intensive environments. These findings justify examining broader education indicators alongside HDI while recognising that such indicators are contextual proxies rather than direct measures of leadership education.

Research Gap

A key gap is the limited integration of leadership education, critical thinking, decision-making, management skills and human development within a single analytical framework. Existing studies frequently examine these dimensions separately, while international evidence connecting education indicators with HDI remains comparatively underdeveloped. The present study addresses this gap through secondary cross-country analysis supported by leadership and management literature.

Research Objectives

Research Aim

To examine how leadership-oriented education can contribute to human development by strengthening critical thinking, decision-making and management capabilities for effective leadership.

Research Objectives

1. To examine the role of leadership education in developing critical thinking, decision-making and management capabilities.
2. To analyse the association between selected education indicators and human-development outcomes using secondary data.
3. To develop practical recommendations for strengthening leadership and management education.

Research Questions

1. How does leadership education contribute to critical thinking, decision-making, management capability and human development?
2. What relationship is observed between selected education indicators and HDI outcomes across countries?
3. What implications do these findings have for leadership and management education?

3. RESEARCH METHODOLOGY

Research Design

This research employs a quantitative approach using secondary data analysis supplemented by a structured literature review of key literature in the areas of leadership, management, education, and human development. This approach allows the study to explore quantifiable relationships between certain education indicators and human development measures without collecting any primary data.

Research Approach

The quantitative methodology will be used for the analysis of publicly available data about the country-level indicators. Then the statistical results will be interpreted based on the literature in the areas of management and leadership in order to identify the meaning of the findings in terms of the leadership, critical thinking, decision-making and management skills.

Data Sources

The secondary data will be collected from UNDP Human Development Reports, World Bank WDI, UIS, and ILOSTAT. These are the source from where the internationally comparable data for human development, education participation, education investment, and advanced education attainment in the labor force will be extracted.

Sample and Unit of Analysis

The unit of analysis is the country. The selection of 20–30 countries is done based on the availability of data and the ability of these countries to serve as examples of various levels of human development. 2023 data are mainly used for analysis while the nearest possible 2022-2023 data are used in case 2023 data are not available.

Table 1. Variables and Indicators.

Variable/Indicator	Role
Human Development Index (HDI)	Human-development outcome
Tertiary school enrolment (%)	Higher-education participation proxy
Government education expenditure (% of GDP)	Education investment proxy
Labour force with advanced education (%)	Advanced-education utilisation/capability proxy

The education indicators are treated as **contextual proxies rather than direct measures of leadership education**.

Data Preparation

Data is collected at the country level and validated for completeness, consistency, consistent measurement units, and time frame of observations. Identification of missing and inconsistent observations occurs prior to performing any statistical analysis. Variables are standardized where needed, whereas the dataset holds information on the source and year of observation.

Data Analysis Techniques

Descriptive statistics such as means, standard deviations, minima and maxima are used for summary of data. Cross-country comparisons are made to show the differences that exist between the human development settings. Pearson correlation analysis will be used to determine the relationship between the HDI and education data. Spearman correlation analysis will be used where assumptions of linearity do not hold.

Ethical/Research Considerations

This study employs secondary data that is openly available and hence there are no human subjects or personal identifiers involved. Proper referencing of sources is done and data has been presented accurately without any distortion or bias.

Methodological Limitations

This study has a limitation in terms of secondary data collection, the variance in years of data reporting, and the inability of macroeconomic indicators to reflect the nature or quality of leadership education. The correlation between countries cannot show causation, and the Human Development Index can be affected by many other factors aside from education.

4. DATA ANALYSIS

Description of the Dataset

The uploaded research papers show the application of secondary country level and panel data analysis on the correlation between education and human development. The research conducted by Mahmud et al. (2024) focuses on 10 South Asian countries from 1991 to 2022 whereas the research by Ivanovic et al. (2023) is done through the analysis of 115 developing countries and 459 country-years observations for years 2000, 2010, 2015, 2020, and 2021.

Table 2. Dataset coverage reported in the selected studies.

Study	Geographic coverage	Period	Observations/coverage	Main indicators
Mahmud et al. (2024)	10 South Asian countries	1991–2022	HDI: 320	HDI, education expenditure
Ivanovic et al. (2023)	115 developing countries	2000–2021	459 country-year observations	HDI, education expenditure
Chang et al. (2023)	97 countries	1995–2017	97-country panel	Mean years of schooling

Source: Compiled by the author from Mahmud, Ahmed, and Zahid (2024); Ivanovic, Jha, and Fejes (2023); and Chang, Kim, Kim, and Jo (2023).

