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**Environmental exploitation vs. ecological sustainability:
Worldview differences in the coverage of natural resources
in Spanish and Costa Rican on-line newspapers**

by

Lorena Corbin

A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
MASTER OF SCIENCE

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Major Professor: Eric A. Abbott

Iowa State University

Ames, Iowa

1998

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Graduate College
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This is to certify that the Master's thesis of
Lorena Corbin
has met the thesis requirements of Iowa State University

Signatures have been redacted for privacy

TABLE OF CONTENTS

1	INTRODUCTION	1
	Problem statement	2
	Objectives of the study	3
2	IDIOSYNCRACIES OF COSTA RICA AND SPAIN	5
	Costa Rica: society and democracy	5
	Costa Rican homogeneity	6
	Social well-being	6
	Biodiversity wealth	7
	Economic situation	8
	<i>La Nación</i>	10
	Spain: mastering passion with business	11
	Self-sufficiency period: the post-civil war years	12
	Natural Environment	14
	<i>El País</i>	15
3	LITERATURE REVIEW	17
	Environmental symbology	17
	Media and the environment	19
	Environmental paradigms	21
	Proximity of the issue	23
	Hypotheses	24

Hypothesis 1	25
Hypothesis 2	25
Hypothesis 3	26
4 METHODOLOGY	27
The method: Content analysis	27
Manifest versus latent content	27
Sampling	28
Coding scheme	29
The independent variables	30
The dependent variables	32
Intercoder reliability	42
Data analysis	44
5 ANALYSIS	45
Frequencies of the variables	45
Independent variables	46
Dependent variables	48
Presence of contradictory elements	53
Hypotheses testing	59
Testing of research questions	64
Research question 1	64
Research question 2	67
Research question 3	69
6 DISCUSSION AND CONCLUSIONS	71
Discussion	71
Limitations of the study	73
Conclusion	74

Suggestions for further research	76
APPENDIX: CODE BOOK	78
REFERENCES	87
ACKNOWLEDGEMENTS	92

LIST OF TABLES

Table 2.1	Import data from the World Bank, 1996	9
Table 2.2	Export data from the World Bank, 1996	9
Table 2.3	Labor force	10
Table 2.4	Circulation of major Costa Rican daily newspapers	11
Table 2.5	Number of forest fires and total area affected in hectares	14
Table 2.6	Average daily and Sunday circulation of major Spanish daily newspapers, in thousands	16
Table 3.1	Paradigm components	23
Table 4.1	Scott's pi results	43
Table 5.1	Proportion of stories selected from each newspaper	45
Table 5.2	Presence of worldview items in the selected stories	49
Table 5.3	Crosstabulation table: presence of elements from both worldviews	55
Table 5.4	Possible minimum and maximum score values	57
Table 5.5	Minimum and maximum possible values for overall scores	59
Table 5.6	T-test for mean differences between both newspaper in overall scores	59
Table 5.7	T-test for mean differences between both newspapers in categorical scores	60
Table 5.8	T-test for mean differences between location groups in overall scores	61

Table 5.9	T-test for mean differences between location groups in categorical scores	62
Table 5.10	T-test for mean differences between main claimers in overall scores	63
Table 5.11	T-test for mean differences between main claimers in categorical scores	64
Table 5.12	T-test for mean differences between language groups in overall scores	65
Table 5.13	T-test for mean differences between language groups in categorical scores	66
Table 5.14	T-test for mean differences between flow of information categories, in the overall scores	68
Table 5.15	T-test for mean differences between flow of information categories, in categorical scores	69
Table 5.16	Correlation matrix between dominant and post-industrial paradigm scores and number of words	70

LIST OF FIGURES

Figure 5.1	Distribution of the dominant paradigm score	58
Figure 5.2	Distribution of the post-industrial paradigm score	58

1 INTRODUCTION

Ever since scientists have used the media spotlight to warn about the deleterious effects of an enormous number of species becoming extinct and the consequent decrease in the genetic pool, people the world over have come to realize that the exploitation of natural resources is a problem that needs to be addressed. People, in fact, have reason to worry because the loss of natural resources due to intensive exploitation has repercussions not only on the planet's intricate "web of life", but also will have profound economic impact. If overlooked, the problem will eventually lead to a loss of resources for different economic sectors.

But like most items in the media and national policy agendas, the environmental concerns about the exploitation of natural resources seem to undergo peculiar ebbs and flows. The environment made its way onto the agenda of Western countries in the late 1960's, went into a decline in the mid-1970s, and stabilized its hold on public interest during the 1980's. Interest in the issue gained momentum again in the late 1980s, although the evolution of certain world events in the early 1990s, such as the civil war in the former Yugoslavia, the break up of the communist bloc and the Gulf War seemingly mitigated this escalating trend (Hansen, 1993, p. xv).

One can only speculate about how the topic played in the public's interest in the developing world because of an absence of studies that examine the rise and fall of issues in these nations. Do people in the so-called "Third World" consider this an important issue at all? Do the "First World" media dedicate more time and space to environmental concerns than the media in developing countries?

Problem statement

Most research relating the influence of media with individuals' attitudes about the environment has been done in Western countries, and has suggested the emergence of postmaterialist values in these areas. Once basic needs are taken care of, humans can meditate about matters that do not seem to be of basic concern, such as the environment (Maslow, 1954; Inglehart, 1990). This suggests that until developing countries achieve a better life standard for their populations, they likely will not be concerned about the health of the environment.

That the developing world, struggling with issues of survival and preoccupied with how basic and fundamental human needs can be met, looks at environmental concerns as a non-issue, is an assumption that two different survey studies do not support.

The first of these is the Health of the Planet report conducted by Dunlap, Gallup and Gallup (1993). They surveyed a total of 24 countries, of which 12 were developing countries and the other 12 were developed countries. Contrary to their expectations, they found that the developing countries were very concerned about the environment: "Environmental problems are salient and important issues in both wealthy and poor nations, and residents of poor nations express as much concern about environmental quality as do those living in wealthy nations" (Dunlap et al., 1993, p. 36).

Another fact that surprised the researchers was the sense of self-efficacy in the developing nations: "residents of the poorer nations are more likely to assign responsibility for environmental protection to citizens and to have a greater sense of efficacy in citizen action" (p. 36).

Louis Harris and Associates (1989) also did surveys in several countries to find out what the attitudes of the public and the leadership of each nation were in relation to the environment. They interviewed more than 7,928¹ citizens and 752 public leaders in 16

¹The sample size for Saudi Arabia was not included in their methodology section, although they did mention that the sample was composed entirely of men.

countries. The results in some nations could not be generalized to the whole population, as it was difficult to include people from the rural areas.

Both surveys came up with the conclusion that environmental values are high among citizens of developing countries. They also state a high willingness to make monetary or time trade-offs in order to preserve the environment. This is an interesting finding, even though these two studies had no theoretical framework that could explain the reasons behind the results.

Objectives of the study

This research looks at how the media construct messages in relation to the issue of natural resource use. The method that will be used will be a cross-cultural comparison of two on-line newspapers. This content analysis will try to determine how stories about nature and natural resource use are constructed by the selected media.

La Nación, the national newspaper of Costa Rica, and *El País*, the national newspaper of Spain, are the two on-line media that have been selected. Costa Rica is considered to be a developing country. However, its abundance of wildlife species and national parks, as well as the promotion of ecotourism can be seen as restraints to the exploitation of natural resources as, for example, farming, raising cattle or mining operations. These restraints can also be viewed in the opposite way, that the exploitation of natural resources can impede the full protection of certain natural environments of a country.

The comparison with a newspaper published in a more developed nation is most easily accomplished if there are no language barriers. This is the reason why a newspaper from Spain was chosen.

Even though Costa Rica has a direct economic interest in biodiversity conservation for its ecotourism industry, Holl, Daily and Ehrlich (1995) found that the population “generally have a limited awareness of environment- and population-related problems”

(p. 1548). The issue was considered by all socioeconomic groups less important than other problems. However, 91 per cent of respondents indicated a willingness to pay more for water or electricity if that meant that the extra money was going to be dedicated for biodiversity protection. It will be interesting to find out to what extent La Nación covers the issue of nature conservation, and if that could explain the low awareness of the topic among the population.

Spain, on the other hand, also has a concern related to tourism, although traditionally this tourism has marketed sunny beaches. Nevertheless, national parks do exist in Spain and they are increasingly attracting visitors that are not interested just in sunny weather. Interestingly, not all the landscapes of the different Spanish national parks evoke the same feelings toward conservation. A survey conducted among visitors of the Doñana National Park in the south of Spain showed how the flat landscape with patches of water characteristic of this park was not the most preferred among the respondents. “(T)he majority of the population prefers mountain landscapes, luxuriant vegetation and different manifestations of water (waterfalls, lakes, rivers) while arid and/or flat landscapes are rejected” (Múgica & Vicente De Lucio, 1996).

2 IDIOSYNCRACIES OF COSTA RICA AND SPAIN

Costa Rica: society and democracy

The “Switzerland of Central America”; the only country in the region without an army (abolished in 1949); the most democratic country in Latin America. These are a few of the stereotypes for which this small Central American nation is known outside its borders. It is the second smallest country of Central America (after El Salvador), with 51,200 square kilometers (19,965 square miles) and a population of 3,234,133 in January of 1994 (Casa Presidencial de Costa Rica, 1998).

Costa Ricans like talking with diminutives as a way of ensuring politeness. Many of the words will end in *-ito* as in the rest of the Spanish speaking nations, and more particularly in *-ico*. They refer to themselves as Ticos, which comes from the “saying *we are all hermanitos* (little brothers)” (Biesanz, Biesanz & Biesanz, 1982, p. 1). Their emphasis on politeness is because they prefer to make a good impression than to create friction with others. Another saying that refers to avoiding conflict is ‘decision-making a la tica’, which consists of constant bargaining, even if the problem does not get solved (Biesanz et al. , 1982). According to Ameringer (1982), the Tico way of avoiding confrontation, to *think about* any type of change, “may explain why their country is a democracy” (Ameringer, p. 1).

Costa Rica achieved independence in 1838 without bloodshed or strong opposition from the Spanish kingdom, as it had none of the natural resources that the colonial institutions were craving. In contrast with the surrounding colonies, the Costa Rican

society took a different path in history. Since the Spanish settlers could not rely on the indigenous population to do all the required work, they worked the land themselves. Even though classes did exist, there was no strong economic base upon which the colonialists could rise. Money was too scarce even to trade everyday products. Consequently, the colonialists were too poor to buy slaves, which prevented the rise of a military social class. This was probably the reason why the first independent government was formed by civilian authorities, not caudillos (Ameringer, 1982).

Costa Rican homogeneity

Costa Rica is a culturally homogeneous nation, with a commonly shared religion, Roman Catholicism, the Spanish language, and Hispanic American culture (Biesanz et al., 1982, Hall 1985). The Costa Rican homogeneity is also one of race. Ameringer (1982) contends that “Ticos are proud of their whiteness and they tend to look down upon the Indian and mestizo populations of their Central American neighbors” (Ameringer, p. 4). This does not mean that there has not been any interracial mixing, as many of the Spanish *conquistadores* had children with indigenous women. However, only two distinct populations remain separate from the bulk of the population: a small indigenous population, and the black population concentrated in the Caribbean province of Limón (Ameringer, 1982).

Social well-being

Even though Costa Rica was the poorest of the Spanish colonies, it is now one of the most successful, with a higher standard of living, higher percentage of national budget spent on education (almost one third of it), higher literacy rates, higher life expectancy at birth, as well as lower children’s death rate, and a lower inhabitants per doctor ratio than its Central American neighbors (Ameringer, 1982).

Biodiversity wealth

Costa Rica is also extremely rich in the biological diversity that lives in its small territory. Probably more than half a million species are found in habitats such as desert, wet rain forest, cloud forest, and from sea level to altitudes over 3,500 m. “Fully 4 per cent of all terrestrial living species on Earth are found in Costa Rica —an enormous natural heritage and natural resource” (Gómez et al., 1993, p. 53). But this biodiversity found in the country has been, and still is, in danger, despite the fact that 6,400 square kilometers are nationally protected areas and account for 12.5 per cent of the territory (World Bank, 1996). In only 23 years (from 1966 to 1989) almost 30 per cent of the forests had disappeared (Sittenfeld & Villers, 1993). The magnitude of this loss brought about the creation of a private, non-profit organization to account for the nation’s biodiversity and use this information to promote its conservation and sustainable economic development. INBio (National Institute of Biodiversity) was founded in October 1989.

Deforestation started at a slow pace in Costa Rica in the 1830s, with the first coffee plantations in the central meseta. Most of the country remained under forest cover until the 1950s, but from then onwards and with an increasing pace from 1970 the forest was disappearing due to the expansion of pasture land. By 1980, “the country was losing nearly 4 per cent of its forests every year, the highest loss rate in the western hemisphere including the Amazon basin” (Carriere, 1991, p. 188).

However, deforestation is not the only environmental problem that is taking place in Costa Rica. Land degradation is also of concern. Land Use Capability (LUC) is a concept that the US Agency for International Development uses to identify “the most intensive use that a piece of land is able to sustain on a continuous basis without suffering degradation” (Carriere, 1991, p. 185). LUC is useful to determine which areas are suited for certain uses. In Costa Rica, five types of soil have been classified according to their LUC in: clean-tilled crops, permanent crops, pasture, forest areas and protected areas.

