Socio-Economic and Technological Factors of English Proficiency Index

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Abstract

This study specifically aims to examine the English proficiency index of 54 countries worldwide and to find if there is a significant correlation between the English proficiency index of a country and some socio-economic technological factors. This study also aims to find if there are other factors that affect the English proficiency index of people which will be of great help for all stakeholders in making the right decisions in English teaching and assessment, and ultimately improve English proficiency index worldwide. Among all factors considered vis-à-vis English Proficiency Index, only government expenditure on public education manifests direct positive correlation to the 2012 EPI results of 54 countries under study. In brief, the level of English Proficiency of a country is a by-product of the amount its government invests in education.

Keywords: English Proficiency Index, Socio-Economic Technological Factors, Correlation.

1.0 Introduction

Proficiency index is one gauge of how much a person has mastered the elements of a language in human communication. It is achieved either by means of formal education or various experiential encounters with his environment. As defined by Margo Gottlieb (2006), it is a person's competence or ability to process and use the language across four domains that include listening, speaking, reading, and writing. The same author states that Language proficiency has two kinds, namely, (1)social language proficiency, which reflects everyday experiences, is acquired within the first year of interacting with a new language on a substantial basis while the other is, (2)academic language proficiency which refers to the language pattern and concepts acquired in processing, understanding, and communicating curriculum-based contents. There are five proficiency levels (please see Appendix A) and various instructional ideas for (see Appendix B) every level. For his part, Bachman (1990) defines proficiency as a representation of an individual's ability to use language regardless of how, where, or under what conditions it has been acquired.

Among the world's languages, some of the major known languages are Chinese, Spanish, German, Italian, French and English. Over others, Edward Finegan (Comrie, 2011) from the University of Southern California says that English is the only language worldwide which he found to be spoken with a wider dispersion and he thinks that such phenomenon is driven by the need for English in technological advancement, simplicity of its inflections, cosmopolitan character of its vocabulary, and social prestige as a consequence of its use.

Using Finegan's point plus the voluminous data about the internal factors that affect first or second language proficiency of individuals, this study looks into English proficiency in a broader spectrum by attempting to yield new data by determining if external factors such as public spending on education, internet use and hosting, cellphone and phone use,

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family income, years of basic education, literacy rate, unemployment, and foreign relational activities like export and import data, and foreign investments impact on English proficiency index of 54 countries monitored by Education First(EF) founded by Bertil Hult. EF (www.ef.com) was established in 1965 with the mission to eliminate language, cultural and geographical barriers. It has 460 schools and offices in more than 50 locations worldwide and specializes in language learning, educational travel, academic degrees, and cultural exchange programs. It is the publisher of the EF English Proficiency Index, the Official Language Training Supplier of the Sochi 2014 Winter Olympics and was doing the same during the Beijing 2008 Olympic Games (www.ef.com/epi).

The authors believe that an individual's EPI is defined by his interaction in the school, at home, and by his relational activities that enable him to deal with foreigners like migration, import and export, usage of the technological means of communication like phones, internet, and cellular phones.

Between the school and home, using English at home is a stronger predictor of English oral proficiency, while using English at school is a stronger predictor of English reading achievement (Hansen, 1989).

In their study of over 200 journal articles and reports, Genessee, Lindholm-Leary, Saunders and Christian (2005) have discovered among other things that oral proficiency in English as a second language(L2) is developed among non-native English learners over time. The same research suggests that it typically requires 3 to 5 years to achieve advanced proficiency in oral English. Progress from the beginning to middle levels of proficiency is relatively rapid, but progress from middle to upper levels of proficiency is slower due to some factors and programs that are relatively effective in improving English proficiency among ELLs in U.S. schools which are: (1)positive school environment, (2) curriculum that is meaningful and academically challenging, incorporated higher order thinking that is thematically integrated established a clear alignment with standards and assessment and was consistent and sustained over time, (3) a program model that was grounded in sound theory and best practices associated with an enriched, not remedial, instructional model; (4)teachers in bilingual programs who understood theories about bilingualism and second language development as well as the goals and rationale for the model in which they were teaching; (5)the use of cooperative learning and high-quality exchanges between teachers and pupils.

