

Cultural Differences of Nations and the Reporting of Intellectual Capital

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Abstract

Hypothesis: variations in intellectual capital disclosures are related to the cultural differences of nations. Twenty-six studies analyzing the intellectual capital disclosure for twenty-one countries were used to obtain disclosure measures. Hofstede's four dimension cultural model provided measures of the culture of these twenty-one countries. A multivariate regression analysis related the three categories of intellectual capital (structural, human and relational capital) to the four dimensions of culture (power distance, individualism, masculinity and uncertainty avoidance). Structural capital was found to be related to power distance and uncertainty avoidance; human capital to both power distance and individualism; and relational capital to individualism.

Keywords: Intellectual Capital, Culture, Hofstede, National

Introduction

Intellectual capital disclosure has been proposed as a means to improve external reporting. Improvements can be grouped into five categories: 1) closing the gap between book value and market value, 2) providing improved information about the “real value” of the organization, 3) reducing information asymmetry, 4) increasing the ability to raise capital by providing a valuation on intangibles, and 5) enhancing an organization's reputation [Andriessen (2004)]. Numerous studies have investigated the intellectual capital disclosure for many different countries and have noted differences in both the amount of disclosure and the relative amounts of disclosure (for a review see Dielis (2007)).

Several studies have questioned whether the intellectual capital disclosure differences among countries may be due to cultural differences among nations. Chaminade and Johanson (2003) argue that the amount of intellectual capital disclosure as well as the approach taken will vary across countries due to differences in national culture. Herremans and Isaac (2007) studied intellectual capital disclosure at the organizational level, testing whether differences in the development and emphasis of intellectual capital differs with culture. Dielis (2007) compared the level of intellectual capital disclosure for seven countries, finding the level varied across countries and that culture is a driver of the level of disclosure.

Similarly, studies have investigated whether national culture influences differences in national accounting practices and financial reporting in general. Gray (1988) has postulated that national culture influences national reporting characteristics such as uniformity/flexibility, conservatism/optimism, and secrecy/transparency. Ding, Jeanjean and Stolowy (2005) found that the level of harmonization of international reporting standards and national standards were related to measures of national culture while Jaggi and Low (2000) had mixed results in relating culture with financial disclosures. Hope (2003), on the other hand, found that cultural differences have an explanatory power for financial disclosure levels. MacArthur (2006) investigated the impact of culture on management accounting practices in Germany and the US and found that variations in culture leads to differences in practices.

This paper will focus on intellectual capital disclosure rather than financial reporting and will investigate whether the relative differences in which types of intellectual capital are being disclosed differs across countries and whether the differences can be explained by differences in the national cultures.

1. Cultural Differences of Nations

Hofstede has defined culture as “...the collective mental programming of the human mind which distinguishes one group of people from another.

This programming influences pattern of thinking which are reflected in the meaning people attach to various aspects of life and which become crystallized in the institutions of a society.”

(<http://geert-hofstede.com/countries.html>)

Cultural differences can be measured along six dimensions of culture (Hofstede, Hofstede, Minkov (2010)). These six dimensions are (1) power distance, (2) individualism versus collectivism, (3) masculinity versus femininity, (4) uncertainty avoidance, (5) long-term versus short-term orientation, and (6) indulgence versus restraint. The fifth (long-term versus short-term orientation) and sixth (indulgence versus restraint) dimensions have not been measured for as many countries and will be excluded from this study. The four dimensions can be described as follows (Hofstede, Hofstede, Minkov (2010)):

Power distance (PDI) is the degree to which the less powerful members of society accept and expect that power is not distributed in an equal fashion. The basic issue is how inequalities among people are handled by society. A culture with a large degree of power distance will have a hierarchical order in which everybody has a place while a culture with a low power distance strives to equalize the distribution of power.

Individualism (IDV) is the preference for a loose social framework where individuals are expected to take care of themselves and their immediate families only. Collectivism is a tightly-knit society in which individuals can expect their relatives or associated group members to look after them in exchange for unquestioning loyalty.

Achievement orientation (ACH) has traditionally been labeled Masculinity/Femininity. Masculinity is a preference for achievement, heroism, assertiveness and material reward for success. A masculine society as a whole is more competitive. Femininity is a preference for cooperation, modesty, caring for the weak and quality of life. A feminine society as a whole is more consensus-oriented.