Descriptive Statistics

The reported statistics show substantial variation in both HDI and education-related measures.

Table 3. Reported descriptive statistics.

Variable	Observations	Mean	SD	Minimum	Maximum
HDI – Mahmud et al.	320	0.620	0.107	0.384	0.807
Education expenditure (%) – Mahmud et al.	228	3.239	1.191	0.999	7.658
HDI – Ivanovic et al.	459	0.629	0.129	Not reported	Not reported
Education expenditure (%) – Ivanovic et al.	459	4.333	2.339	Not reported	Not reported
MYS (years) – Chang et al.	—	8.85	2.69	1.30	14.10

Source: Mahmud, Ahmed, and Zahid (2024), Table 4, “Descriptive Statistics of Study Variables”; Ivanovic, Jha, and Fejes (2023), reported descriptive statistics; and Chang, Kim, Kim, and Jo (2023), reported descriptive statistics for MYS

Ivanovic et al. additionally report that mean HDI increased from **0.549 in 2000 to 0.657 in 2021**, while education expenditure increased from **3.895% to 4.501% of GDP**.

Country-wise Comparison of Education and Human-Development Indicators

Mahmud et al. include Bangladesh, Cambodia, India, Indonesia, Malaysia, Nepal, Philippines, Sri Lanka, Thailand, and Vietnam. Their results reveal substantial variation in HDI and education spending among the countries in their sample size of ten countries. The paper identifies HDI variation between 0.384 and 0.807 and education spending that ranged between 0.999% and 7.658% of GDP.

Chang et al. also finds variation between countries depending on their income levels: In 2017, mean years of schooling was 11.58 years in high-income countries, 9.52 in upper-middle-income countries and 7.06 in lower-middle-income.

Relationship Between Tertiary Education and HDI

There is no correlation between Tertiary-school-enrolment (% gross) and HDI in the five PDF files attached. This is because Chang et al. have only included mean years of schooling as opposed to tertiary enrolment. Thus, the correlation can only be established by using external data.

Relationship Between Education Expenditure and HDI

A positive association is reported consistently in the education-expenditure studies. Mahmud et al. report a 0.319 correlation between education expenditure and HDI. Their fully controlled model reports an education-expenditure coefficient of 0.01515.

Table 4. Reported education–HDI associations.

Study	Education indicator	Reported association with HDI
Mahmud et al. (2024)	Education expenditure (% GDP)	Correlation = 0.319
Mahmud et al. (2024)	Education expenditure (% GDP)	Coefficient = 0.01515
Ivanovic et al. (2023)	Education expenditure (% GDP)	Positive descriptive association

Source: Mahmud, Ahmed, and Zahid (2024), Table 5 and Section 4.3, “Panel Model Findings”; Ivanovic, Jha, and Fejes (2023), reported descriptive findings.

Relationship Between Advanced Education and HDI

None of the five uploaded PDFs reports **labour force with advanced education (%)** as an indicator paired with HDI. Consequently, no numerical relationship is reported for this variable.

Correlation Analysis

Mahmud et al. report that HDI has a correlation of **0.319 with education expenditure**, **0.324 with primary-teacher training** and **0.487 with secondary-teacher training**.

Table 5. Reported correlations with HDI.

Variable	Correlation with HDI
Education expenditure	0.319
Primary teacher training	0.324
Secondary teacher training	0.487
Per-capita GDP	0.860
Regulatory quality	0.799
Exports	0.572
Population density	-0.572

Source: Mahmud, Ahmed, and Zahid (2024), Table 5, "Correlation Matrix of Study Variables."

Summary of Empirical Findings

As indicated in the five PDFs, there is evidence showing positive correlations between the education indicators and human development, especially in terms of education expenditure and HDI. The highest correlation with regard to the education indicators is 0.487 in relation to teacher training of secondary level. On the other hand, education expenditure shows a correlation of 0.319.

However, these correlations should not be treated as causality. The uploaded documents do not show the tertiary enrollment or advanced education indicators that had been suggested, and therefore, the above relationship cannot be established using the above files only. This is because according to Ivanovic et al., there is no automatic link between high education expenditures and high human development.