One important problem has arisen since the use of the land has not taken into account what is best for the land. Less than a quarter of pasture land that has low erosion risk is being used to its full capacity. Many other areas cannot support being used for pasture, which leads to a reduction of the land's productive capacity, erosion and/or complete desertification. Once an area is taken to its total exhaustion, cattle ranchers or farmers move into forest areas to start cultivating in the same way as in the previous plots, repeating the deforestation cycle over and over.

Economic situation

Costa Rica, as many other developing countries, has an economy which depends on the export of two agricultural commodities, coffee and bananas, which bring in over half of Costa Rica's foreign profits (Ameringer, 1982; Hall, 1985). The emphasis in producing for an export market has condemned the country to import grain, fruit and vegetables that could have been produced in the areas where coffee and bananas are grown (Hall, 1985).

Another consequence is the lack of a manufacturing industry. More imports are necessary to have the sufficient "machinery and tools for the coffee industry, as well as consumer goods, such as textiles" (Hall, 1985, p. 78). All capital goods and hydrocarbon fuels also have to be imported (Ameringer, 1982).

This dependence on one or two products has exposed Costa Rica to the risks of economic crisis, due to the impossibility of controlling the prices of the commodities in the international markets. This situation puts the Costa Rican welfare state in jeopardy (Ameringer, 1982).

However, data from the World Bank (Table 2.1) show that there is a shifting trend towards a diversification of the economy, as more industry is created in the country. In 1993, only 9 per cent of the total imports corresponded to food items, which is not a very different amount as during 1960, when food represented 13 per cent of the total

Table 2.1 Import data from the World Bank, 1996

Rating	Country	Imports 1994 million \$	Imports food % total 1993	Imports fuel % total 1993
80	Costa Rica	3,025	9	9
111	Spain	92,500	14	11

imports, or in 1975 with 10 per cent (World Bank, 1979, 1987). As is shown in Table 2.2, out of all the products that Costa Rica exports, 33 per cent are manufactured products. This represents a considerable increase since 1960, when the amount of manufactured products represented a low 5 per cent (World Bank, 1979). The bulk of the export products has been, and still is, agricultural commodities, representing 70 per cent of the total exports in 1985 (World Bank), and 54 per cent in 1992 (UN, 1997). For comparison purposes, the data from Spain are also provided. The Spanish situation shows a different trend with the manufactured products accounting for 78 per cent of the total exports of the country in 1993.

Table 2.2 Export data from the World Bank, 1996

Rating	Country	Exports 1994 million \$	Exports manufacturers % total 1993
80	Costa Rica	2,215	33
101	Spain	73,300	78

In the 1950s and 1960s, the country encouraged the establishment of manufacturing industries because of the sharp decline of coffee prices since 1958. The Central American Common Market, of which Costa Rica became a full member in 1963, was intended to promote the development of the secondary sector of the economies of the five Central American republics, with the exception of Panama (Hall, 1985). However, the sector of the economy that was mostly expanded was the tertiary sector, in the case of Costa Rica.

Nevertheless, “Costa Rica’s basic role within the world economy remains that of a primary commodity producer” (Hall, 1985, p. 79), selling coffee and bananas to the developed countries, from whom they import manufactured goods. Trade with other developing countries is limited mainly to the interchange of consumer goods within the Central American Common Market and to the purchase of petroleum from Mexico and Venezuela.

Even though there is a downward trend in the agricultural labor force, and an increase of employment rates in the industrial sector, the percentage of agricultural workers is higher in Costa Rica than in Spain. Table 2.3 shows the exact employment figures taken from the World Bank (1996).

Table 2.3 Labor force

Rating	Country	Agriculture (% 1980)	Agriculture (% 1990)	Industry (%1980)	Industry (% 1990)
80	Costa Rica	35	26	23	27
111	Spain	18	12	37	33

Source: World Development Report 1996, World Bank.

La Nación

La Nación was founded in 1947 by ANFE (acronym in Spanish for National Association of Enterprise Federations). According to the Editor and Publisher Yearbook (1997), *La Nación* has a yearly circulation of 113,219 issues, and is followed closely by *Diario Extra* (Table 2.4).

Mass media are in private hands in Costa Rica. The government does not intervene in the content of the messages, whether it is information or opinion (Fonseca, 1976). The mass media firms serve a double purpose: as a public service as well as an enterprise. *La Nación* has changed from a disproportionate use of public and governmental information to cover more information about *barrios*, intermediate organizations, human problems,

Table 2.4 Circulation of major Costa Rican daily newspapers

Newspapers	Date founded	Circulation year
La Prensa Libre	1889	56,000
La Nación	1946	113,219
La República	1950	67,500
Diario Extra	1978	100,000
El Heraldo	1994	10,000

Source: Editor and Publisher Yearbook, 1997.

and publish columns about popular matters. The emphasis on economic news was also changed, to be able to cover social and cultural topics (Fonseca, 1976).

In 1994, Costa Rica had 260 radio receivers per 1,000 inhabitants; 142 television receivers (sets) per 1,000 inhabitants (UNESCO, 1997); and 130 telephone lines¹ per 1,000 inhabitants (UN, 1997).

Spain: mastering passion with business

The extension of the Spanish peninsula is ten times bigger (500,000 square kilometers) than that of the Costa Rican isthmus. To admirers of bull-fighting, the shape of Spain resembles that of an extended bull's skin, located at the southwest end of the European continent. Proud and envious, the Spaniards are most comfortable, *en su salsa*, when participating in any fiesta, where their passionate personalities flow. Many of what were once the usual customs in dealing with business or official matters, such as *vuelva usted mañana* (come back tomorrow), and the *siesta* times, have been relegated to small towns. The main cities in the country have been groomed in appearance and in manners to keep up with business and administration policies in the European Union.

Spain became a full member of the European Common Market in January 1986, and

¹UN definition for telephone line: it connects the subscriber's terminal equipment to the public switched network and has a dedicated port in the telephone exchange equipment.

since then it has tried to excel in industrial, manufacturing and farming activities, as well as in the tertiary sector of the economy. However, structural economic difficulties have kept Spain from reducing its high unemployment level below the 20 per cent level (Portugal & Zamora, January 26, 1998). The next test to overcome will be managing to change the Spanish currency (peseta) to the European currency (euro). And this is not a test only for Spain. All European countries are in the process of adjusting their economies to this drastic change, which will occur in 2002.

Self-sufficiency period: the post-civil war years

After a devastating three-year civil war, Spain came under the regime of a dictatorship that lasted from 1939 until 1975. The economic situation after the war was impoverished and dictator Francisco Franco's initial response was to promote "industrial expansion in the context of national economic self-sufficiency" (Shubert, 1990, p. 206). This autarkic policy did not restore the economy to the levels of 1936. Furthermore, the country was on the brink of bankruptcy by 1959. The Economic Stabilization Plan of that same year put a stop to autarky (although not to government intervention), "the creation of a market economy and the reinsertion of Spain into the international economy" (Shubert, p. 207).

Thanks to the liberalized economy, the 1960s became a period in which the Spanish economy took off at a rate of a 6.6 per cent of yearly growth. Spain was transformed from an agricultural economy to an industrial one, in which the automotive company SEAT, created in 1950, went from producing 36,000 vehicles per year without any exports, to produce 700,000, of which more than a fifth were exported. Three important factors helped to achieve this *miracle*: "foreign investment, tourism and emigration" (Shubert, 1990, p. 208).

The United States was the main source of capital investment in Spain (40 per cent), followed by Switzerland (21 per cent), and Germany (11 per cent). This amount of

foreign capital provided a model for the modern physiognomy of the industrial and service sectors.

Tourism quickly rose from 6 million visitors in 1960 to 42 million in 1982. The amount of money tourists left in the Spanish territory was around \$297 million (US) in the 1960s, reaching more than \$7 billion in 1982 (Shubert, 1990). In 1997, Spain became the second ranking country in the world that derives a large income due to tourism (Burgos, January 26, 1998). The first was the United States. These figures show that tourism is Spain's most important industry.

Another source of money that came from abroad were the emigrant remittances, which depended on the economic and labor necessities of the rest of Europe. This solved two problems in Spain: unemployment and receiving large amounts of foreign currency. However, when these low paying jobs started to disappear, Spaniards had to return home, and confront the unemployment lists once again.

As in Costa Rica, agriculture is an important industry for Spain, with the difference that it is diversified with crops of cereals, olives, grapes, fruits and citric fruits, potatoes, and vegetables. However, agricultural products no longer account for a big percentage of the total exports, with 9 per cent in 1994 (UN, 1997). The relative contribution of the agricultural Gross National Product to the overall Gross National Product has been declining since the 1950s from around 25 per cent to 14.7 per cent in 1972 (Instituto Nacional de Estadística in Naredo, 1996, p. 245)

Other indicators that can give insight to the social and economic situation of Spain are statistics about communication appliances in the population. Figures of radio receivers per 1,000 inhabitants are not that much different than those found in Costa Rica, but television receivers and telephone lines per 1,000 inhabitants do differ. There are 312 radio receivers per 1,000 inhabitants; 402 television receivers per 1,000 inhabitants, as opposed to 142 in Costa Rica; and 371 telephone lines per 1,000 inhabitants, compared

to 130 in Costa Rica² (UNESCO, 1997; UN, 1997).

Natural Environment

Spain has an extension of 42,500 square kilometers of nationally protected areas, which is equivalent to 8.4 per cent of the total territory. According to data from the World Development Report of 1996 (World Bank, 1996), the deforestation rate from 1981 to 1990 was zero. On the other hand, data from the Catalan Forest Fire Prevention Office (Servei de Prevenció d'Incendis Forestals, in Catalan) shown in Table 2.5 indicate that there has been an increasing number of forest fires each year from 1986 to 1995 (FECSA, 1996).

Many hectares of land lost the protective shield that trees and bushes were providing, becoming victims of erosion and desertification. Other factors contribute to the erosion rates in Spain, calculated at more than 50 per cent by the Spanish administration (Alvarado, 1983). One of these is involves the transformation of agricultural areas from crops that require very little water to those that depend on it in large amounts to yield a productive harvest. This transformation of the land with pure economic motives behind it will produce a "reduction of the economic benefits in the long run", according to Alvarado (p. 136).

Table 2.5 Number of forest fires and total area affected in hectares

Year	1986	1988	1990	1992	1994	1995	Mean 1986-95
Number	579	646	591	368	1,271	705	670
Total area	67,252	1,720	1,108	1,486	76,625	6,951	17,329

Concerns about the environment began in 1968 with protests against the impact of industrial and urban contamination of the river and sea waters, deforestation, and, among others, extinction of animal species (Almarcha, 1993). Of the 200 ecological

²Data from 1994

associations that existed by 1984, the majority were focused on defending animal species, “while only 30 per cent of them focused on urban or industrial themes, and only 3 per cent are concerned with educating citizens about the environment” (Almarcha, pp. 63–64).

El País

El País is a relatively young medium. However, it has been a strong one ever since its creation in May, 1976. Its foundation, in the midst of the Spanish political transition, was endorsed by many businessmen, intellectuals, and politicians who were supporting the establishment of democracy in the country. The first director of the newspaper, Juan Luis Cebrián, is of the opinion that “because *El País* was the first national daily that appeared after the death of Franco (Spanish dictator since 1939 to 1975), and thanks to the intellectual and social support with which it was born, it was destined to play a specific role in the transition from the very beginning” (Cebrián, 1987, p. 99).

Quite early on, *El País* overtook in circulation figures those of the other major Spanish newspapers, and became the most sold both in daily³ and Sunday circulation (Table 2.6). Data from the Editor and Publisher Yearbook of 1997 show that *El País* had a daily circulation of over 372,000, while the newspaper that follows in second position, *ABC*, is very far from that figure, with a circulation of only 247,225 per year.

The role of *El País* has consisted of two main actions. First, it has helped the Spanish citizens to achieve a political education and understand how the new media would work in a free society. Second, it has publicized a set of social issues that were not discussed in the public forum until then (Imbert, 1986). Furthermore, *El País* became an institution in itself. “It tends 1) to be the mediator between the citizens and reality, and 2) to determine the promotion of different actors and their transformation into public figures” (Imbert, p. 26). Imbert also contends that *El País* belongs to the reference press (prensa

³For each newspaper, first column is daily circulation and second column is Sunday circulation

Table 2.6 Average daily and Sunday circulation of major Spanish daily newspapers, in thousands

Years	El País		La Vanguardia		ABC		El Periódico	
1975-76	-	-	220	287	186	398	-	-
1976-77	129	144	206	273	157	341	-	-
1977-78	128	181	196	266	136	290	-	-
1978-79	146	203	186	255	124	269	53	-
1979-80	184	263	188	268	131	290	72	-
1980-81	234	357	193	281	136	300	99	-
1982	296	471	196	303	127	283	112	155
1982-83	340	553	192	303	146	302	127	160
1984	347	583	194	308	157	300	128	161
1985	348	613	191	NA	219	342	137	184
1986	360	682	195	313	235	405	151	235
1987	373	758	195	316	247	415	154	246

Source: Cebrián, 1989.

de referencia in Spanish), which is the press of the general public opinion: “Reference which determines a cultural subject matter. This symbolically confirms *El País* as a source of collective knowledge” (Imbert, p. 47).