Uncertainty avoidance (UAI) is the extent to which people feel threatened or uncomfortable with uncertainty and ambiguity. Countries with a strong uncertainty avoidance maintain rigid codes of belief and behavior and are intolerant of the unorthodox. Countries with weak uncertainty avoidance maintain a more relaxed attitude in which practice is more important than principles.

2. Intellectual Capital Disclosure

There have been numerous taxonomies used to categorize intellectual capital disclosure. Sveiby (1997) classifies intellectual capital as employee competence, internal structure, and external structure. Stewart (2001) uses the terms human capital, structural capital, and customer capital. Edvinsson (2002) uses just two categories, human capital and structural capital, combining internal structural capital with customer (Stewart) or external structure (Sveiby). Most studies that have followed have used a three factor breakdown: human capital, structural capital, and customer capital. More recent studies have used the term relational capital rather than customer capital.

Gudergan and Soo (2001) considered several relationships between intellectual capital disclosure and Hofstede's cultural dimensions. Gudergan and Soo argued that both structural capital and relational capital are linked to interactions either within a collective or between collectives and that these interactions would be weaker in those societies that are characterized as more individualistic. They also argued that the relationship between intellectual capital and collectivistic cultures is greater for structural capital than for relational capital. Finally, they proposed that structural and relational capital will be greater in cultures with a lower degree of power distance or a lower degree of uncertainty avoidance. All of these proposed relationships (with the exception of the second) relate to the amount of disclosure, not differences between categories.

Numerous studies have presented the results of an analysis of the degree of intellectual capital disclosure for either a single country or a small sampling of countries. Most of the studies to date have been descriptive, describing how much intellectual capital disclosure exists and the breakdown of the disclosure into the categories of intellectual capital. This study attempts to measure the differences in the categories of intellectual capital disclosure and to relate this to differences in the measures of national culture. To that end, past studies are used in a meta-analysis to compare the three categories of intellectual capital disclosure with the four cultural dimensions.

Propositions

Past studies have shown that the level of intellectual capital disclosure varies across countries. Is the relative proportion of intellectual capital that is disclosed the same for all three categories?

Proposition #1: The relative amount of intellectual capital disclosures differs among nations.

Past studies have also proposed that the variations in national accounting systems are related to the culture of the countries. In addition, it has been shown that different nation's responses to international accounting standards are also related to national cultural differences. Since intellectual capital disclosure is a form of non-financial performance measures and is included in the accounting annual reports, are similar cultural differences seen in the intellectual capital disclosures?

Proposition #2: Variations in intellectual capital disclosures among nations are related to the cultural differences of nations.

Data and Sample

Twenty-six studies were identified that analyzed intellectual capital disclosure. These studies were published between 2000 and 2011, and investigated twenty-one different countries. The object of study was the intellectual capital disclosure in an organization's annual report (24 studies) or initial public offering (IPO) registration statements (2 studies). All 26 studies used a form of content analysis to quantify the intellectual capital disclosure (see Guthrie and Petty (2000) for a discussion of content analysis). Sample sizes ranged from a low of 11 organizations to a high of 334. Twenty-four of the studies analyzed for-profit organizations; two studies (Steenkamp (2007) and Holmen (2011)) also included not-for-profit and/or governmental organizations. Table One presents an overview of the studies.

Table 1: Sample Characteristics

Author	Year of Publication	Country	Sample Size	Year of Sample	Annual Report or IPO
Guthrie and Petty	2000	Australia	20	1998	AR
Brennan	2001	Ireland	11	1998	AR
April, Bosma & Deglon	2003	South Africa	20	2000	AR
Bozzolan, Favotto and Ricceri	2003	Italy	30	2001	AR
Goh & Lim	2004	Malaysia	20	2001	AR
Abdolmohammadi	2005	US	58	1993-1997	AR
Abeysekera and Guthrie	2005	Sri Lanka	30	1998, 1999	AR
Bukh, Nielsen, Gormsen and Mouritsen	2005	Denmark	68	1990-2001	IPO
Vandemaële, Vergauwen and Smits	2005	Netherlands Sweden UK	20 20 20	1998,2000,2002	AR
Guthrie, Petty & Ricceri	2006	Australia Hong Kong	50 100	2002	AR
Oliveira, Rodrigues & Craig	2006	Portugal	56	2003	AR
Dielis	2007	France Germany Italy Netherlands Spain Sweden US	25 25 25 25 25 25 25	2004-2006	AR
Singh and Van der Zahn	2007	Singapore	334	1997-2004	IPO
Steenkamp	2007	New Zealand	30	2004	AR
Sujan & Abeysekera	2007	Australia	20	2004	AR
Abeysekera	2008	Singapore Sri Lanka	20 20	1998-2000	AR
Oliveras, Gowthorpe, Kasperskaya & Perramon	2008	Spain	12	2000-2002	AR
Schneider & Samkin	2008	New Zealand	82	2004/2005	AR
Sonnier	2008	US	143	2000, 2004	AR
Sonnier, Carson & Carson	2008	US	141	2000, 2004	AR
Whiting and Miller	2008	New Zealand	70	2003	AR
Rimmel, Nielsen & Yosano	2009	Japan	120	2003	AR
Yau, Chun & Balaraman	2009	Malaysia	60	2003	AR
Yi & Davey	2010	China	49	2006	AR
Holmen	2011	Denmark	16	2000-2006	AR
Singh & Kansal	2011	India	20	2009	AR