Jim Cummins (2006) of University of Toronto in his study on the relationship of American Sign Language (ASL) and learning English found that students, from both deaf and hearing home backgrounds, who have developed strong ASL proficiency have significantly better prospects for developing adequate English literacy skills. Goldin-Meadow and Mayberry (2001 as ctd in Cummins, 2006) emphasized the importance of early exposure or timing when they noted that children who were exposed to sign language for the first time in late childhood or adolescence turn out to be less proficient sign language users than those exposed to sign from birth and the same researchers added that those deaf individuals who acquire scant language (in sign or speech) during childhood never catch up in adulthood and do not attain native-like proficiency in any language, be it ASL or English.

The study of Carhill, Orozco, & Paez (2008) on English proficiency revealed the importance of schools and peer interventions when they found that aside from individual differences, the schools immigrants attend, and the time they spend in speaking English in informal social situations are predictive of their English language proficiency.

While for Adams and Galanes (2006), Language proficiency is the ability to express oneself clearly and concisely and to verbalize the group's goals, procedure, ideas, values, and ideals is an important leadership skill. Erika Hoff(2014) has articulated the significant role language has on an individual and

the internal factors that may affect it by saying that "success in modern industrialized society depends on having good verbal skills" that can be "problematic for some children due to socioeconomic status, migration, other conditions like intellectual disability, hearing impairment, or brain injury."

An individual's communicative activities enable him to learn a language by communicating not only by and to himself but also through dialogue and interaction with others. He also learns by means of the facilities and technology that enable him to use a language that he is most at home whether he travels abroad either to study or to work. English Proficiency Index (EPI) being a measure of an individual's facility of the language is an important tool used for school admissions in big and reputable universities of the world. As to employability, EPI is also used in determining if a job applicant meets the communication or language skills requirement of the job. Being an official language of the collegial body known as the United Nations, English is used in the area of foreign and trade relations so that EPI data can be of great help for stakeholders in education, business and government, overseas or local, to assess the English proficiency of their applicants.

This study, then, specifically aims to examine the English proficiency index of 54 countries worldwide and to find if there is a significant correlation between the English proficiency index of a country and socio-economic technological factor. This study also aims to find if there are other factors that affect the English proficiency index of people which will be of great help for all stakeholders in making the right decisions in English teaching and assessment, and ultimately improve English proficiency index worldwide.

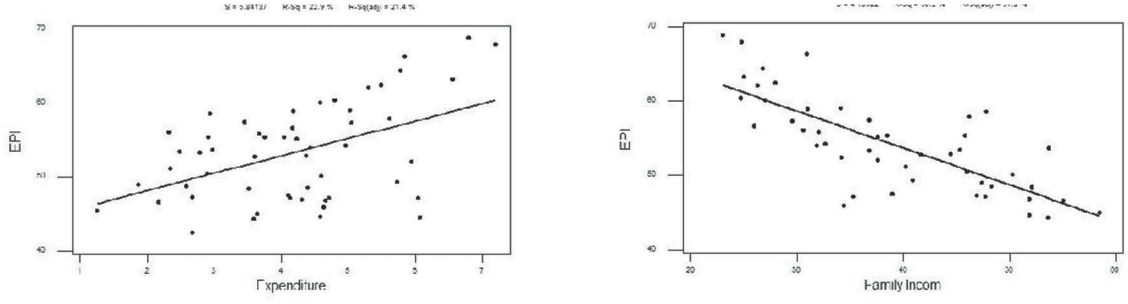
2.0 Methodology

Data from 54 countries were sourced from Education First (EF) English Proficiency Index (EPI) that were compared to variables namely: expenditure, family income index, internet use, exports, imports, number of internet hosts per country, migration rate, mobile cellular phones and main line in use per country.

Using Linear Correlation, the relationship among each of the variables was established. The generated scatterplot showed further the behaviour of the data against the fitted line. The coefficient of variation was also computed and the data were tabulated. To arrive at a more accurate model, a higher degree polynomial was fitted on the data.

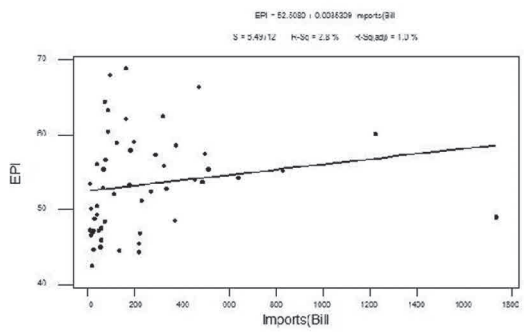
3.0 Discussions and Results

The following are the scatterplot of EPI vs. Socio-Economic Technological Factors together with the fitter line.

