

EMERGENT FEATURES OF THE ENGLISH PROFICIENCY INDEX AND HUMAN DEVELOPMENT INDEX OF COUNTRIES ACROSS THE GLOBE THROUGH A COMPLEX ADAPTIVE SYSTEM

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Abstract

This study investigates the emergent features of the English Proficiency Index and Human Development Index of countries across the globe using a complex adaptive system. By using the descriptive and quantitative methodologies of the 87 countries across the globe that had the English Proficiency Index (EPI) and Human Development Index (HDI) in 2018, the study identified two distinct clusters. The first cluster shows a negative correlation between the EPI and HDI, while the second cluster has a positive correlation. Hence, the findings of the study have resulted in several lessons. First, it appears that the human development of countries in the first cluster is not necessarily correlated with their English proficiency, whereas countries in the second cluster are most likely to use English as the foundation for their human development; second, regardless of how much effort has been exerted to learn English, there are countries that can only learn up to a maximum proficiency level of 60 percent; third, the results shed a great deal of light on the teaching of students, particularly when it comes to understanding the differences in English language learning.

Keywords: Complex Adaptive System, Human Development Index, English Proficiency Index.

Introduction

English proficiency has become increasingly important, particularly for the advancement of society and the global economy. In fact, most countries utilize the English language as a medium of communication, especially in their business transactions. In this paper, the English Proficiency Index (EPI), which measures the ability of people to communicate in English, and the Human Development Index, which measures the country's average achievement in health, knowledge, and standard of living to assess their human development [8], were studied.

Numerous studies have examined the correlation between EPI and HDI scores across various nations. The findings revealed a link between human development and English language proficiency that is positive. Human development index scores are typically higher in nations with higher levels of English proficiency. In a study that was published in the International Journal of Education Development, researchers discovered that human development and English language proficiency are positively correlated in a number of African nations. The findings revealed that a country's human development index (HDI) is positively impacted by its citizens' proficiency in English communication [7]. Additionally, a study that examined data from 49 countries and was published in the Journal of International Development discovered a strong positive correlation between English proficiency and HDI. According to the study's findings [2], nations with higher English proficiency are more likely to attract foreign investment and experience greater economic growth.

Although many studies have been conducted recently on the connection between EPI and HDI, less attention has been given to the connection between EPI and human development using the complex adaptive system. The majority of these studies have concentrated on the relationship between EPI and economic development. By examining the emerging characteristics of the relationship between the HDI and EPI of various nations around the world through the lens of complex adaptive systems, this study seeks to fill this gap in the literature. In order to comprehend the dynamics that affect both language proficiency and human development outcomes, we investigate the

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relationship between EPI and HDI. The ultimate goal of this research is to offer policymakers insights and methods for enhancing linguistic competence and human development.

Research Methods and Design

This study employs a descriptive design and quantitative methodology to investigate the relationship between English proficiency and human development across the globe. To gather the necessary data, the researchers used secondary sources from two metrics: the 2018 English Proficiency Index report [4] and the 2018 Human Development Index [6] derived from Human Development Reports. The data encompassed a wide range of nations, including both developed and developing countries. However, the study only utilized the 87 countries that had an English Proficiency Index in 2018.

To analyze the data, the researchers utilized a complex adaptive system model to examine the interactions between the English language and human development. The researchers deduced the emergent characteristics from the two characteristics identified in this study by examining the interactions between countries. Countries with comparable numbers of interactions were grouped together in the

histogram, and their shared characteristics determined the emergent characteristics.

To arrive at a comparable prediction of the emergent characteristics derived from the two characteristics of countries around the world, one must use the English proficiency index and the human development index as determining variables. This approach enables a more comprehensive understanding of the connection between language proficiency and human development as well as its possible implications for education policy and practice. Eventually, this study will provide useful information on the complex connection between language proficiency and human development and demonstrate the importance of incorporating these factors into education and development policies and programs.

Results and Discussion

Figure 1 is a histogram illustrating the correlation between the English Proficiency Index and the Human Development Index for 87 nations. Meanwhile, Figures 2 and 3 illustrate the relationship between these two variables within the two distinct clusters identified in this study by means of scatterplots. The scatterplots depict the emergent characteristics and the direction of the correlation between the two indices in each cluster.