Most of the studies investigated a single country (22 of the studies), two studies investigated two countries, one study investigated three countries, and one study investigated seven countries. Ten countries were investigated once, eight countries were investigated twice, two countries three times, and one country was investigated in four separate studies.

The metric that is used is the proportionate breakdown of the three forms of intellectual capital: structural capital, human capital, and relational capital. Some of the studies reported the proportions, other studies reported a frequency for each. In this second case, a proportion was calculated by taking the category frequency divided by the total frequency for all three categories.

When multiple studies analyzed a country, the proportionate breakdowns of intellectual capital disclosure were averaged into a single value. Table Two presents the descriptive statistics for structural, human, and relational capital.

Table 2: Sample Statistics

	<i>Structural</i>	<i>Human</i>	<i>Relational</i>
Mean	0.364	0.272	0.365
Standard Error	0.017	0.015	0.019
Median	0.345	0.259	0.389
Minimum	0.215	0.097	0.194
Maximum	0.490	0.407	0.488

Findings

The first proposition analyzed was whether the reported values for each category of ICD differed among countries. This was tested with a simple t-test for difference of means. The difference observed between human capital (0.272) and either structural capital (0.364) or relational capital (0.365) was statistically significant at the 1% level. The difference between structural capital and relational capital was not significant.

Table 3: Difference in Means

	<i>Structural</i>	<i>Human</i>	<i>Structural</i>	<i>Relational</i>	<i>Human</i>	<i>Relational</i>
Mean	0.364	0.272	0.364	0.365	0.272	0.365
Variance	0.006	0.005	0.006	0.007	0.005	0.007
Pooled Variance	0.005		0.007		0.006	
Observed Difference	0.092		-0.001		-0.093	
df	40		40		40	
t Stat	4.070		-0.036		-3.895	
P(T<=t) two-tail	0.000		0.972		0.000	

The second proposition analyzed was whether the variations in intellectual capital disclosures were related to the cultural differences of nations. This proposition was first tested using a multivariate regression analysis. The form of the general linear model was:

$$\text{Structural, Human, Relational} = \text{intercept} + \alpha \text{ Culture: PDI} + \beta \text{ Culture: IDV} + \chi \text{ Culture: ACH} + \delta \text{ Culture: UAI}$$

Where:

- Structural = % ICD being structural capital
- Human = % ICD being human capital
- Relational = % ICD being relational capital

and culture values being taken from Hofstede (2010):

- Culture: PDI = power distance
- Culture: IDV = individualism/collectivism
- Culture: ACH = achievement orientation (masculine/feminine)
- Culture: UAI = uncertainty avoidance

To derive estimates of the coefficients, three separate univariate regression models were estimated. The individual coefficients, as well as their standard errors will be the same for a univariate regression as those produced by the multivariate regression. The three models that were estimated were:

$$\text{Structural} = \text{intercept} + \alpha_1 \text{ Culture: PDI} + \beta_1 \text{ Culture: IDV} + \chi_1 \text{ Culture: ACH} + \delta_1 \text{ Culture: UAI}$$

$$\text{Human} = \text{intercept} + \alpha_2 \text{ Culture: PDI} + \beta_2 \text{ Culture: IDV} + \chi_2 \text{ Culture: ACH} + \delta_2 \text{ Culture: UAI}$$

$$\text{Relational} = \text{intercept} + \alpha_3 \text{ Culture: PDI} + \beta_3 \text{ Culture: IDV} + \chi_3 \text{ Culture: ACH} + \delta_3 \text{ Culture: UAI}$$