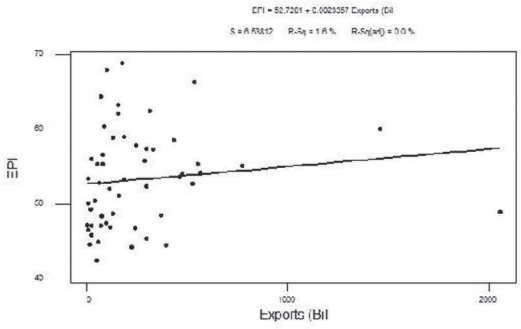


(a) EPI vs. Expenditure **(b) EPI vs. Family Income**

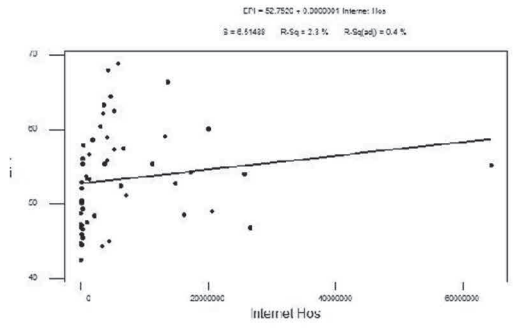
Figure 1: Regression of EPI vs. Socio-Economic Technological Factors



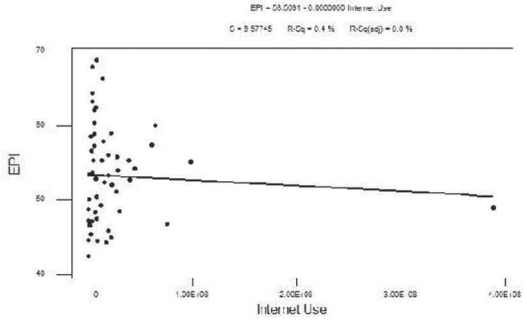
(c) EPI vs. Imports



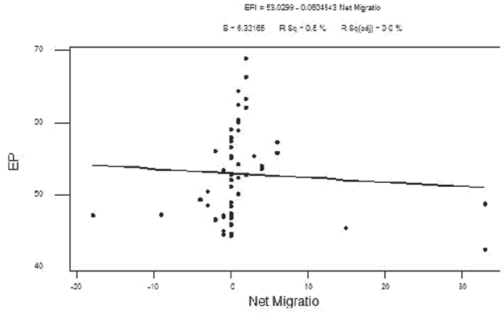
(d) EPI vs. Exports



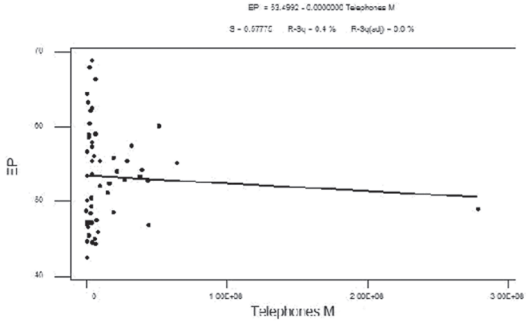
(e) EPI vs. Internet Host



(f) EPI vs. Internet Use

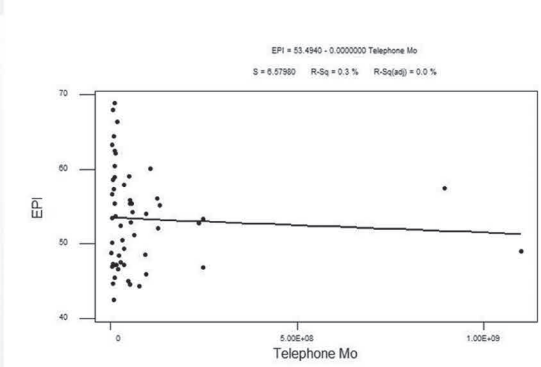


(g) EPI vs Net Migration



(h) Telephones Main Line in use

Figure 1: Regression of EPI vs. Socio-Economic Technological Factors



(i) EPI vs Telephone Mobile

Figure 1: Regression of EPI vs. Socio-Economic Technological Factors

Figure 1 shows that the behaviour of the data of the variables considered in the study, except for government expenditures on education and family income, do not follow the fitted line. Consequently, it is the family income index that has the majority of its data close to the fitted line.