From its founding, *El País* attracted people from different political backgrounds, whether this was as shareholders or as journalists, to ensure its political independence from the government or from any political party. As of June, 1981, the five shareholders with the most stock of PRISA, the company that publishes *El País*, only amounted to around 4 per cent each of the total shares. However, even though individually no one had any considerable amount of shares, groups of shareholders can be identified as allies, with a total of 50 per cent of the shares. Of these groups, it is possible to point out the Administration board (Consejo de Administración); a publisher group; Editorial Santillana; PROPUSA, a company created by the then director of the paper; and PRESA, a sister-company of PRISA (Bustamante, 1986, p. 91).

3 LITERATURE REVIEW

Environmental symbology

Within both developed and developing nations, one could only surmise that there are sectors that will be active advocates of the environment at any given time, while others will just be perennially apathetic to it. Indeed, different sectors of the population will assign different meanings and understandings to the same reality. Spector and Kitsuse (1973) consider social problems as dynamic. They are results of 'sequences of events' which develop on the basis of collective definitions. They define social problems as issues brought to light by "the activities of groups making assertions of grievances and claims to organizations, agencies and institutions about some putative conditions" (p. 146). As such, social problems are viewed through subjective perspectives. "Unlike nature, the web of human society is woven of myth, and rhetoric of faith and persuasion, which filter and sort the meanings of man and nature" (Burch as quoted by Greider & Garkovich, 1971, p. 9).

Differences in cultures, therefore, will determine how populations view their relationship with nature, and how important they think nature and the environment are to them. This is a social constructionist perspective, where what is emphasized is a certain view of reality, not reality in itself. As Greider and Garkovich put it, "every landscape is a symbolic environment" (p. 1), and every person will understand that landscape according to those symbols and cultural backgrounds.

It does not take long for one to realize that environmental problems derive from

how human beings interact with nature. Some sociologists argue that environmental problems have arisen due to a commonly held belief that man should have dominion over nature (Bodain, 1993; Warren, 1993). Western civilization, historically, has perceived nature as something outside of humans, something dangerous, something that should be dominated. Nature exists to serve society, and apart from that function it has no meaning. It has been suggested that this relationship between human beings and nature has its roots in Christianity. Lynn White (1967) was the first proponent of the idea that the Christian doctrines not only set the basis for the detachment of man from nature “but also insisted that it is God’s will that man exploit nature for his proper ends” (p. 1205). Respect toward nature disappeared, as humans did not consider themselves part of the natural environment: “We are superior to nature, contemptuous of it, willing to use it for our slightest whim” (p. 1206). White, in a pessimistic view, asserts that the ecologic crisis would worsen unless “we reject the Christian axiom that nature has no reason for existence save to serve man” (p. 1207).

Such religions’ faiths form part of social constructionism, which argues that certain meanings are brought to the object (reality) and are socially constructed. This permits individuals to respond to the objects on the basis of the meanings that those objects have to them. The perception that humans have about themselves and about the environment is explained by a set of beliefs and values, as well as by a certain social, economic, political and historical context (Burgess, Harrison & Malteny, 1991, p. 499).

The differences in social constructions could not only be found across cultural and national borders. One nation can have several groups within it that will interpret their immediate surroundings in different ways. One example is found in a study done by Bul-tena and Taves (1961) in Superior National Forest (Minnesota) and Quetico Provincial Park (Ontario, Canada). This study showed how people who used recreational areas for different purposes (campers and canoeists) had different understandings of the concept of wilderness. Even though most of the vacationers that visited the Quetico-Superior

area are drawn because of the appeal of “primitiveness, naturalness, and the opportunity that it offers for adventure” (p. 169), a considerable percentage of the visitors supported the development of new and modern facilities in the wilderness area, which contradict what a wilderness area is supposed to be for. This contradiction is not apparent to these visitors whose concept of wilderness includes “the existence of picnic tables, wells, toilets, washrooms, and the like. These individuals simply do not adopt the more traditional definition of wilderness, substituting instead an ‘urban frame of reference’, being unable or unwilling to dichotomize wilderness and urban values” (p. 169).

The importance of discerning the different meanings different groups have with respect to the environment is key in understanding which groups perceive certain environmental situations as problematic and the degree of importance they attach to these environmental concerns. In this case, it also had implications in policy making for the forest officials in both countries.

Media and the environment

The constructivist approach recognizes the importance of looking at different cultures as well as “how different publics negotiate and interpret the environmental meanings offered by media coverage” (Hansen, 1991, p. 446). What is important to stress here is the fact that these social meanings have their supporters, some with more power than others.

Social movements are born from the differences within a system and lead to potential social change. This change may be confirmed if, in the first place, the social movement is tolerated by the system (Olien, Tichenor & Donohue, 1989). The conflicts that arise from the social movement evoke questions of power allocation. The way the media respond to this situation does not quite correspond with the myth of a “watchdog” function. Instead, the media have the role of controlling the conflict, and hence, the social

movement or movements that are behind it. Consequently, the emergence of a social movement that challenges the system will hardly receive coverage “until the movement has been legitimized in the system” (Olien et al. , 1989, p. 149). In this situation, there will always be groups happy with the coverage they receive from the press, while other less established groups will view the media as less helpful and attentive. This is true for environmental issues as well.

To figure out which groups are the most established ones, a look at who the claimers of the different positions are, and what legitimacy they attain from the media, is necessary (Hannigan, 1995). Their view of reality will differ from other less established groups. Furthermore, if only the well established groups have access to the media, the views of the less established groups may be, partially or completely, ignored (Neuzil & Kovarik, 1996). Neuzil and Kovarik also consider it important to examine how the issue is defined as it will affect which point of view is being put in the forefront. “How the issue is defined may reflect the protest group’s goals, its opposition, or some combination of the two” (p. xxi).

The internal organization of the media is another important aspect to consider regarding how stories about natural resources are constructed. Tuchman considers news as “a *constructed reality* in which journalists define and redefine social meanings as part of their everyday working routine” (Tuchman quoted by Hannigan, 1995, p. 59).

One approach to this organizational explanation is endorsed by McManus (1990) who considers the size of the media organization an important factor in the construction of messages. As most media are driven by economic forces for their subsistence, they gravitate toward techniques that maximize profits. Thus, media organizations with scarce resources will tend to promote minimally active discovery among their reporters. This reporting can be achieved without even leaving the newsroom, just by monitoring press releases, newspapers, radio and television competitors, wire services, video, as well as scanning police and fire emergency radio channels. Consequently, these media

organizations will tend to report those stories transmitted by groups with a certain level of legitimacy. Furthermore, they will tend to construct those messages according to the views of those established groups.

On the other hand, media groups that have access to a greater amount of resources will be able to afford more active discovery. This means reporters will have the ability to contact sources outside the newsroom, as the policy of the medium becomes closely related to the public service model. The implications of these differences in economic resources of media groups affect their potential role as “watchdogs”. Those that operate on a minimally active discovery mode abandon this function entirely, in favor of keeping their costs low, while those that engage in highly active discovery are able to be closer to the model of the press as the *fourth estate*. “While passive discovery has civic costs, active discovery may have corporate costs” (McManus, 1990, p. 683).

Environmental paradigms

The messages transmitted by the media also carry with them the values and beliefs of the journalists themselves. This does not necessarily mean that ideological positions will influence the tone of the stories. However, inherent values will enter the reporting of events in what Gans (1979) calls “reality judgments”. Journalists, as human beings, make assumptions about reality and develop concepts to understand it. Many of these reality judgments are stereotypes “which journalists borrow from elsewhere because of their availability and familiarity both to the journalists and the audience” (Gans, 1979, p. 201). This is an unconscious process and because it is commonly shared by professionals in the field, it is usually taken for granted. It is seen as the *truth* unless the issue becomes controversial; then journalists become aware that it is an opinion. As a result, the reality judgments “may be abandoned, moderated, or transformed into stands” (Gans, 1979, p. 199). For example, Lowe and Morrison, who explored the rela-

tionship between journalists and environmental groups in Great Britain observed that stories about nuclear accidents and oil spills could have been portrayed as challenging the dominant western worldview (DWW) in which capitalism is the driving force. But this did not happen. “(J)ournalists and editors chose to see the environment as being a non-partisan, non-political issue, a way of seeing which was facilitated by the decision of environmental pressure groups to represent themselves as not having any party political connections” (Burgess, 1990, p. 10).

Worldviews are a very pervasive factor of how individuals will view their reality, without realizing that there are other ways of thinking. It is necessary, however, to keep in mind that one worldview can, and does, encompass several cultural approaches inherent to different social groups.

Olsen, Lodwick and Dunlap (1992) define worldview as the *mental lenses* with which we see the reality that surrounds us. Most members of society hold the same worldview, as it is “normally learned through socialization and social interaction, and is constantly being reinforced by the culture of our society throughout our lifetime” (Olsen et al., 1992, p. 13). According to the authors, worldviews are comprised of beliefs and the social values that are linked to them. Although they did not mention it, one can assume that the mass media play a crucial role in the development and construction of such worldviews. Thus, approaching the study of message formation about natural resources from a constructivist framework, it is expected that the way media construct the messages about the issue will fit into the general socio-cultural symbolism of each country.

Olsen et al. developed a list of components that exist in the dominant western worldview in comparison with what they consider an emerging post-industrial worldview in modern societies. Table 3.1 lists the value components of these worldviews.

These worldviews have environmental components such as: domination of man over nature versus humans are part of the ecosystem; the natural environment as provider

Table 3.1 Paradigm components

Dominant Western Worldview	Post-Industrial Worldview
Material accomplishments	Human development
Economic efficiency	Social effectiveness
Instrumental rationality	Valuative rationality
Bigger is better	Human scale is better
Quantitative goals	Qualitative goals
Cultural homogeneity	Cultural heterogeneity
Present-oriented	Future-oriented

Source: Olsen, Lodwick & Dunlap, 1992, p. 8.

of resources versus the natural environment as valuable in itself; perceptions of finite natural resources versus natural abundance of resources; the earth could support a larger population versus population growth must be controlled.

Technological, work, economic, social stratification, organizational, and interpersonal components also form part of the elements proposed by Olsen et al. , but even though they were describing a worldview shift in developed countries, the elements included in the post-industrial worldview are not necessarily exclusive of this shift. Several of the value components outlined above have been present in other cultures, considered *primitive*, for centuries. It is therefore pertinent to discover what differences may exist in the way natural resources are covered in the newspapers of both countries, as well as to determine to what extent the dominant worldview has been adopted in a developing country like Costa Rica.

Proximity of the issue

The location of the issue that is covered by the media with respect to the audience is an important factor to consider, as the proximity to the readership will certainly have a bearing on the degree of importance that the story receives. This is clarified by the

following models of attitudinal formation.

The first one, called the self-interest model, is concerned with whether an environmental issue affects the population directly in their local community or not. It maintains that only when individuals become affected in their daily circumstances by an external force do they become concerned about the issue (Sears, Lav, Tyler & Allen, 1980).

The second model is the sociotropic model (Kinder & Kiewit, 1981, 1983) in which international circumstances are assigned a substantial role in opinion formation. This model asserts that the information people receive to create their attitudes about the issue is found outside their immediate surroundings. The concern about the availability of natural resources originates from a more profound understanding of the impact of human exploitation of nature.

Both these models are useful in providing deeper insight about how messages on natural resource use are constructed by the media, as it is possible that certain media would emphasize an issue when they consider that it affects local interests. If this were the case, the nature of the coverage would probably be explained by the dominant western worldview that is more attuned to economic forces, is present-oriented, and is characterized more by the so-called *not in my backyard* (NIMBY) mentality. NIMBY represents the attitude towards the environmental problems which only calls for immediate action when it affects an individual's or a community's surroundings.

This study is not examining where do people obtain their information from, but does consider that these two models can be adapted in order to examine national issues (self-interest) versus international issues (sociotropic).

Hypotheses

Based on the examination of the literature review and the background information of the two newspapers, the first hypothesis is formulated taking into consideration the

tension between conservation of the environment and the need to increase the exports of commodities in Costa Rica.

Hypothesis 1

The components present in the post-industrial worldview will appear more frequently in the stories about natural resource use that El País (Spain) publishes, while the components present in the dominant western worldview will appear more frequently in the stories about natural resources that La Nación (Costa Rica) publishes.

In order to test this hypothesis, it is necessary to formulate it in two parts.

H.1a - *The components present in the post-industrial worldview will appear more frequently in the stories about natural resource use that El País publishes.*

H.1b - *The components present in the dominant western worldview will appear more frequently in the stories about natural resources that La Nación publishes.*

Hypothesis 2

The location of the issue is another factor that could have influence on which of the paradigms is present in the story. The dominant paradigm, which is mostly concerned about problems that are happening in the present moment, would be the endorsed paradigm if the story is dealing with a local or national problem. If the issue is located outside the borders of the country where the newspaper is published, and, thus, more distant from the readers, it would more likely be related to the post-industrial paradigm.

Stories that cover local or national problems dealing with natural resources will portray a higher number of components that are present in the dominant western worldview than stories that cover international problems.

This hypothesis also requires to be divided into two separate hypotheses to be adequately tested.

H.2a - *Stories that cover local or national problems dealing with natural resources will portray a higher number of components that are present in the dominant western worldview than stories that cover international problems.*

H.2b - *Stories that cover international problems dealing with natural resources will portray a higher number of components that are present in the post-industrial worldview than stories that cover national or local problems.*

Hypothesis 3

According to the position of different social actors, they will have different opinions about issues that deal with natural resources. These opinions will, most likely, be reflected in the stories published, especially if those stories focus on one of the actors as the main claimer.