Table Four presents the estimates for the three regression models:

Table 4: Univariate Regression Models

		Intercept	Culture: PDI	Culture: IDV	Culture: ACH	Culture: UAI
Panel A: Structural Capital						
Full model	coefficients	0.150	0.002	0.001	0.000	0.001
	p-value	0.212	0.114	0.578	0.686	0.051
R ²	39.5%					
Reduced	coefficients	0.220	0.001	-	-	0.001
	p-value	0.000	0.047	-	-	0.027
R ²	37.5%					
Panel B: Human Capital						
Full model	coefficients	0.608	-0.002	-0.003	0.000	-0.001
	p-value	0.000	0.020	0.007	0.432	0.292
R ²	45.8%					
Reduced	coefficients	0.578	-0.003	-0.003	-	-
	p-value	0.000	0.011	0.004	-	-
R ²	38.3%					
Panel C: Relational Capital						
Full model	coefficients	0.243	0.001	0.002	0.000	-0.001
	p-value	0.098	0.691	0.110	0.824	0.335
R ²	28.0%					
Reduced	coefficients	0.267	-	0.002	-	-
	p-value	0.000	-	0.027	-	-
R ²	23.1%					

Panel A of Table Four presents the regression results for structural capital. The full model includes all four dimensions of culture and yields an R² of 39.5%. The F-statistic for this model is 2.61, which has a p-value of .07. A stepwise regression yields a reduced model with two significant culture variables: PDI and UAI. The R² of this reduced model is 37.5% with an F-statistic of 5.40 (p-value = .01). In addition, the coefficients for the culture variables are positive; the higher the PDI or UAI score, the greater the proportion of structural capital in the intellectual capital disclosure. It can be inferred from this that a nation with a higher PDI score will be a more hierarchical society; structural capital contains such items as models and computer systems, strategy, structures, routines and procedures, all of which relate to hierarchy. A nation with a higher UAI would feel threatened by ambiguous or unknown situations; the society would value more structure.

Panel B presents the regression results for human capital. The full model includes all four dimensions of culture and yields an R² of 45.8%. The F-statistic for this model is 3.38, which has a p-value of .03. A stepwise regression yields a reduced model with two significant culture variables: in this case PDI and IDV. The R² of this reduced model is 38.3% with an F-statistic of 5.58 (p-value = .01). In this case, however, the coefficients for the culture variables are negative; the higher the PDI or IDV score, the lower the proportion of human capital in the intellectual capital disclosure. Since human capital consists of employee competence and the capacity to create value, a negative coefficient for PDI infers that the more hierarchical the culture, the less human capital will be disclosed. Similarly, the higher the individualism score, the less human capital will be disclosed. The converse is also true: the lower the individualism score, the more collective the culture and the more human capital will be disclosed.

Panel C presents the regression results for relational or customer capital. The full model includes all four dimensions of culture and yields an R² of 28.0%. The F-statistic for this model is 1.55, which has a p-value of .23. A stepwise regression yields a reduced model with a single significant culture variable: IDV. The R² of this reduced model is 23.1% with an F-statistic of 5.70 (p-value = .03). The coefficient for the culture variables is positive; the higher the IDV score, the greater the proportion of relational capital in the intellectual capital disclosure. This result is contrary to Gudergan and Soo's conjecture that relational capital would be weaker in those societies that are characterized as more individualistic.

Conclusions and Limitations

The first major conclusion of this study is that the differences seen among nations in the categories of intellectual capital disclosure are statistically significant. The differences between either structural capital and human capital or relational capital and human capital are significant at the .01 level of significance. The differences observed between structural and relational capital are not statistically significant.

The second major conclusion is that there is a statistically observed relationship between several of Hofstede's cultural dimensions and the categories of intellectual capital disclosure. Structural capital is seen to be statistically related to the cultural dimensions of power distance and uncertainty avoidance. Human capital is seen to be statistically related negatively to power distance and individualism. Relational capital is statistically related only to individualism.

There are a number of limitations to this study. First, since this was a meta-analysis of previous research, there is no guarantee that all relevant studies were represented. Second, half of the countries studied were done so by a single study; only one country was investigated more than three times. Third, although content analysis was used as the means to measure intellectual capital disclosure, there were minor differences in the terms used in the analysis. Fourth, while most of the studies used a company's annual report as the basis of analysis, two studies used IPO registration statements.

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