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Society's Level of Literacy: A Cross Cultural Study

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Society's Level of Literacy: A Cross Cultural Study

1. Background

According to Westby (2004), there are currently 875 million people in the world without access to literacy; 113 million of them are children who do not have access to school.

There are very significant differences between the levels of literacy in different countries, as demonstrated by a series of International Adult Literacy Surveys (IALS) that were conducted in 1994, 1998, 2001 in various countries (Blum, Goldstein, and Gue'rin-Pace 2001; Canada, Human Resources and Social Development 2003). For purposes of the IALS survey, literacy was defined as "the ability to understand and employ printed information in daily activities, at home, at work and in the community – to achieve one's goals, and to develop one's knowledge and potential" (OECD 2000). Three types of literacy were measured: prose, document, and quantitative. Prose literacy denotes the "knowledge and skills needed to understand and use information from texts including editorials, news stories, brochures, and instruction manuals." Document literacy relates to "the knowledge and skills required to locate and use information contained in various formats, including job applications, payroll forms, transportation schedules, maps, tables and charts" and quantitative literacy refers to "the knowledge and skills required to apply arithmetic operations, either alone or sequentially, to numbers embedded in printed materials, such as balancing a check book, figuring out a tip, completing an order form, or determining the amount of interest on a loan from an advertisement."

Recognizing the importance of literacy and education, the Organization for Economic Cooperation and Development (OECD) initiated the Program for International Student Assessment (PISA) that was jointly developed by the participating countries (41-57 countries) and administered to 15-year-olds in schools. PISA assesses how well students, who are nearing the end of compulsory education, have acquired some of the knowledge and skills that are essential for full participation in society as adults. As of this writing, three assessment cycles have been conducted, in 2000, 2003 and 2006. On the basis of the test results, the participating countries were ranked and the ranking published.

Low levels of literacy and general education can impede the economic development of a country in today's rapidly changing, technology-driven world. Literacy is a key factor that contributes to countries' economic growth and development, quality of life and international standing, beyond the clear advantages it has for the individual's life. Hence, a UNESCO initiative aims to improve level of schooling and levels of adult literacy by 2015 (Dakar EFA goals) (UNESCO 2006).

However, the initiative to acknowledge this fact and the decision to fight illiteracy and promote literacy can grow out of many different motivations, as the cases of China and Tanzania demonstrate. At first, the eradication of illiteracy was part of the struggle for social equality that characterized the initial transition to socialism in Tanzania and to communism in China. However, since the 1970s, both countries' government policy has focused on modernization and economic growth, which has led to changes in the motivations behind their educational policy. In China, priority was placed on those areas where the best returns on the investment were anticipated (coastal areas rather than inland, rural regions). In Tanzania, the orientation of schooling changed and it is now guided by academic excellence, certification and skills acquisition directed towards a human resource development model rather than social transformation aiming to create a "socialist person" (Stites and Semali 1991).

The differences between countries' percentages of literacy and educational levels lead to questions regarding the causes for these variations. Why do some countries attain better results? This question was raised by Le Metais and Tabberer (1997) who looked at the main reasons for international differences in student achievement. Le Metais and Tabberer compared the characteristics of 16 nations' value systems, in order to construct national profiles that reflected national contexts and priorities and then related them to each country's educational system. Researchers have suggested several different explanations for this phenomena, mostly related to demographic variables (e.g. Parsons and Bynner 1998; New Zealand, Ministry of Education 2005).

In this study, the relationship between the country's level of literacy and its national culture will be explored. Cultural differences effect the way that people think and react. Culture is "the value shared amongst distinctive social groups and classes" (Soley and Pandya 2003, 206). House, *et al.* (2004, 57) define culture as "shared motives, values, beliefs, identities, and interpretations or meanings of significant

events that result from common experiences of members of collectives and are transmitted across age generations." Dutch anthropologist Geert Hofstede (1991) considers culture to be "the collective programming of the mind. Culture is a stem of collectively held values" (Hofstede 1981, p. 240).

Hofstede's research on national cultural differences, published in 1980, was the first major study that converted national culture into quantitative variables. The research was conducted using questionnaires completed by 116,000 employees of IBM from 50 countries. Questions relating to the employees' values gave expression to differences between countries in four cultural dimensions: Power Distance Index (PDI), Individualism (IDV), Masculinity (MAS), and Uncertainty Avoidance (UAI). Later, a fifth dimension was added: Long Term Orientation (Hofstede and Bond 1988; Hofstede 2001). Hofstede successfully linked cultural dimensions to managerial practice. Since that time, many additional studies have been conducted using cultural data to understand human behavior (e.g. Sivakumar and Nakata 1999; Sondergaard 1994).