Stories whose claimers are private owners of land, or governmental agencies will present more components from the dominant western worldview than stories whose claimers are intergovernmental agencies, international environmental non-governmental organizations, or local or indigenous NGOs, which will present more components from the post-industrial worldview.

The two specific hypotheses that will actually be tested are:

H.3a - *Stories whose main claimers are private owner of land or governmental agencies will present more components from the dominant western worldview than stories whose main claimers are intergovernmental agencies, international, local, or indigenous NGO.*

H.3b - *Stories whose main claimers are intergovernmental agencies, international environmental NGOs, or local or indigenous NGOs will present more components from the post-industrial worldview than stories whose main claimers are private owners or governmental agencies.*

4 METHODOLOGY

The method: Content analysis

The research method used to identify the differences between the two on-line newspapers was content analysis, a systematic procedure that describes the content of a message in the most objective way possible. A more precise definition is endorsed by Berelson (1952), who considers that “content analysis is a research technique for the objective, systematic, and quantitative description of the manifest content of communication” (p. 18). Many of the studies that used content analysis conducted up until now have emphasized the quantification of certain key words, or the measurement of time or space dedicated to a certain issue or person. Here is where the distinction between manifest and latent content has to be made.

Manifest versus latent content

Manifest content is the visible content; it refers to the characteristics of a message that can be identified objectively, so no matter who codes the information the analysis should yield the same results. On the other hand, latent content “refers to the meanings contained within communications. The determination of latent content requires judgments on the part of the researcher” (Babbie, 1995, p. 335).

The content analysis for this research was performed taking both types of content into consideration, as merely quantifying the number of key words present in the stories did not seem as an appropriate procedure. However, to make sure that the results were

reliable, inferences were made only in relation to what had been actually said in the articles. The interpretation of the stories could only be considered accurate as long as it was based on the manifest content. “Reading between the lines”, or drawing conclusions from absent information was not encouraged among the coders. Reliability of coding was tested using an intercoder reliability test.

Sampling

The on-line versions of *La Nación* and *El País* were selected to be analyzed because both of them are the leading papers in Costa Rica and Spain, respectively, and can be considered as representative of the issues being raised and/or considered important in each country. Nevertheless, it is important to keep in mind that the conclusions drawn from this study may differ if the study had been done with the hard copy of those same newspapers. The reasons for this are explained by differences between the hard copy and the on-line versions, such as the presence of English stories in the website of *La Nación*, while the hard copy is exclusively printed in Spanish. In the case of *El País*, the hard copy provides more information. *El País* has several editions for different regions in Spain. Each edition has a supplement with regional information, but none of these stories are posted on the website.

The results cannot be generalized to the rest of the media in each country, either, since only one media in each country is analyzed; nor to the opinion and attitudes of the population of both countries.

The sampling period was two complete months, August and September of 1997, during which stories and editorial cartoons that touched on any of the topics described below were selected. This yielded a total of 708 stories and one editorial cartoon. The following guidelines constituted the basis for selection. The stories covered issues about:

- Natural resources, which included stories about the exploitation of basic products

such as water, coal, petrol and the development of the primary sector, which encompasses the agricultural and livestock industries. Stories of economic, political and social interest about natural resources were selected. However, stories strictly about labour concerns in these sectors were not included.

- National parks.
- Extinction of species (animals and plants).
- Extinction of ecosystems.

In this study, *natural resources* is defined as materials supplied by nature used to answer human needs. This goes beyond traditional definitions of natural resources as “stock or reserve upon which one can draw when necessary” (Onion, 1959); or “a country’s wealth in terms of land, water power, minerals, etc.” (Thatcher, 1970); “an available supply that can be drawn upon when needed” (Morris, 1969).

The unit of analysis for the majority of variables in this research is the story or editorial cartoon. However, to identify how many stories in each on-line newspaper are dedicated to the issues described above, and consequently, which of the two media was providing more information in percentage terms, the unit of analysis was the newspaper.

Coding scheme

The main problem in this study was the difficulty in coding the stories according to the set of arguments that distinguish the post-industrial worldview from the dominant western worldview. The initial plan was to assign each natural resource story to either a post-industrial or dominant paradigm model, and classify each story component in the same way. However, initial examination showed that many stories did not contain a number of the classification themes, and so could not be coded. The final strategy was to code each category only if it was present.

Three stories from *El País*, and three from *La Nación* were selected to test this new coding scheme and to make sure that the 62 variables were measured within acceptable levels of reliability and validity.

First of all, the stories were identified with an ID number. The first category the stories were divided in was according to which newspaper they were published in. If the story was published in *La Nación's* web site, it was coded 1; if published in the web site of *El País*, it was coded 2.

The independent variables

The **date**, **number of words**, and **language** in which the stories appeared were coded. Even though the majority of the stories in both on-line newspapers were published in Spanish, *La Nación* published about 10 to 12 articles in English every day. These were considered as a different group, as they may have a different editorial line, targeted to a different audience segment. If the language in which the story is published is Spanish, it was coded 1; if the language is English, it was coded 2.

The **section** in which the story appeared was coded as: economy, 1; national, 2; international, 3; opinion, 4; society, culture, Ancora, Sunday, Zurqui and Viva, 5 (these sections have been grouped because they all contain feature stories about society). The English section stories were coded 6.

The **number of articles** that have been published in the same section that day, and the total number of articles published in each newspaper that same day were calculated separately to determine how many stories have been selected from each newspaper, and which sections carry the most stories. The proportion of stories from each newspaper was computed. The rest of the variables were examined using the story as the unit of analysis.

The **topics** the stories covered were also classified as dealing with the exploitation of natural resources, coded 1; national parks, coded 2; the situation of plant and animal

species or ecosystems, coded 3; contamination issues, coded 4.

The **nature of coverage** assessed a story's stand on the protection of natural resources. A story was classified as negative if it showed no interest in the protection of the natural resources and was coded 1; mixed, if it presented ambivalent arguments for and against protection, which was coded 2; and positive, if the story clearly defended the protection of natural resources, which was coded 3.

The **location of the issue** indicates where the event reported happened. If the issue took place outside the borders of the country where the newspaper is published, it was considered international and was coded 1. On the other hand, if the issue took place within the borders of the country where the newspaper is published, it was considered national, and was coded 2. However, an issue or event can affect the country where the newspaper is located, and the story could then carry a domestic slant. It was therefore necessary to determine the countries which an issue affects. If the issue affected countries outside of a newspaper's national borders solely, it was coded 1; if the effects are strictly national, it was coded 3; if it affected both, it was coded 2.

Economic impacts were also considered. If the story talks about economic gains or losses due to a certain activity, it was coded 1; if there is no mention of economic benefits or losses, it was coded 0.

Another important variable concerns the **flow of the information**. If the story comes from a news agency such as the UPI or AP, it was coded 1; if the author of the story is a newspaper staff member, it was coded 3; in those cases where there is information both from an agency and the staff member, the story was coded 2. If the story does not have a by-line or dateline, it was coded 9.

If the **actors** involved in an issue are mentioned the story was coded 1. The story was coded 0 if it does not mention the actors involved. The different types of actors or sources identified for the purpose of this study were private owners, governmental agencies, intergovernmental agencies, international NGOs, and indigenous or local NGOs

or communities. Apart from this, the **main claimer** of the story is considered. This refers to whose point of view gets the most coverage of all the actors mentioned above.

The dependent variables

The dependent variables which comprise the post-industrial and the dominant western worldviews were modifications of Olsen et al. 's original conceptions. Of their eight original categories, seven are most relevant to this study. These were: environmental, technological, work, economic, political, interpersonal, and value components. Each one of the categories includes several elements the presence of which in each story was identified using a binary code:

- 0 if the element selected does not appear and
- 1 if the element selected does appear.

To better explain how the elements were coded as 0s or 1s, especially taking into consideration that the latent content was also examined, selected examples and further explanation will be provided after some of the elements. In the **environmental category**¹ the following elements were included:

1-Whether the story implies or mentions that “humans are part of the earth’s ecosystem and must live within nature.”

The u’wa people — u’wa refers to the people who think—, a very religious community, say that their God, Sira, asked them to look after that land, under which the heart of the universe is hiding. (se2-p1)

“We cannot ignore that we want to conquer the international markets, but not because of that should we forget that the new vision of progress

¹All elements presented by Olsen, Lodwick & Dunlap (1992) were used.

implies that people's natural and cultural environments must be treated with complete equity", emphasized Leal. (ag19-n6)

2-Whether the story mentions or implies that "humans can control nature and exploit it for their needs." This would include even the delimitation of areas in nature designated to be protected, such as national parks, for example.

The immensity of the open fields, the air, the crops and the non-domesticated living beings is fenced in and defeated. (se3-p3)

Two internal reports of the Environmental Ministry, dated in April and May, respectively, sustain that hunting in the Picos de Europa National Park is illegal, unless the beats are justified for sanitary reasons or excessive population of the species that inhabit the park. (se23-p3)

3-Whether the story mentions that "the natural environment is valuable in itself."

In each one of the mentioned environments there are important interactions between the living beings and the habitat, which enables a natural equilibrium. This natural equilibrium has to be looked after by people, so they can use the resources (wood, minerals, fish, etc.) and maintain them for future generations. (ag20-n16)

4-Whether the story mentions or implies that "the natural environment is valuable only to the extent that it provides humans with necessary resources."

The example that was provided to explain item number 3, also includes the opposing argument (item 4), as it stresses the fact that conservation should take place in order to ensure the availability of natural resources.

A company specialized in artificial insemination of cattle presented yesterday a six-month old calf, which was cloned with a technique that could produce fatter cattle, and cows that would produce more milk. (ag8-n2)

5-Whether the story mentions that “natural resources are limited and must be preserved.”

6-Whether it mentions or implies that “natural resources are ample for all human needs.”

7-Whether the story mentions or implies that “world population must be controlled, as it has reached the earth’s carrying capacity.”

8-Whether it mentions or implies that “natural resources will not be hindered because of a larger human population.”

Items 1, 3, 5 and 7 are considered to fall under the post industrial worldview, while items 2, 4, 6 and 8 fall under the dominant western worldview.

The **technological category**² encompasses the following elements:

9-Whether the story presents a positive view of the most adequate technology.

The coordinator suggested to the coffee producers to transform into fertilizer the wastes from the coffee processing and filter the used water, instead of discarding it. (ag27-n11)

10-Whether the story presents a positive view of the most advanced technology.

A geologist from Universidad Nacional, Ora Patterson, agrees with Vargas, “Huge engineering works would be needed to help stop the landslides.”

(ag10-n8) (in English in the original)

11-Whether the story mentions the need to continually assess the use of technology in the exploitation of natural resources.

12-Whether the story mentions that natural resources will not decrease due to the use of more and more developed technology.

13-Whether the story mentions the possibility that for every problem technology solves, it creates new ones.

²Three elements out of four were used.

In regards to the cost of the destruction [of the land-mines], it is estimated around 200 pesetas for the simpler mines and 500 for the more complex ones, consequently it should not be more than 150 million pesetas. Something else would be the environmental problems that would result from a massive elimination of explosives. (se21-p2)

14-Whether the story mentions or implies that technology will eventually solve most problems dealing with the depletion of natural resources.

“Agriculture cannot be developed as it was done 80 years ago”, leading agricultural industrialist Marco Augusto Garcia asserts. “It must be seen as an industry.” (se21-n7) (in English in the original).

Items 9, 11 and 13 represent the post industrial worldview; while items 10, 12 and 14 represent the dominant western worldview.

The inclusion of the **work category**³ is based upon the logic that the protection of natural resources could be seen as a threat to the work force. The elements constituting this category are:

15-Whether the story mentions that the creation of jobs will not hinder the natural environment.

So, it is expected that laborers, students, housewives...—anyway, the normal citizen of the rural towns— will form small businesses in those areas and their main resource will be the information about the local biodiversity. (ag3-n1)

16-Whether the story mentions that creation of jobs is more important than the depletion of natural resources or, in other words, if it justifies the reduction of the earth’s resources.

³All elements were used.

17-Whether the story mentions no need for specialization and division of labor in job creation.

18-Whether the story mentions the need for extensive specialization and division of labor in the creation of jobs.

This will also be a place (workshop) to train the representatives of all countries where turtles live, and create the outlines for specific actions and stabilize the survival of populations of these marine animals. (se18-n9)

The head of state announced that in a period of five years at least 5,000 Nicaraguans will travel to Taiwan to receive technological training, to be able to face the requirements of the Taiwanese firms that want to establish themselves in Nicaragua in the near future. (ag18-n8)

Items 15 and 17 represent the post industrial worldview, and items 16 and 18 represent the dominant western worldview.

The importance of the economic category of the paradigms could be further strengthened if it is related to who the claimers of each story are. The **economic category**⁴ is characterized by the following elements:

19-Whether the story mentions ownership of natural resources is operated to serve human needs.

After decades of deforestation, Central Americans have now turned their eyes to the rain forest, which could become a source of wealth as well as a provider of beautiful scenery for the 30 million inhabitants of the region. (se21-n6) (original in English).

In this example, 'beautiful scenery' is considered to fulfill a human need, however, this is a case where the following item (20) is also present, as the rain forest is considered as a 'source of wealth'.

⁴Four out of six elements were used.

20-Whether the story mentions ownership of natural resources is operated on the basis of maximizing profits.