Table 1: Correlation Coefficient and P-value of EPI vs. Socio-Economic Technological Factors

EPI vs ..	Correlation Coefficient(r)	Coefficient of Variation(r^2)	P-value
Public Expenditure	0.479	22.94%	0
Family Income Index	-0.763	58.22%	0
Exports	0.126	1.59%	0.363
Imports	0.168	2.82%	0.224
Internet Host per Country	0.151	2.28%	0.274
Internet Users per Country	-0.064	0.41%	0.647
Net Migration Rate per Country	-0.072	0.52%	0.610
Telephones Main Line in use per Country	-0.063	0.40%	0.650
Telephone Mobile Cellular per Country	-0.058	0.34%	0.677

Table 1 presents the computed correlation coefficient of the other variables to EPI. It exposes a strong correlation with EPI and expenditure, and EPI and family income index. Expenditure exhibits a positive correlation with EPI, while family income shows a negative correlation. This means that there is a direct relationship of the public expenditure on education. This would suggest that a high government expenditure on education will also induce a high proficiency index (EPI). Hence, in countries where the government allocated a big amount for the education of its citizens, their English Proficiency Index results are also high.

However, the higher the government expenditure on education is, the lower the family income will be. This is validated by the result generated by the correlation of government expenditure on education and family income index. This is the reason why EPI is inversely proportional to the Family Income. The inverse relation between Expenditure and Family income was induced to EPI vs. Family Income.

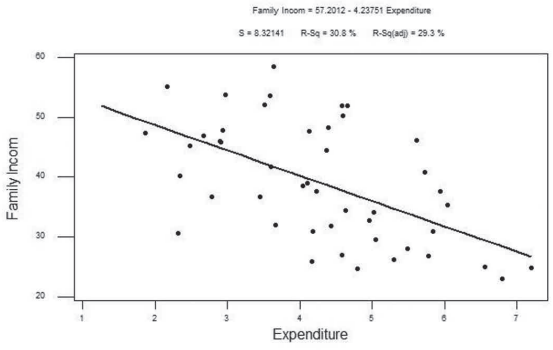


Figure 2: Regression Analysis on Family Income and Government Expenditure

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The regression equation  is

Family Income = 57.2012 - 4.23751

Expenditure

S = 8.32141       R-Sq = 30.8 %       R-Sq(adj) = 29.3 %

Analysis of Variance

Source             DF         SS         MS         F      P
Regression          1    1358.46    1358.46   19.6178 0.000
Error              44    3046.82      69.25
Total              45    4405.27

Pearson correlation of Expenditure and
Family Income Index = -0.555 P-Value = 0.000
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It is interesting to note that though the ability to converse and transact using the English language is necessary, proficiency in the language is not a requisite. Table 1 clearly shows that import and export data have a weak correlation with EPI. Technological factors like internet use, being an internet host, telephone main line and mobile phone use also manifested a weak correlation with EPI. This is understandable since communication using these modes do not necessitate proficiency in English.

To come up with a more accurate model of the relationship between EPI and government expenditures, a polynomial regression analysis was used.

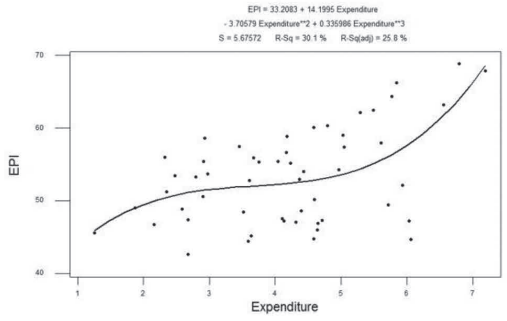

Figure 3: Regression of EPI vs. Expenditure (Cubic Function)

Polynomial Regression Analysis: EPI versus Expenditure

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The regression equation is
EPI = 33.2083 + 14.1995 Expendit- 3.70579 Expenditure**2
+ 0.335986 Expenditure**3

S = 5.67572      R-Sq = 30.1 %      R-Sq(adj) = 25.8 %
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Figure 3 indicates that a 30.1% variation of expenditure contributes to the variation in EPI. The coefficient of variation is higher than using a linear regression. The cubic function represents more accurate relationship between EPI and expenditure. This implies that government expenditure on education is contributory to English proficiency index.