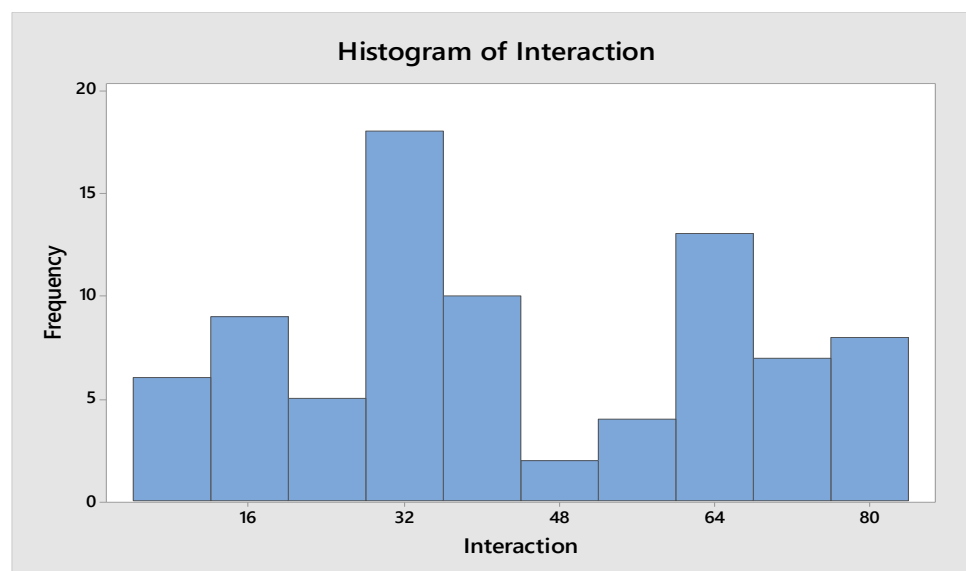


Figure 1: Histogram of the Interaction of the English Proficiency Index and the Human Development Index Across the Globe

As depicted in Figure 1, the histogram illustrating the interactions between the English Proficiency Index (EFI) and the Human Development Index (HDI) reveals the formation of two distinct clusters. The first cluster consists of nations with interactions ranging from 1 to 45, while the second cluster

consists of nations with interactions ranging from 46 to 95. These clusters allow for a more nuanced understanding of the relationship between EFI and HDI, highlighting potential differences in the role of language proficiency in driving human development across different nations.

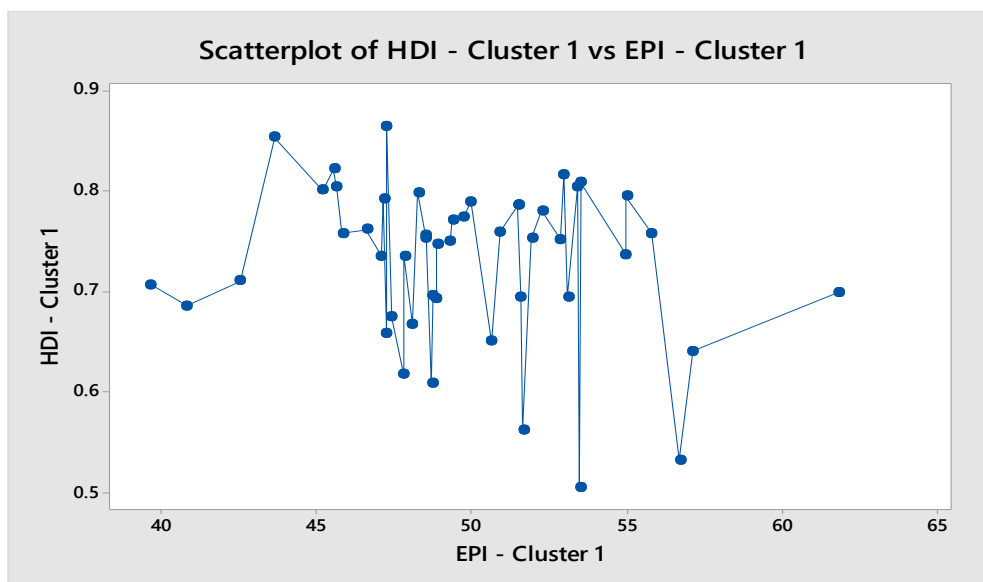


Figure 2: Scatterplot of English Proficiency Index versus Human Development Index of Countries in the First Cluster

The scatterplot depicted in Figure 2 reveals a discernible negative trend in the Human Development Index (HDI) as the English Proficiency Index (EPI) increases. Additionally, the graph shows a dispersion of data points for certain countries, while others are tightly clustered, specifically for those nations with EPI scores between 46 and 53 and HDI between 0.60 and 0.80. The close clustering of data points implies that there is little variation in HDI among countries within these identified ranges of EPI. Nonetheless, it is noteworthy that all countries within this cluster exhibit HDI values ranging between 0.5 and 0.86, suggesting that the capacity to learn English as a second language in these nations is limited to approximately 62%. These findings suggest that the trend toward human development is no longer

exclusively tied to the adoption of English as a second language.