21-Whether it mentions limits to the exploitation of natural resources due to ecological conditions.

Why is it worth moving a thousand neighbors to build a reservoir, and it is not worth moving twenty to save a national park? (se10-p3)

Even though this example does not specify directly what the limits to the exploitation of the natural resource (national park) are, it is against exploiting that protected area because of the presence of a small village.

22-Whether it mentions that no ecological limits to growth exist.

Apart from that modification in the channels, Garron said that two more projects of the Environmental and Energy Ministry (MINAE) are being negotiated: to introduce cattle temporarily in some national parks, so they can feed on the pasture of the forest cover. (se26-n13)

The proposal of introducing domesticated cattle into protected areas certainly implies that this measure will not affect the surrounding environment, and consequently there are no limits to the growth of the cattle industry.

23-Whether it mentions that personal income and consumption should / could be constrained by voluntary simplicity to improve the quality of life for all.

To avoid the irresponsible use (of water), the UNESCO director demands a new water ethic, based on savings, regulating the demand, depuration and the application of fair tariffs to revalorize this scarce resource to the population. (se23-p2)

24-Whether it mentions that personal income and consumption should / could be maximized to improve standards of living for all.

Central American poultry producers are worried about the low consumption of chicken eggs in the region, and the reasons for this situation are unknown, according to sources from this industry in San Salvador. (ag26-n4)

The implication present in this example is that the producers want to maximize the consumption of eggs and, thus, maximize their gains. Items 19, 21 and 23 fall under the post industrial worldview, while items 20, 22 and 24 fall under the dominant western worldview.

The **political category**⁵ is important to understand the extent to which the population is involved in the decision-making concerning the exploitation of natural resources at the local and international levels. This category includes the following elements:

25-Whether it mentions the role of a limited, decentralized government.

26-Whether the story mentions the role of a centralized government in relation to land use.

27-Whether it mentions that decisions regarding exploitation of natural resources should be made by citizens, based on valuative concerns.

28-Whether it mentions that those decisions should be made by experts, based on factual knowledge.

The civil servant said that every year the northwestern areas suffer from droughts, but the farmers, even though they know about it, sow between May and September, and always lose their crops. Now, she added, the experts from the Agriculture Ministry and the Nicaraguan Institute of Agricultural Techniques (INTA) are recommending that they only sow between September and November, known here as the last sowing. (ag15-n6)

⁵Three elements out of five were used.

29-Whether it mentions that authority regarding the protection of natural resources should be non-hierarchical and participatory.

30-Whether it mentions that authority regarding the protection of natural resources should be hierarchically structured.

Items 25, 27 and 29 represent the post industrial worldview, while items 26, 28 and 30 represent the dominant western worldview.

The **interpersonal category**⁶ has the following elements important to the scope of the study. These are:

31-Whether it mentions community activities or initiatives.(This item falls under the post industrial worldview).

32-Whether it mentions individual initiatives. (This item falls under the dominant western worldview).

The **organizational category**⁷ is composed of the following elements:

33-Whether the story mentions positive attributes of a small town. (This item represents the post industrial worldview).

The route from San José or Heredia to the forest is short and interesting. It includes big green landscapes, views of the city of San José, rivers with clean water (as few are seen anymore in the metropolitan area), farms that produce milk, nice constructions, such as rustic houses and beautiful temples.
(ag14-n12)

34-Whether the story mentions positive attributes of a large city. (This item represents the dominant western worldview).

The underlying **value category**⁸ of the stories was measured according to whether the following elements appear in the stories:

⁶One out of four elements was used.

⁷One out of four elements was used.

⁸Six out of seven elements were used.

35-Reference to human development.

The mystical experience of communion with nature is one of the most wonderful feelings that the park can provide, and that is only possible in silence and solitude, not in the noise of engines or shouting of the big groups. Those who are looking for that spiritual good will always be willing to pay the price for the physical effort of walking the steep paths. (se10-p3)

In this example, it is clear that “human development” refers to the amount of personal satisfaction that an individual gains through different activities, but not in any way related to the amount of possessions

36-Reference to material accomplishments.

37-Reference to aptitudes and skills that ensure well-being of human society (social effectiveness).

38-Reference to the cost/benefit ratio of any human activity (economic effectiveness).

39-Whether the story mentions or implies that “human scale is better” as opposed to “bigger is better.”

The difference between “bigger is better” and “human scale is better” is quite apparent. However, it has to be said that these opposing statements do not only refer to the extent of consumption exemplified by products that one could buy, such as cars, dishwashers, or computers. They also involve where people live; for example, a city versus a small town, a three-story house versus an apartment.

40-Whether the story mentions or implies that “bigger is better” is better as opposed to “human scale is better”.

“At the moment we [India] cannot put up satellites that weigh more than 1,200 kilograms in orbits of 900 kilometres away. But from 1998 onwards we are going to make tests to put up satellites of 2,500 kilograms. Our objective

is to compete with France and United States in the launching of satellites.”

(ag10-p1)

41-Reference to or defense of the values, traditions, and customs of other cultures (cultural heterogeneity).

According to García Fonseca, “massification in Bulnes will end with the traditional production of cheese and pasture, activities that should be respected above anything else in a national park”. (ag18-p3)

The historic memory of the u’wa people prevents them from having any type of contact with the white man, whom their wisemen cannot see or touch to avoid “being contaminated”. (se2-p1)

42-Reference to or defense of the values, traditions, and customs of only one culture (cultural homogeneity).

The spokesman of the presidency, Ricardo de la Torre, condemned in a press conference “the destruction of cultural patrimony”, since the indigenous people destroyed a lamp in the National Palace. (se25-n4)

With this passage, indirectly it is stated that the culture that is defended is the one which already is in a position of power, the culture of the majority, while the voice of the indigenous people is not considered at all important.

43-Mention of the concern about the future state of natural resources.

44-Mention of the present state of the natural resources.

Items 35, 37, 39, 41 and 43 represent the post industrial worldview, while items 36, 38, 40, 42 and 44 represent the dominant western worldview.

Intercoder reliability

The issue of reliability for a content analysis study is of great concern, as it has to ensure objectivity. Reliability is only “present when repeated measurement of the same material result in similar decisions or conclusions” (Wimmer, 1987, p. 182). The best and only way to make sure that a content analysis is objective and reliable is with intercoder reliability. A total of three Spanish-speaking coders were invited to participate in the intercoder reliability test in October 1997. The three coders read a selection of 10 articles and proceeded to code the presence or absence of the paradigm elements according to the coding scheme guidelines. The results that came out of that first round of intercoder reliability were not satisfactory, as the values calculated with Scott’s pi were extremely low.

Scott’s pi is an index of the agreement among coders that determines “the extent to which the coding reliability exceeds chance” (Scott, 1955, p. 323), which means that even though the observed agreement between the coders was high in the first test, this could perfectly be due to chance and not real agreement.

$$\text{Scott's pi} = \frac{(\text{observed agreement}) - (\text{expected agreement})}{1 - (\text{expected agreement})}$$

The results of the observed agreement for the three sets of coders are as follows:

.80 between coder 1 and coder 2

.76 between coder 1 and coder 3

.81 between coder 2 and coder 3

The proportion corresponding to each category was then computed. The sum square of these proportions is the expected agreement, which equaled .692. The low results of

the Scott's pi shown in Table 4.1 illustrate the problem of having a meaningless high observed agreement, which was the result of chance.

The intercoder reliability was performed a second time, after further discussion, explanation and examples to illustrate each element were provided to the coders. The number of articles was reduced this time to six, to concentrate more on the detailed explanation. The results the second time around were satisfactory. The observed agreements for the three sets of coders are:

- .94 between coder 1 and coder 2
- .94 between coder 1 and coder 3
- .93 between coder 2 and coder 3

Table 4.1 Scott's pi results

	First test	Second test
Expected agreement	0.69	0.67
Between coder 1 and 2	0.35	0.82
Between coder 1 and 3	0.22	0.81
Between coder 2 and 3	0.40	0.79

As Table 4.1 shows, Scott's pi resulted in values that were close to 80 per cent of agreement not due to chance. With these satisfactory results, a composite reliability score was calculated, following a procedure explained by Holsti (1969), where N is number of coders and average agreement is $(.82 + .81 + .79) / 3 = .806$.

$$\text{Composite reliability} = \frac{N (\text{average agreement})}{1 + [(N-1) (\text{average agreement})]} = \frac{3 (.806)}{1 + 2 (.806)} = .92$$

Data analysis

The coding process took place after the intercoder reliability tests. All 708 stories and one editorial cartoon were coded by the author because of the great amount of time that was required. The data were entered into a computer using SPSS Data Entry. The analysis of the data was performed with SPSS (Statistical Package for Social Sciences) for Windows version 6.1.2 . Frequencies of all variables were computed for the first part of the analysis. To measure whether statistical differences existed between the newspapers, according to the location of the issue, and according to the main claimer, t-tests were performed. Crosstabulation tables were also computed to identify those cases in which opposing elements appeared at the same time.

5 ANALYSIS

Frequencies of the variables

The number of articles selected from each on-line newspaper resulted in an unbalanced representation. From a total of 709 stories, 521 articles were selected from *La Nación*, while only 188 stories from *El País* were considered relevant to this study. This result is more astonishing when we deal with percentages: 73.5 per cent of the stories selected were from *La Nación*. The reasons for this extreme difference lie in the fact that *La Nación's* web site offered more stories each day than the web site of *El País*. However, it is also necessary to point out that in relative terms, *La Nación* also offered a higher percentage of stories dealing with issues pertinent to this study.

As is seen in Table 5.1, in both newspapers the overall percentage of stories dealing with natural resources is less than 7 per cent, which suggests that this is not a main issue for either one of the on-line media, who dedicate a higher number of stories to other topics.

Table 5.1 Proportion of stories selected from each newspaper

Newspaper	Total stories August	Selected stories August	Total stories September	Selected Stories September	Total % stories selected
El País	2,563	87 (3.39 %)	3,212	102 (3.17 %)	3.27 %
La Nación	3,894	280 (7.20 %)	3,715	239 (6.40 %)	6.80 %

Independent variables

The **section** in which most stories were found was the international section with 47.7 per cent of the stories, followed by the English section (15 per cent), miscellaneous (14.4 per cent), economy (10.7 per cent), national (9.2 per cent) and opinion (3.1 per cent).

The **topic** that appeared in most of the articles was exploitation of natural resources with 80.1 per cent, while all three other categories were much less common. Articles about plant or animal species appeared 8.6 per cent of the time; national parks or protected areas 5.8 per cent; and contamination issues only appeared 5.5 per cent. Here we see a great difference between stories that could potentially be concerned with environmental problems versus stories that deal with the capitalization of natural resources, which, most likely will not be concerned with environmental problems.

The **coverage assessment** of the stories yielded mostly negative stories, that is stories which do not show any concerns towards protection of the natural resources and / or protection to the environment. These stories totaled 77.2 per cent. The stories where protection of the environment was present amounted to 16.9 per cent, while stories in which contradictory arguments appeared, labeled mixed, came to 5.6 per cent of the total. The frequencies of this variable support the concern stated previously, that there is an imbalance between environmental concerns and no environmental concerns.

The **location** of the issue: Stories that covered topics outside the borders of the country in which the newspaper is published came up to 73.2 per cent of the total, while only 26.8 per cent of stories covered topics that happened inside the borders of their country.

Apart from the location of the issue, the **effects** of the issue were also coded. The results show that 58.1 per cent of the stories fit in the international category, without affecting the country where the newspaper is published, 21.6 per cent of the stories belonged to the national category, while 20.3 per cent of the stories dealt with issues

that affected both inside and outside the country where the newspaper is published.

For presence or absence of **economic terms** in the stories, the results are somewhat more evenly distributed, even though there are more stories (54.2 per cent) that do mention economic terms. The rest of the stories (45.7 per cent) do not mention any economic terms anywhere in the article.

The **flow of news**, which was divided in three categories, showed that around 12 per cent of the stories did not provide any information about the source of the article, and were coded as missing. Excluding these missing values, 55.5 per cent of the stories were supplied by news agencies, 41.8 per cent were supplied by the newspaper's staff, while 2.7 per cent had information both from a news agency and a staff member.

The **actor** which was mentioned most in the stories was the governmental agency, mentioned in 573 stories (80.8 per cent)¹; followed by the private owner, mentioned in 212 stories (70.1 per cent). The next actor mentioned most frequently was the local NGOs, in 193 stories (27.2 per cent); the intergovernmental agencies appeared in 157 stories (22.1 per cent); and the international NGOs appeared in only 32 stories (4.5 per cent).

The **main claimer** in a majority of stories (62.9 per cent) also turned out to be, not surprisingly, the governmental agency. The private owner and the indigenous-local NGO share the second position with a 14.5 per cent of stories each. The intergovernmental agencies appeared as the main claimer of the story in 6.5 per cent of the articles, while the international NGOs only appeared in 11 stories (1.7 per cent). Nevertheless, in 46 stories it was not feasible to assign a main claimer, as not enough information was provided, or in some cases there were no identifiable actors in the whole story.

¹The percentages do not add up to 100, as more than one actor may be mentioned in each story.