Furthermore, studies in other subject areas attempt to explain differences between countries by referring to their cultural characteristics. Examples include the research of Veiga *et al.* (2001) that deals with the disparity in ease with which IT was accepted and implemented in different countries and Van Everdingen and Waarts' (2003) study on the effect of national culture on the adoption of innovations. Furer, Liu and Sudharshan (2000) argue that perceptions of service quality vary across cultural groups, as defined by each culture's score on Hofstede's dimensions. In the area of international marketing, there has also been a considerable amount of research that focuses on explaining the differences between countries on the basis of cultural variables (e.g. Keillor, Tomas, Hult 1999).

Although Hofstede's cultural dimension index is still a key tool for the empirical evaluation of culture (Crotts and Erdmann 2000; Downey *et al.* 2005; Dwyer *et al.* 2005), other researchers have augmented and refined his index of cultural characteristics. Another classification of culture was proposed by Shalom Schwartz (1994), who identified three fundamental value pairs distinguishing all cultures: autonomy versus embeddedness; hierarchy versus egalitarianism and mastery versus

harmony (1999). These variables are well known and widely used in international research in many fields.

A newer scale proposed by House, *et al.* (2004) is based on research done in 62 different societies and cultures and defines nine cultural dimensions: Uncertainty Avoidance, Power Distance, Institutional Collectivism, Gender Egalitarianism, Assertiveness, Future Orientation, Performance Orientation, and Human Orientation. The cross-cultural GLOBE study (House, *et al.* 2004) tried to explain the relationships between different leadership patterns and organization's practices and society's culture, using data gathered from 17,370 middle managers working in 951 different local organizations in 62 countries, chosen from the following industries: food processing, financial services, and telecommunication services. The indices were calculated on the basis of 371 cultural items relating to organizational culture and societal culture. The respondents were asked to rate, on a scale of 7 points, how things are ("As Is" items) and also how things should be ("Should Be" items) in the organization where they work and in their society. Leung (2006, 881) called the GLOBE study, "probably the most sophisticated project undertaken in international business research."

2. Methodology

Sample

The sample used in this study includes 56 of the countries that House, *et al.* (2004) included in the GLOBE study of culture variables, omitting countries with multiple scores, like South Africa where the black and white populations were scored separately. The list of countries may be found in the Annex. The sample is very diverse; it contains countries from all continents and of all types of wealth.

The Variables

The source of data for the dependent variable, literacy, and all other independent variables, other than culture, is *CIA World Fact Book 2007*. Data from 56 countries selected on the basis of data availability from the GLOBE study culture indices (House, *et al.* 2004) and updated as of 30 August 2005 was used.

differ is in the extent to which each prescribes and proscribes different roles for women and men.

In the GLOBE project, House, *et al* (2004) defined gender egalitarianism as "the beliefs about whether members' biological sex should determine the role they play in their homes, business organizations, and communities" (p. 347). The GLOBE project measured gender egalitarianism on the societal level by asking the participating managers to complete two scales: one that assessed their perceptions of the current degree of gender egalitarianism in their society (practices, "As Is") and another that assessed their perceptions of the ideal degree of gender egalitarianism in their society (values, "Should Be"). The same method was used for organizational gender egalitarianism.

The Socio-Economic Variables

1. **Population** or the number of inhabitants in each country. Population figures are based on estimates made by the United States Census Bureau, based on statistics from population censuses, vital statistics registration systems or sample surveys pertaining to the recent past and assumptions about future trends.

2. **Gross Domestic Product Per Capita** (GDPPC) is the country's Gross Domestic Product (GDP) divided by population as of 1 July 2006 and expressed on the basis of purchasing power parity (PPP).

3. The **Gini Index** (Distribution of family income): In this paper, economic inequality is measured using the Gini Index, which assesses the extent to which the distribution of income among households within a country deviates from a perfectly equal distribution. If income were distributed with perfect equality, the index would be zero; if income were distributed with perfect inequality, the index would be 1.

4. **Budget/Population** ratio between the government budget and the country's population. The budget includes both expenditures and capital expenditures. These figures were calculated on an exchange rate basis rather than in terms of purchasing power parity.

5. The **Globalization** variable reflects the scope of interactions between the country and the world. An acceptable measure for this is the ratio between the sum of import and export in relation to the GDP, $\frac{IMPORT(\$) + EXPORT(\$)}{GDP(\$)}$.

3. Analysis

We conducted a Kolmogorov-Smirnov Goodness-of-Fit test on the dependent variable. The results showed that the P-Value of the test was 0.008. meaning that the dependent variable, literacy, lacks a normal distribution. Since our sample was small, it is probable that the distribution of errors is abnormal. To bypass this problem we converted the dependent variable (literacy) into a binary variable with 1 representing countries with a higher than the average percentage of literacy and 0 representing countries with a lower than the average percentage of literacy. Table 1 displays the results of the Logit regression. Since the sample includes only 56 observations, the degrees of freedom (FD) allowed us to use a maximum of seven independent variables.