Interestingly, the study of Guo and Beckett (2018) [5] conducted a systematic review of the literature about the relationship between English language proficiency and economic development. And they found out that the evidence is mixed. Some studies found a positive correlation, while others found no significant relationship. In fact, Du-Babcock and Imai (2019) [3], in their study on "The Use of Language in International Business: A Review of the Literature," found out that many non-English-speaking countries use their own language, or *lingua franca*, rather than English, in their business transactions.

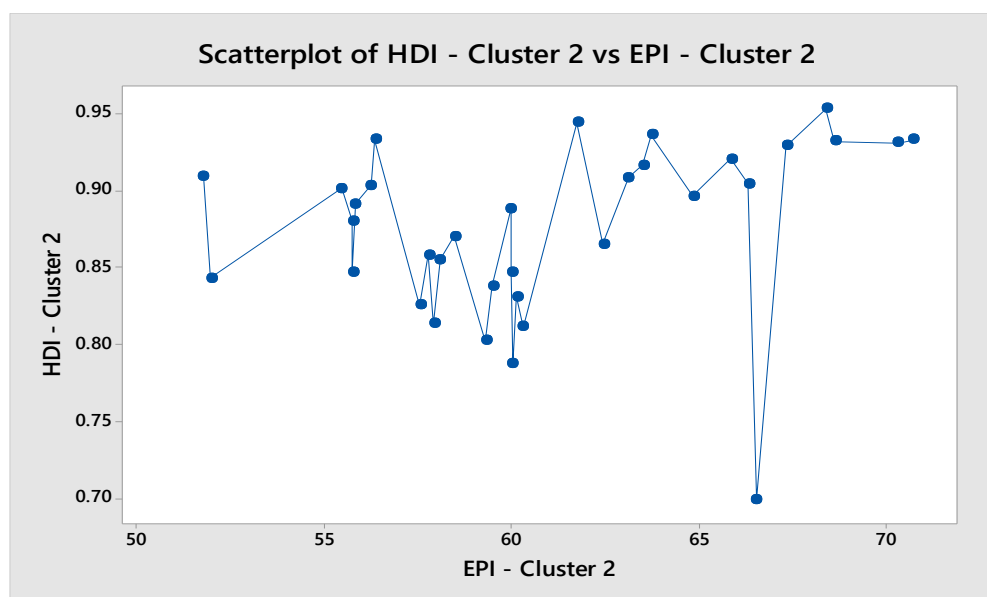


Figure 3: Scatterplot of English Proficiency Index versus Human Development Index of Countries Belonging to the Second Cluster

The scatterplot for the second cluster reveals a positive correlation between the English Proficiency Index (EPI) and the Human Development Index (HDI), indicating an upward trend of HDI as EPI increases. Countries in this cluster have an EPI range of 52 to 71 and an HDI range of 0.70 to 0.95. The data points in this cluster are more concentrated than in the first cluster, implying that there is less variability in HDI as EPI falls within the identified range. In other words, the second group appears to have a stronger correlation between human development and English language proficiency than the first. This result is consistent with the findings of Bexell and Riddell's (2014) [1] study, which suggests that a nation's improved English proficiency can lead to improved communication and coordination with international partners.

Conclusion

The findings of the study have resulted in several lessons. First, it appears that the human development of countries in the first cluster is not necessarily correlated with their English proficiency, whereas countries in the second cluster are most likely to use English as the foundation for their human development; second, regardless of how much effort has been exerted to learn English, there are countries that can only learn up to a maximum proficiency level of 60 percent; most likely, these countries do not see the value in learning English for other purposes; and third, the results shed a great deal of light on the teaching of students, particularly when it comes to understanding the differences in English language learning.

Conflict of Interest

The author declares no conflict of interest in the conduct of this research.

Acknowledgment

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