Dependent variables

This first run of the frequencies shows that several of the elements that are included in the paradigms were not mentioned in the stories very often. This means that both in the dominant paradigm and in the post-industrial paradigm, the corresponding items were coded 0. It is interesting that only certain themes are being raised by these two newspapers, while other ones have been disregarded and set aside. As is seen in Table 5.2, the themes that appear most often are the environmental category (with the exception of the population elements), the political and the economic categories. On the other hand, the technological, interpersonal, organizational and work issues do not appear often in the stories selected. The value category is divided, as some elements have a high presence while others have a low presence. It seems, though, that basically economic and political themes, as well as a few environmental and value elements, are the ones that emerged the most.

Following is a more detailed explanation of the presence of each element. Starting with the **environmental category**, it is seen that:

1 - *Humans as part of nature* appears in only 14 stories, which is equivalent to 2 per cent of the articles.

2 - *Humans control nature* is present in 503 stories (70.9 per cent).

3 - *Nature is valuable in itself* appears in 150 stories (21.2 per cent).

4 - *Nature is only valuable if it gives resources* is an element that appears in 459 stories (64.7 per cent).

5 - *Natural resources are limited* appears in 103 stories (14.5 per cent).

6 - *Natural resources are ample* is present in 71 stories (10 per cent).

The issue of world population is one of the most astonishing examples because of its almost complete absence (only three stories mention that the world's population should be controlled to reduce the strain on natural resources).

Table 5.2 Presence of worldview items in the selected stories

Post-industrial Worldview		Dominant Western Worldview	
Environmental components			
Humans are part of nature	X	XXXXXXX	Humans control nature
Nature is valuable in itself	XX	XXXXXX	Nature is only valuable if it gives resources
Natural resources are limited	X	X	Natural resources are ample
World population must be controlled	*		Size of world population will not affect NR
Technological components			
Most adequate technology	X	X	Most advanced technology
There's always a need to assess the use of technology	X	*	NR will not decrease because of use of technology
For every solved problem technology creates new ones	*	*	Technology solves most problems
Work components			
Creation of jobs that will not hinder NR	*	*	Creation of jobs is more important than depletion of NR
There is no need for job specialization nor division of labor	*	*	There is a need for job specialization and division of labor
Economic components			
Exploitation of NR for human needs	XXX	XXXXX	Exploitation of NR to maximize profits
There should be limits to economic growth due to ecological concerns	X	*	The story mentions no limit to economic growth
Defense of voluntary simplicity	*	*	Defense of maximizing consumption and personal income
Political components			
Role of decentralized government	X	XXXXXX	Role of centralized government

X represents the nearest 10 per cent.

* represents values less than 5 per cent.

Table 5.2 (Continued)

Post-industrial Worldview		Dominant Western Worldview	
Political components (continued)			
Decisions should be/are made by citizens based on valuative concerns	X	XXXXXX	Decisions should be/are made by experts based on factual knowledge
Authority is/should be non-hierarchical and participatory	XX	X	Authority is/should be hierarchically structured
Interpersonal components			
Community activity or initiative	X	*	Individual activity or initiative
Organizational components			
Town is positively viewed	*	*	City is positively viewed
Value components			
Human development	*	XXXXXX	Material accomplishment
Well-being of human society	XXXXX	XXXXX	Cost/benefit of any human activity
Human scale is better	*	X	Bigger is better
Values, traditions of other cultures	*	*	Values, traditions of one culture
Concern about future state of NR	XXXX	XX	Concern only about present state of NR

7 - *World population must be controlled* represents 0.4 per cent of the articles.

8 - *The size of the world population would not affect natural resources* does not appear in any of the stories included in this study.

A very small number of articles mention any of the dominant or post-industrial items related to the categories of **technology** and **interpersonal**.

9 - *Most adequate technology* is an element that appears in 103 stories (14.5 per cent).

10 - *Most advanced technology* appears in 54 stories (7.6 per cent).

11 - *There is a need to always assess the use of technology* appears in 103 stories (14.5 per cent).

12 - *Natural resources will not decrease because of more and more use of developed technology* appears in only 30 stories (4.2 per cent).

13 - *For every solved problem, technology creates a new one* is present in 31 stories (4.4 per cent).

14 - *Technology solves most (all) problems* is present in 35 stories (4.9 per cent).

31 - *Community activity or initiative* is present in 102 stories (14.4 per cent).

32 - *Individual activity or initiative* is present in 28 stories (3.9 per cent).

The **work** and **organizational** categories follow that same trend, with an even lower number of stories where any of these items appear:

15 - *Creation of jobs that will not hinder natural resources* only appears in 3 stories (0.4 per cent).

16 - *Creation of jobs is more important than depletion of natural resources* appears in 8 stories (1.1 per cent).

17 - *There is no need for job specialization nor division of labor* appears in 2 stories (0.3 per cent).

18 - *There is a need for job specialization and division of labor* appears in 7 stories (1 per cent).

33 - *Town is positively viewed* is only present in 9 stories (1.3 per cent).

34 - *City is positively viewed* is only present in 2 stories (0.3 per cent).

In the **economic** category, we see that the two confronting items that appear the most in the stories are:

19 - *Exploitation of natural resources for human needs*, which is present in 242 stories representing 34.1 per cent of the articles, and

20 - *Exploitation of natural resources to maximize profits*, which appears in 300 stories (42.3 per cent).

The rest of the economic items seem to not be considered as important in either of the newspapers as they appear less often:

21 - *There should be limits to economic growth due to ecological concerns* appears in 116 stories (16.4 per cent).

22 - *The story mentions no limits to economic growth* appears in only 22 stories (3.1 per cent).

23 - *Defense of voluntary simplicity* appears in 13 stories (1.8 per cent).

24 - *Defense of maximizing consumption and personal income* appears in 45 stories (6.3 per cent).

The items either in the dominant or in the post-industrial paradigm seem to appear quite often in the **political** category. Following are the exact frequencies obtained:

25 - *Role of decentralized government* appears in 120 stories (16.9 per cent).

26 - *Role of centralized government* appears in 434 stories (61.2 per cent).

27 - *Decisions should be/are made by citizens based on valuative concerns* is present in 99 stories (14 per cent).

28 - *Decisions should be/are made by experts based on factual knowledge* is present in 456 stories (64.3 per cent).

29 - *Authority is/should be non-hierarchical and participatory* appears in 147 stories (20.7 per cent).

30 - *Authority is/should be hierarchically structured* appears in 117 stories (16.5 per cent).

In the **value** category, the results obtained vary from each set of paired items to the next. The two sets of paired items that appear the most are the ones related to economic versus social issues:

35 - *Human development* appears in 28 stories (3.9 per cent).

36 - *Material accomplishment* appears in 416 stories (58.7 per cent).

37 - *Well-being of human society* appears in 341 stories (48.1 per cent).

38 - *Cost/benefit of any human activity* appears in 340 stories (48 per cent).

Meanwhile, the rest of the items do not appear very often in the stories selected:

- 39 - *Human scale is better* appears in 31 stories (4.4 per cent).
- 40 - *Bigger is better* appears in 121 stories (17.1 per cent).
- 41 - *Values, traditions of other cultures* appears in 21 stories (3 per cent).
- 42 - *Values, traditions of one culture* appears in 3 stories (0.4 per cent).
- 43 - *Concern about future state of natural resources* appears in 146 stories (20.6 per cent).
- 44 - *Present state of natural resources is plentiful* appears in 90 stories (12.7 per cent).

Presence of contradictory elements

Before undertaking the hypotheses testing, it was necessary to ascertain whether contradictory elements were mentioned in the same story. The presence of both paradigms in one particular story would help in discerning how important are both sets of ideas in the agenda of both newspapers. What is also interesting is to find out whether one of them is more established than the other, or if they coexist.

Olsen et al. (1992) pointed out that the post-industrial paradigm is an “emerging” paradigm, consequently it is assumed that it will not be endorsed by the majority of the population. It is expected that the social actors that would advocate the post-industrial paradigm would be the local and international NGOs, as well as the intergovernmental agencies. As we saw in the frequencies, these actors only appear as the main claimers in 22.7 per cent of the stories, while in the majority of cases (62.9 per cent), it was the governmental agency’s point of view that got the most coverage. It is very possible that this unbalanced coverage could be a factor in the presence of both elements (one from the dominant western worldview and one from the post-industrial worldview).

Crosstabulation tables were constructed to see whether any two sets of elements appeared in the same story or not, and how often this happened. In only one of the 22

sets of elements, *well being of human society* and *cost/benefit of human activity*, do both elements appear in the same story more than 10 per cent of the time. More precisely, this is found in 13.5 per cent of the stories. There are four more sets that also have both elements appearing in the same story. However, this occurs with a frequency of less than 10 per cent: *decentralized government* and *centralized government*, with 7 per cent; *exploitation of natural resources for human needs* and *exploitation to maximize profits*, with 6 per cent; *nature is valuable in itself* and *nature is only valuable if it gives resources*, also with 6 per cent; and *decisions made by citizens based on valuative concerns* and *decisions made by experts based on factual knowledge*, with 3 per cent.

Overall, the results of the crosstabulation tables shown in Table 5.3 suggest that, even though both paradigms may be present in one story, seldom do two elements of one set coincide in a particular story. Most of the stories show no tension between two contrasting ideas and, hence, no tension between the paradigms.

To be able to test which of the two paradigms was most prevalent in the stories selected, scores of the elements were computed. A score consists of a measurement of added items, whether the items measure the same thing or not, or whether all items head in the same direction or not. This is different from a scale, in which a reliability test would ensure that all items would measure the same thing. The decision to compute scores versus scales lies in the fact that it is assumed that most stories will have a combination of both paradigms. As the post-industrial paradigm is an emerging worldview, it is expected that several of its elements will coexist along with the elements of the dominant paradigm.

The first step was to create a score for each category in which there would be the dominant versus the post-industrial score, and afterwards an overall score for both paradigms that would include all the categories under the dominant paradigm, on one hand, and all the categories of the post-industrial paradigm, on the other. Table 5.4 presents the possible scores that each story could possibly have, along with the mean for each index.

Table 5.3 Crosstabulation table: presence of elements from both worldviews

Sets of elements	Number of stories	% dual presence
Environmental components		
★ Humans are part of nature & ★ Humans control nature	5	.7
★ Nature is valuable in itself & ★ Nature is only valuable if it gives resources	42	5.9
★ Natural resources are limited & ★ Natural resources are ample	0	0
★ World population must be controlled & ★ Size of world population will not affect NR	0	0
Technological components		
★ Most adequate technology & ★ Most advanced technology	7	.9
★ Permanent need to assess use & of technology ★ NR will not decrease because of use of technology	3	.4
★ For every solved problem technology creates new ones & ★ Technology solves most problems	2	.2
Work components		
★ Creation of jobs that will not hinder NR & ★ Creation of jobs is more important than depletion of NR	0	0
★ No need for job specialization or & division of labor ★ Need for job specialization and ★ division of labor	0	0
Economic components		
★ Exploitation of NR for human needs & ★ Exploitation of NR to maximize profits	45	6.3
★ Need for limits to economic growth & ★ No need to limit economic growth	1	.1
★ Voluntary simplicity & ★ Maximizing consumption and personal income	0	0

Table 5.3 (Continued)

Sets of elements	Number of stories	% dual presence
Political components		
★ Decentralized government & ★ Centralized government	51	7.2
★ Decisions by citizens & ★ Decisions by experts	21	2.9
★ Non-hierarchical authority & ★ Hierarchical authority	8	1.1
Interpersonal components		
★ Community activity & ★ Individual activity	1	.1
Organizational components		
★ Town is positive & ★ City is positive	0	0
Value components		
★ Human development & ★ Material accomplishment	3	.4
★ Well-being of human society & ★ Cost/benefit of human activity	96	13.5
★ Human scale is better & ★ Bigger is better	0	0
★ Values, traditions of other cultures & ★ Values, traditions of one culture	2	.2
★ Concern about future of NR & ★ Present concern about NR	1	.1

The overall score of both paradigms was also calculated (Table 5.5), and both the dominant and the post-industrial paradigms achieved a low score in the majority of the stories. No stories display results close to the possible score of 22. For the dominant paradigm, the maximum score achieved was 14 in five stories, while for the post-industrial paradigm, the maximum score reached was 16, but only in one story. However, the mean of the indices is 5.9 for the dominant paradigm, and 2.7 for the post-industrial paradigm.

The main difference between the two indices, which can be seen more clearly in Figures 5.1 and 5.2, is the almost normal distribution of the dominant index, versus the

Table 5.4 Possible minimum and maximum score values

Categorical scores	Minimum value	Maximum value	Mean value
d-economic	0	3	0.518
p-economic	0	3	0.523
d-environmental	0	4	1.457
p-environmental	0	4	0.381
d-interpersonal	0	1	0.039
p-interpersonal	0	1	0.144
d-organizational	0	1	0.003
p-organizational	0	1	0.013
d-political	0	3	1.420
p-political	0	3	0.516
d-technological	0	3	0.168
p-technological	0	3	0.334
d-value	0	5	1.368
p-value	0	5	0.800
d-work	0	2	0.979
p-work	0	2	0.007

The names of the scores that form part of the dominant paradigm begin with a *d*, while all scores that belong to the post-industrial paradigm begin with a *p*.

skewed distribution of the post-industrial index. This is explained by the great number of stories (168) that do not contain any element of the post-industrial paradigm, which represent 23.7 per cent of the sample. The next 35.1 per cent are stories that contain one or two post-industrial elements. In other words, almost 60 per cent of the stories present two or fewer elements of the post-industrial paradigm.