Table 1: LOGIT Regression For Literacy

Variable	**Coefficient**
C	-78
Population	-0.073^{+}
GDPPC	0.002*
Gini	-0.528*
Budget/Population	-2.88*
GLOB	-10.7*
GE	17.8*
PD	7.9
Cox & Snell R Square .654 Nagelkerke R Square .902	

The table displays the connections that were found between the level of literacy and the economic and social variable and the cultural variables. Since there is no Adjusted

R Square for the Logit regression, we used two alternatives, the Cox & Snell R Square and the Nagelkerke R Square. As the table shows, both are high, which means that the degree to which the independent variables explain the literacy regression is high.

The cultural variables used in the regression were Gender Egalitarianism (GE) and Power Distance (PD); the first was found to be significant but not the latter. The less separation there is between men and women and the less discrimination against women in a nation's social culture, the larger the number of people in the country who know how to read and write. Although PD was not found to be significant, it is worthwhile noting that it has a positive influence on the likelihood that people in the country are literate.

Analysis of the data presented in Table 1 shows that when the size of the population increases the likelihood of a high literacy rate drops significantly. This means that a country like China or India can be expected to have a lower literacy rate than countries with smaller populations.

A significant, positive connection was found between the GDPPC and literacy. Wealthier countries, with a higher *per capita* product, tend towards a higher literacy rate. This can be explained by the fact that wealthy countries are able to allocate more resources, both private and public, to education.

Countries with a less equal distribution of income, as measured by the Gini Index, were found to have a significantly smaller number of literate people. Similarly, where the national budget/population is higher, the level of literacy was found to be significantly lower. This result could be used to support claims for a free-market policy with a low level of government intervention since it shows that a high level of government spending leads to a lower level of literacy.

The globalization (GLOB) finding is particularly interesting. The higher a country's GLOB score, the more likely it is to have a lower number of people who know how to read and write. Apparently, this result is reasonable when considering that manner in which the GLOB index is calculated (see the section on the Socio-Economic Variables, above). Particularly impoverished countries tend to import many products, including investment goods that they are unable to produce. Therefore, countries with a low GDP combined with a comparatively high level of imports have a high GLOB

score. For example, Guatemala received a high score on the globalization index, as did Georgia, Zimbabwe and Zambia while the United States, which produces many products and services for its own domestic market, scored low.

4. Discussion and Conclusions

This study examined the level of literacy in 56 different countries on all continents. Literacy levels were examined in light of the economic and social characteristics of the countries included in the sample. The research results lead to the conclusion that the more egalitarian a society is, the higher its literacy level. This is evident in the following findings: societies or cultures that show less discrimination against women and have a higher level of Gender Egalitarianism also have a higher level of literacy. Similarly, countries with a lower Power Distance are more likely to have a higher level of literacy (although this connection was not found to be statistically significant). The Gini index, which measures to distribution of income in a country, reinforces the assertion that there is a connection between a society's equality level and its literacy rate.

It was also found that wealthier countries have a higher literacy rate while the other economic and social variables point to the conclusion that large population, unequal income distribution, a high national budget per population and a high globalization index contribute to a increased likelihood of a low literacy rate.

The findings regarding social inequality (GE and PD), unequal distribution of income and population size can be understood. The findings regarding large budget/population and a high globalization score raise questions. A large national budget per person is indicative of centralization, government involvement in the economy and a limited free market. It would appear that systems, especially educational systems are more effective when there is room for independent initiatives. Regarding globalization, a high score is characteristic of poor nations that must import finished products while exporting mostly raw materials.

This study is innovative in that it relates not only to quantitative economic indices but also the cultural indices. It points to a positive connection between a more egalitarian society with free markets and a higher level of literacy.

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Annex: List of Countries

Albania
Argentina
Australia
Austria
Bolivia
Brazil
Canada
China
Colombia
Costa Rica
Denmark
Ecuador
Egypt
El Salvador
England
Finland
France
Georgia
Greece
Guatemala
Hong Kong
Hungary
India
Indonesia
Iran
Ireland
Israel
Italy
Japan
Kazakhstan
Kuwait
Malaysia
Mexico
Morocco
Namibia
Netherlands
New Zealand
Nigeria
Philippines
Poland
Portugal
Qatar
Russia
Singapore
Slovenia
South Korea
Spain
Sweden
Switzerland
Taiwan
Thailand
Turkey
United States
Venezuela
Zambia
Zimbabwe