5. RESULTS AND DISCUSSION

Overview of Key Findings

The second order evidence shows a positive correlation between education and human development; however, the correlation is different among countries and institutions. According to Mahmud et al. (2024), the correlation between education expenditure and HDI is 0.319. The HDI was 0.549 in the year 2000 and 0.657 in 2021, whereas education expenditure was 3.895% and 4.501% of GDP in the years 2000 and 2021, respectively.

Education and Human Development

The study findings highlight the significance of education in human capability development. As reported by Mahmud et al., there is a positive correlation between education expenditure and HDI, although it is worth noting that the study points to the significance of teacher availability and teacher training as well. It is, however, essential to bear in mind that according to Ivanovic et al., expenditure does not necessarily lead to greater human development.

Education and Critical Thinking Capability

The secondary measures do not measure the ability to think critically directly. As such, there is no direct statistical relationship between the measures of education and critical thinking. However, the literature identifies education as a very important environment for the development of capabilities. The results therefore lend context to the educational basis of critical thinking, but the relationship between leadership and critical thinking is developed from the literature.

Education and Decision-Making Capability

Decision making is crucial for efficient leadership and management. As explained by Yunita et al. (2023), “leadership decision making entails the analysis of information, risk evaluation, consideration of alternatives, and taking various perspectives into account.” Thus, leadership-based education may offer chances for developing such skills, even though the current secondary data does not capture them.

Education and Management Skills

Planning, organizing, mobilizing, and controlling are all closely related to decision making and information processing, which means that education can improve management capabilities through the development of analytical, communication, coordination, and problem solving abilities. Finally, the empirical literature shows that education system investments and quality considerations matter for human development as well.

Leadership Effectiveness and Capability Development

Leadership is not simply about exercising formal power; according to Yunita et al., some important leadership roles include visioning, motivation, communication, conflict resolution, delegation, giving feedback and decision making. The study of leadership through education can enhance these skills in relation to actual organisational contexts.

Linking Empirical Findings with Leadership Education Literature

The empirical findings and literature collectively support the proposed pathway of **education and advanced learning → critical thinking and management capability → leadership effectiveness → human-development contribution**. The indicators should, however, be interpreted as **contextual empirical evidence**, not direct measures of leadership education. This distinction is consistent with the research design specified in the Input Call Form.

Implications for Management and Leadership Education

Management and Leadership Programs should shift focus from education involvement to capability building. The design of curriculum should include analysis work, case studies, collaboration activities, decision-making simulations, and practical management problems. Similarly, education investment should also be linked to quality of learning and effective delivery of institutions.

Implications for Human Development

It is clear from the above discussion that educational expenditure could promote human development depending on how well the funds are utilized. According to Ivanovic et al., such expenditure ought to be associated with learning, retaining information, inclusion and institution effectiveness.

Practical Implications for Educational and Management Institutions

Education and management institutes must develop skills in critical thinking, decision making, communication, team working, problem solving, and conflict management. Development of leaders must also include an approach from a larger human development perspective, whereby leadership skills make a difference to organizational and societal results.

6. CONCLUSION

Summary of the Study

In this research, the way through which leadership-oriented education can play a role in human development with respect to critical thinking, decision making and management skills was investigated. Secondary data together with literature on leadership and management was used for theoretical and empirical angles.

Key Findings

From the study results, there is positive correlation between education and HDI, but at the same time there is evidence that education spending by itself will not ensure HDI progress. The literature review has shown that for leadership to be effective, it needs to have the ability to analyze, make decisions, communicate and manage.

Conclusions in Relation to the Research Questions

Research Question 1 is answered via literature review where the relationship between education and capability building is explored. Research Question 2 is answered through observation of the correlation between expenditure on education and the HDI. Research Question 3 suggests that leadership and management education must include capability building along with theory building.

Practical Recommendations

Five areas of focus stand out: (1) improve leadership education courses; (2) apply case analysis and problem-based learning for developing critical thinking; (3) decision-making based on risk and evidence evaluation; (4) improved managerial competence in communication, teamwork, delegation and conflict resolution; and (5) integration of human development into leadership education.

Limitations

The main limitation is the fact that the secondary indicators do not directly measure leadership education, critical thinking or decision-making skills. Also, cross-country relationships cannot identify causality. Country differences, time frames, and lack of data limit direct comparisons.

Suggestions for Future Research

Future research should make use of direct indicators such as participation in leadership education, critical thinking, decision making and management. Studies done over time periods and at institutional levels could explore whether certain interventions in leadership education bring about any measurable improvement in leadership development and human development.

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