Although the mean of the dominant score is higher than the mean of the post-industrial score, it is possible to say that the mean values in general are quite low. These low values are another indication of the absence of several items throughout the sample of stories.

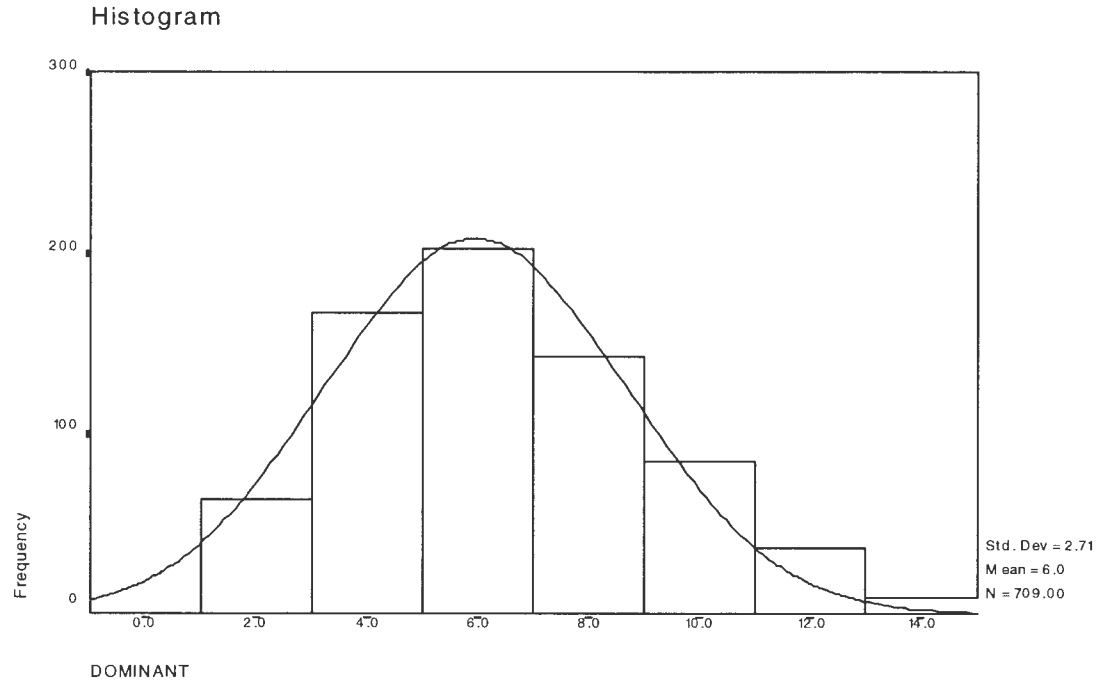


Figure 5.1 Distribution of the dominant paradigm score

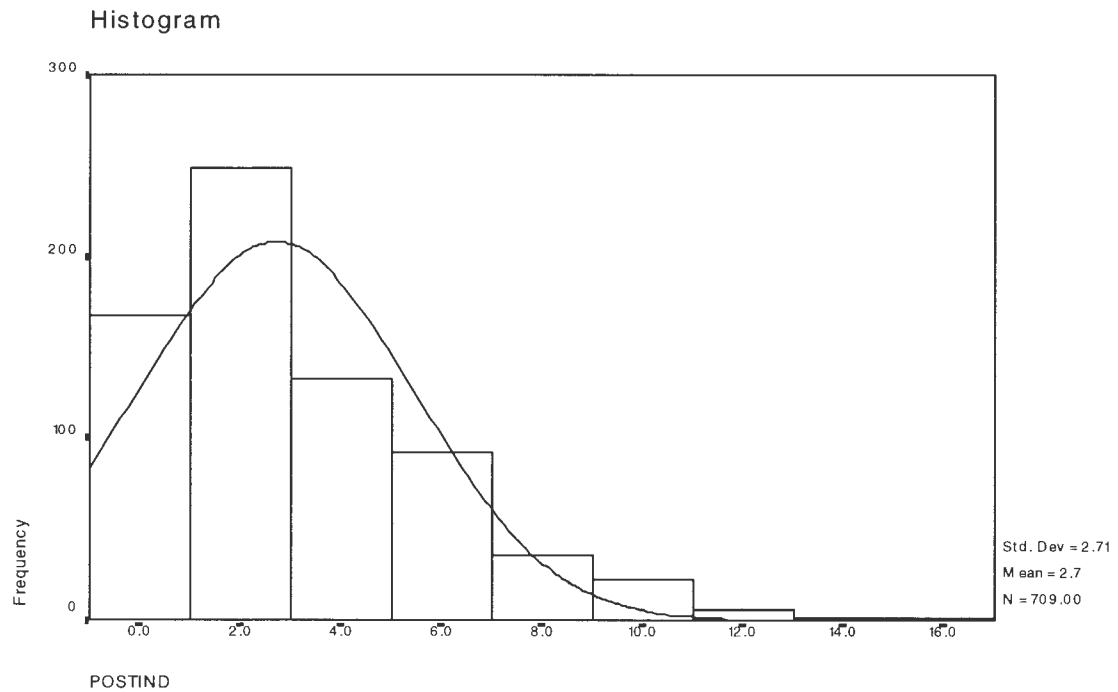


Figure 5.2 Distribution of the post-industrial paradigm score

Table 5.5 Minimum and maximum possible values for overall scores

Overall scores	Minimum value	Maximum value	Mean	Median
dominant	0	22	5.952	6.0
post-industrial	0	22	2.718	2.0

Hypotheses testing

Hypothesis 1a - *The components present in the post-industrial worldview will appear more frequently in the stories about natural resources that El País publishes, while*

Hypothesis 1b - *The components present in the dominant western worldview will appear more frequently in the stories about natural resource use that La Nación publishes.*

As is seen in Table 5.6, hypothesis 1a is supported, while hypothesis 1b is rejected. Hypothesis 1b does identify *El País* as presenting a significantly higher average of post-industrial components. The mean difference of the post-industrial score is -0.9702, and this is significant at the 0.05 level. However, the mean difference between both newspapers for the dominant paradigm score is -0.1232, which is not significant at the 0.05 level. Hypothesis 1a, thus, is not supported. It is important to note that the different categorical scores may yield a different result, because of items that pull the overall score in different directions.

In addition to the analysis using overall scores, each category was examined to see whether they follow the same pattern, using as well one-tailed t-tests. As Table 5.7 indicates, there are only three categorical scores that follow the same trend as the overall score: the environmental, the technological and the value categories. The scores that

Table 5.6 T-test for mean differences between both newspaper in overall scores

Overall scores	La Nación mean	El País mean	Mean differences	T-value	p-value
Dominant	5.9194	6.0426	-0.1232	-.53	.296
Post-industrial	2.4607	3.4309	-0.9702	-3.71	.000

measured the economic, interpersonal, organizational and work categories did not yield a significant difference for either of the two paradigms. The interesting finding is that for the political score, the mean difference between the two newspapers was significant for both paradigms. However, it was not as hypothesized since *El País* scored higher in the dominant as well as in the post-industrial.

Table 5.7 T-test for mean differences between both newspapers in categorical scores

Categorical scores	La Nación mean	El País mean	Mean differences	T-value	p-value
deconom	0.5067	0.5479	-0.0412	-.73	.233
peconom	0.5125	0.5532	-0.0407	.68	.247
denviron	1.4760	1.4043	0.0717	1.05	.147
penviron	0.3109	0.5745	-0.2636	-3.66	.000
ditrper	0.0403	0.0372	0.0031	.19	.426
pitrper	0.1459	0.1383	0.0076	.25	.400
dorganiz	0.0000	0.0106	-0.0106	-1.42	.079
porganiz	0.0115	0.0160	-0.0045	-.47	.321
dpolit	1.3493	1.6170	-0.3204	-3.42	.000
ppolit	0.4568	0.6809	-0.2241	-3.43	.000
dtechnol	0.1766	0.1436	0.0330	.70	.243
ptechnol	0.2668	0.5213	-0.2545	-3.60	.000
dvalue	1.3913	1.3032	0.0881	.85	.198
pvalue	0.7486	0.9415	-0.1929	-2.70	.003
dwork	0.9789	0.9787	0.0002	.01	.494
pwork	0.0077	0.0053	0.0024	.25	.403

The results suggest that *El País* is presenting more often than *La Nación* ideas of the post-industrial worldview, but the dominant worldview is just as prevalent in both newspapers. The post-industrial paradigm is not replacing the dominant paradigm in *El País*.

Hypothesis 2a - *Stories that cover local or national problems dealing with natural resources will portray a higher number of components that are present in the dominant western worldview, while*

Hypothesis 2b - *Stories that cover international problems dealing with natural resources will portray a higher number of components from the post-industrial worldview.*

For the overall dominant score, the mean difference between stories that cover national issues and stories that cover international issues is 0.2221. The results of the t-test show that this difference is not significant at the 0.05 level. Consequently, hypothesis 2a is not supported.

The mean difference between the international and the national issues for the post-industrial score is -1.205, which is an unexpected result. The stories that covered national issues had a higher post-industrial score than stories that were covering international issues. As Table 5.8 shows, this result is not significant for hypothesis 2b. In fact, it suggests that in the case of a two-tailed t-test it would be significant, but in the other direction. Because of this unexpected finding, hypothesis 2b is not supported.

Table 5.8 T-test for mean differences between location groups in overall scores

Overall scores	International mean	National mean	Mean differences	T-value	p-value
Dominant	6.0116	5.7895	0.2221	.94	.174
Post-industrial	2.3950	3.6000	-1.2050	-4.53	.000

Looking more in detail at the scores of the different categories, we see several different tendencies. As Table 5.9 indicates, the organizational, technological, value and work categories have the same pattern as was illustrated in the results for the overall scores, that is:

- national issues score higher in post-industrial score of those categories, which is the opposite to the direction both hypotheses predicted.
- no significant difference in the dominant score.

In the environmental category, the results of the t-tests show significant differences at the 0.05 level, but also in a direction opposite to that which was hypothesized. The interesting thing to point out is that this is true for both groups: stories about inter-

national issues presented more items of the dominant worldview, while stories about national issues presented more items of the post-industrial worldview.

The only category where one of the hypotheses was supported was the interpersonal category, in which the national stories scored higher in the dominant worldview. The post-industrial score presented no significant difference for this category. The remaining categories, economic and political, showed no significant difference between national or international stories for either of the two paradigms.

Table 5.9 T-test for mean differences between location groups in categorical scores

Categorical scores	International mean	National mean	Mean difference	T-value	p-value
deconom	0.5067	0.5474	-0.0407	-.72	.235
peconom	0.5010	0.5842	-0.0832	-1.38	.084
denviron	1.5183	1.2895	0.2288	3.39	.000
penviron	0.2466	0.7474	-0.5008	-6.86	.000
ditrper	0.0193	0.0947	-0.0754	-3.41	.000
pitrper	0.1445	0.1421	0.0024	.08	.468
dorganiz	0.0039	0.0000	0.0039	.86	.196
porganiz	0.0039	0.0368	-0.0330	-2.36	.009
dpolit	1.4181	1.4263	-0.0082	-.10	.458
ppolit	0.5299	0.4789	0.0509	.78	.219
dtechnol	0.1753	0.1474	0.0279	.59	.277
ptechnol	0.2640	0.5263	-0.2623	-3.84	.000
dvalue	1.3911	1.3053	0.0858	.83	.204
pvalue	0.7052	1.0579	-0.3527	-4.32	.000
dwork	0.9788	0.9789	-0.0001	-.01	.495
pwork	0.0000	0.0263	0.0263	-1.67	.048

Hypothesis 3a - *Stories whose claimers are private owners or governmental agencies will present more components from the dominant western worldview, while*

Hypothesis 3b - *Stories whose claimers are intergovernmental agencies, international environmental NGOs, or local or indigenous NGOs will present more components from the post-industrial worldview.*

The results in Table 5.10 indicate significant differences between the main claimer

groups for both overall scores. The owner and government group scored higher in the dominant score than the NGO and agency group, with a mean difference of 1.6766. On the other hand, the NGO and agency group achieved a higher score in the post-industrial score than the owner/government group, with a mean difference of -2.6292. Both mean differences are significant at the 0.001 level, which means that both hypothesis 3a and 3b are supported.

Table 5.10 T-test for mean differences between main claimers in overall scores

Overall scores	Owner/govt mean	NGO/agency mean	Mean differences	T-value	p-value
Dominant	6.5166	4.8400	1.6766	7.83	.000
Post-industrial	2.0175	4.6467	-2.6292	-10.43	.000

A more in-depth analysis of the different categories, as shown in Table 5.11, indicates that a majority of the categorical scores follow the same pattern as the overall scores, and that there is no major opposite tendency.

The economic, environmental, political, technological, and value scores present significant differences between the claimer groups, and all of them indicate that the owner and government group scores higher on the dominant paradigm, while the NGO and agency group scores higher on the post-industrial paradigm. The interpersonal category follows the same tendency showing a high post-industrial score for the NGO/agency group (significant at the 0.05 level). However, even though the owner and government group is higher on the interpersonal dominant score the significance level is only 0.07.

The score composed of the work elements shows an interesting unexpected result, with the NGO/agency group scoring higher on the dominant paradigm. The post-industrial paradigm presents no significant difference between the claimers. The organizational category is the only one in which there is no significant difference between the claimers. In general, this last set of hypotheses is supported by the result of the t-tests.