4.0 Conclusion

While English Proficiency Index is important for one prospective student to qualify admission into a more challenging academic work in higher education institutions where English is used as official language, it is not absolute gauge of a sterling performance in actual academic performance.

Similarly, English proficiency is needed for one prospective jobseeker to be gainfully employed; but such is not also the absolute determinant of success in the workplace. Among all factors considered vis-à-vis English Proficiency Index, only government expenditure on public education manifests direct positive correlation to the EPI results of the 54 countries under study. In brief, the level of English Proficiency of a country is a by-product of the amount its government invests in education.

5.0 References

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APPENDIX

A. English Proficiency Levels (From Gottlieb, 2004b as ctd in Gottlieb, 2006:28).

Level	Comprehend(through listening and reading)	Produce (through speaking and writing)
5	Technical vocabulary and language patterns of content when presented with a variety of sentences of varying language complexity in extended discourse.	Cohesive, organized, and fluent language that includes technical vocabulary with developmental errors similar to those of proficient English peers.
4	Specialized and some technical vocabulary and language patterns of content when presented with a variety of sentences of varying language complexity	Organized language that includes specialized vocabulary with minimal errors that do not impede the overall meaning of the communication.
3	General and some specialized vocabulary and language patterns of content when presented with a variety of expanded sentences with some support.	Language with hesitancy that includes general and some specialized vocabulary marked with errors that may impede the communication but retain much of the meaning.
2	General high-frequency language related to content when presented with short sen- tences that have visual or graphic support	Halting language with high-frequency vocabulary marked with errors that tend to impede the meaning of the communication
1	Some language patterns (phrases and short sentences) when presented with visual and graphic support	Pictorial and graphic representation of the language with sporadic words, phrases, and memorized chunks of language.

B. Instructional Assessment Ideas for English Language Learners at Varying Language Proficiency Levels (Gottlieb, 2006:30)

Level 5	Justify and defend positions through speeches, multimedia reports or essays • Research and investigate academic topics using multiple resources • Explain relationships, consequences, or cause and effect • Debate issues • React and reflect on articles, short stories, or essays of multiple genres from grade – level materials • Author poetry: fiction, nonfiction for varied audiences
Level 4	• Explain processes or procedures with extended discourse/paragraphs • Produce original models, demonstrations, or exhibitions • Summarize and draw conclusions from speech and text • Construct charts, graphs, and tables • Discuss pros and cons of issues • Use multiple learning strategies
Level 3	• Compare and contrast objects, people, events with sentences • Outline speech and text using graphic organizers • Use information from charts, graphs, or tables • Make predictions, hypotheses based on illustrated stories, events, or inquiry • Take notes • Produce short stories, poetry or structured reports with support
Level 2	• Name and describe objects, people, or objects with phrases • Plot timelines, number lines, or schedules • Follow multiple step directions • Define and categorize objects, people, or events with visual or graphic support • Analyze and extract information in charts and graphs • Sequence pictures with phrases
Level 1	• Identify objects, illustrations, symbols, or words by pointing or naming • Match and label pictures and words • Follow one-step direction • Sort objects or illustrations with words into groups • Illustrate and label words in graphic organizers • Make collages or photojournals about stories or topics

Appendix C – 2012 EPI Results by Country

RANK		RANK	
1	Sweden	30	Taiwan
2	Denmark	31	Vietnam
3	Netherlands	32	Turkey
4	Finland	33	Peru
5	Norway	34	Costa Rica
6	Belgium	35	Morocco
7	Austria	36	China
8	Hungary	37	Qatar
9	Germany	38	Mexico
10	Poland	39	Chile
11	Czech Republic	40	Venezuela
12	Singapore	41	El Salvador
13	Malaysia	42	Syria
14	India	43	Ecuador
15	Switzerland	44	Algeria
16	Slovakia	45	Kuwait
17	Pakistan	46	Brazil
18	Spain	47	Guatemala
19	Portugal	48	Egypt
20	Argentina	49	UAE
21	South Korea	50	Colombia
22	Japan	51	Panama
23	France	52	Saudi Arabia
24	Italy	53	Thailand
25	Hong Kong	54	Libya
26	Uruguay		
27	Indonesia		
28	Iran		
29	Russia		

Source: http://www.ranking-lists.com/countries/countries/2012-english-proficiency-index-ef-epi