Table 5.11 T-test for mean differences between main claimers in categorical scores

Categorical scores	Owner/govt mean	NGO/agency mean	Mean differences	T-value	p-value
deconom	0.6335	0.2200	0.4135	8.66	.000
peconom	0.4288	0.7933	-0.3645	-6.51	.000
denviron	1.5283	1.3600	0.1683	2.27	.011
penviron	0.2398	0.5867	-0.3469	-4.48	.000
ditrper	0.0409	0.0200	0.0209	1.45	.074
pitrper	0.0682	0.4333	-0.3651	-8.67	.000
dorganiz	0.0039	0.0000	0.0039	.77	.222
porganiz	0.0078	0.0200	-0.0122	-1.01	.157
dpolit	1.5906	1.2067	0.3839	5.15	.000
ppolit	0.3684	1.1467	-0.7783	-9.79	.000
dtechnol	0.1969	0.1000	0.0969	2.25	.012
ptechnol	0.2768	0.4733	-0.1965	-2.62	.005
dvalue	1.5497	0.9400	0.6097	6.20	.000
pvalue	0.6179	1.2333	-0.6154	-8.74	.000
dwork	0.9727	0.9933	-0.0206	-2.10	.018
pwork	0.0097	0.0000	0.0097	.90	.183

Testing of research questions

The goal of this research was basically to determine if differences between pre-determined groups would be significant in studying two contrasting worldviews. However, other variables were considered important to examine as they could impinge on the outcome of the hypotheses testing. An additional analysis examined three variables: the language in which the story was written; the length of the stories; and who had written the story, a newspaper staff member or a press agency.

Research question 1

One of the variables encountered was unexpected: English stories were posted on the web site of only one of the newspapers, *La Nación*. A decision was made to include these stories along with the Spanish ones, although it did raise a methodological concern: whether these stories would affect the end result. Thus, the following research question

was formulated.

Do the English stories published in *La Nación* differ from those published in Spanish?

The possibility that the English stories would follow different editorial guidelines, recommended that a new set of t-tests (in this case, two-tailed) be conducted looking for potential differences in *La Nación* according to whether the stories were written in English or in Spanish. For this analysis only the stories published in *La Nación's* web site were included. Of these, 415 were written in Spanish and 106 were in English. Looking at the overall scores shown in Table 5.12, the Spanish stories have a higher mean score for the dominant paradigm than the English stories. However, the post-industrial mean of both language groups is not significantly different.

Table 5.12 T-test for mean differences between language groups in overall scores

Overall scores	Spanish mean	English mean	Mean differences	T-value	p-value
Dominant	6.1108	5.1698	0.9410	3.23	.001
Post-industrial	2.5253	2.2075	0.3178	1.34	.183

Three categorical scores present no significant difference for either paradigm. These are the interpersonal, political and technological scores.

Stories published in Spanish present a higher dominant score on the economic, environmental and value categories (Table 5.13). Nevertheless, the post-industrial scores for these same categories show no significant difference whether the story is in English or in Spanish.

The post-industrial score for the organizational category shows a higher score among the Spanish stories. However, the English stories present no significant difference compared to the Spanish stories in the dominant score for the organizational category.

In the work category, the dominant score yields no significant difference between

Table 5.13 T-test for mean differences between language groups in categorical scores

Categorical scores	Spanish mean	English mean	Mean differences	T-value	p-value
deconom	0.5590	0.3019	0.2571	4.07	.000
peconom	0.5157	0.5000	0.0157	.24	.810
denviron	1.5277	1.2736	0.2541	2.98	.003
penviron	0.3253	0.2547	0.0706	1.06	.292
ditrper	0.0458	0.0189	0.0269	1.60	.110
pitrper	0.1470	0.1415	0.0055	.14	.887
dorganiz	0.0000	0.0000	0.0000	-	-
porganiz	0.0145	0.0000	0.0145	2.46	.014
dpolit	1.3614	1.3019	0.0596	.59	.558
ppolit	0.4723	0.3962	0.0761	.93	.354
dtechnol	0.1807	0.1604	0.0203	.33	.745
ptechnol	0.2843	0.1981	0.0862	1.45	.147
dvalue	1.4627	1.1132	0.3494	2.79	.006
pvalue	0.7614	0.6981	0.0633	.72	.470
dwork	0.9735	1.0000	-0.0254	-3.36	.001
pwork	0.0048	0.0189	-0.0140	-.72	.472

either language, but the post-industrial score shows that the English stories score higher than the Spanish ones.

A discriminant analysis was also performed to see whether the differences that have been identified are real differences, and whether the categorical scores are strong enough predictors to identify correctly in which language the stories were written. The procedure for this analysis, which used a stepwise method, included all 709 stories from both newspapers. The logic to conduct this test was based on reversing the relationship between the variables. The dependent variable is now language, while the categorical scores become independent variables to test this research question.

The results of this analysis, even though significant, showed a low prediction power. The re-classification of the stories into English and Spanish was achieved with very low probability of success once this was compared to the real data. Out of the Spanish group, 58.9 per cent of the cases were classified correctly, while 41.1 per cent were identified as

English stories. In the case of the English stories, 67.9 per cent of them were classified correctly. The overall percentage of correctly classified stories is 60.23. These results suggest that the identified variables are not good predictors to discern the language of the stories and, thus, that there is no important difference between English and Spanish stories.

Research question 2

Another variable that may provide insight on how stories about natural resources are constructed concerns who had written the story. If a news agency had provided the information, the story may contain different elements than if a staff member had gathered the information. This to some extent is related to a media organizational procedure as explained by McManus (1990). Media enterprises with few resources will tend to promote less active discovery among their reporters and rely more on press releases and wire services, while media with greater amount of resources will encourage a more active discovery. Their reporters will be able to contact their sources outside of the newsroom, and the medium itself will be operating more accordingly to a public service model.

The scope of this study is not to examine what resources each one of the newspapers has to offer information to their audiences. However, it is possible that in the cases where a wire service is used to provide information on a certain topic there is less chance to include other sources involved in the issue. Here is where the less-established groups can be left out, and if the less-established groups are advocating the post-industrial paradigm it also receives less coverage. Thus, this research question was presented:

Does the flow (source) of information have any influence on the type of paradigm present in the stories?

The first consideration to answer this research question was whether to also include the category of story written with information of both agency and staff. However, the

number of stories included in this category was so minimal (17, or 2.7 per cent) that they were excluded from the analysis. T-tests were performed with two-tailed significance levels to examine whether if the story was written only by an agency or only by the newspaper staff did it lead to a particular higher score on one of the paradigms versus the other. Table 5.14 indicates that for the dominant overall score there is no significant difference between the two groups. Contrarily, the post-industrial overall score shows that the newspaper staff yields a higher score than the press agency. This is similar to the result found looking at the differences between newspapers.

Table 5.14 T-test for mean differences between flow of information categories, in the overall scores

Overall scores	Mean agency	Mean staff	Mean differences	T-value	p-value
Dominant	6.1217	6.2192	-0.0975	-.44	.659
Post-industrial	2.3449	3.2769	-0.9320	-4.05	.000

The in-depth analysis of the categorical scores shows that the environmental, organizational, technological and value scores follow the pattern stated for the overall scores, that is showing no significant difference for the dominant paradigm and the newspaper staff scoring higher in the post-industrial paradigm (Table 5.15).

The interpersonal score exhibits a result contrary to the previous tests. The stories written by the newspaper staff score higher on the dominant paradigm, while for the post-industrial paradigm there is no difference between the two groups.

The remaining scores (economic, political and work) show no significant differences between the groups tested either for the dominant paradigm or for the post-industrial paradigm. This analysis was also performed without the English stories to check whether this variable changed the results. The results indicated a very similar pattern, with the exact same categories appearing as significant in the cases described above.

Table 5.15 T-test for mean differences between flow of information categories, in categorical scores

Categorical scores	Mean agency	Mean staff	Mean differences	T-value	p-value
deconom	0.5478	0.5846	-0.0368	-.67	.504
peconom	0.5043	0.5385	-0.0341	-.63	.529
denviron	1.5507	1.4538	0.0969	1.47	.142
penviron	0.2029	0.6192	-0.4163	-6.57	.000
ditrper	0.0174	0.0796	-0.0595	-3.31	.001
pitrper	0.1507	0.1308	0.0200	.69	.487
dorganiz	0.0000	0.0077	-0.0077	-1.42	.158
porganiz	0.0029	0.0269	-0.0240	-2.30	.022
dpolit	1.4116	1.5385	-0.1269	-1.69	.091
ppolit	0.5536	0.5231	0.0305	0.48	.631
dtechnol	0.1797	0.1577	0.0220	0.48	.634
ptechnol	0.2493	0.4769	-0.2276	-3.77	.000
dvalue	1.4406	1.4231	0.0175	.17	.864
pvalue	0.6812	0.9423	-0.2611	-3.69	.000
dwork	0.9739	0.9769	-0.0030	-.24	.814
pwork	0.0000	0.0192	-0.0192	-1.67	.096

Research question 3

The third research question is merely considering whether longer stories are able to present more elements of the post-industrial worldview, just because of more space dedicated to a particular issue. The research question was formulated accordingly:

Do the stories with a higher number of words have more post-industrial categories present, or more dominant categories present?

To test this research question, a correlation test was conducted. As Table 5.16 shows, the correlation coefficients between the number of words and the presence of the dependent variables is significant in some instances. In the case of the overall scores, the correlation between the dominant paradigm and the number of words is 0.12, which is significant at the 0.05 level. Similarly, the correlation coefficient between the post-industrial paradigm and number of words (0.18) is also significant, this time at the 0.005 level of confidence. Although significant, these correlation coefficients are quite low, and

suggest a low degree of association between the variables.

A detailed analysis of the categorical scores also shows in general low correlation coefficients for each of the indices. The majority of the scores have a positive correlation with the number of words, so the longer an article the more likely it will be that these scores are present. The score that yields the highest correlation coefficient is d-organizational (.268), followed by p-environment (.187) and p-value (.181). These scores would tend to be more present in those stories that have a higher number of words. Only one of the scores presents a negative correlation, which means the longer the article, the less likely it is that this particular score is present: d-work with a coefficient of -.105. Nevertheless, these results indicate a weak association, although significant, between some of the indices and the number of words present in a story.

Table 5.16 Correlation matrix between dominant and post-industrial paradigm scores and number of words

Dominant scores	Number of words	Post-industrial scores	Number of words
dominant	.1210 *	post-industrial	.1802 **
d-economic	.0928 *	p-economic	.0738 *
d-environment	.0707	p-environment	.1877 **
d-interpersonal	.1027 *	p-interpersonal	.0304
d-organizational	.2687 **	p-organizational	.1324 **
d-political	.0558	p-political	.0529
d-technological	.0599	p-technological	.1090 **
d-value	.0859 *	p-value	.1811 **
d-work	-.1052 *	p-work	.0293

* $p < .05$ ** $p < .005$

6 DISCUSSION AND CONCLUSIONS

Discussion

Olsen et al. (1992) considered that the post-industrial paradigm is an emerging set of beliefs and values which is starting to coexist with the dominant western worldview. The authors also mentioned that this new worldview is predominantly taking place in the modern industrialized societies. Even though this study cannot make a generalization in that sense, it does show that out of the two on-line newspapers the Spanish daily *El País* did present a higher amount of post-industrial themes than the Costa Rican daily *La Nación*.

The outcome for the dominant western worldview was different than expected between both newspapers. Results indicate that the dominant paradigm is equally prevalent in both papers. This is evidence that the beliefs and values related to the more capitalistic and money-driven worldview are widespread in these two media. Very possibly, this can be related also to the fact that if the post-industrial paradigm is an emerging one, most of the values and beliefs that get reported on will still get portrayed through the dominant paradigm's 'mental lenses'.

The dominant western worldview also appears to be just as prevalent whether the stories cover national and local issues or whether they cover international problems. Many of the categories examined display no difference between location groups. Economic, political, technological, work, value and organizational issues with a dominant worldview slant appear with the same frequency in both groups. As in the case of

both newspapers, this is another indication that the dominant western worldview is, unquestionably, the prevailing paradigm for the two location groups.

Unexpectedly, the post-industrial paradigm appeared more often in stories that dealt with national problems rather than with international ones. The rationale for linking the national issues with the dominant paradigm followed the premise that if the coverage of a story emphasized a national or local problem, it would be explained by the *not in my backyard* mentality (Sears et al., 1980). The interest towards that issue would be sparked because of the immediate and direct repercussions on the population, which could be connected to the present-oriented characteristic of the dominant worldview.

However, this hypothesis was not supported. The stories that covered national issues not only showed a higher concern about the environment than the international stories, but they also presented more often post-industrial values and beliefs related to the organizational, technological, work and value categories. In other words, more simple and adequate towns, technologies and jobs, and a more humanistic-oriented way of life, in which material possessions are not the goal of an individual's existence. A possible explanation for this would be that national issues tend to introduce concerns that could affect the citizens and communities of the country, and leave aside the capitalistic and materialistic factors related to the exploitation of natural resources, in comparison with the international stories.

It is interesting to indicate the well-defined differences between the main claimers of the stories, as well as an unbalanced amount of stories in both groups. Leading were the stories whose main claimer was governmental agencies, which along with those of private owners accounted for 77.4 per cent of the sample. This result seems to be in line with Neuzil and Kovarik (1996) who suggested that if only the well established groups have access to the media, the views of the less established groups may be ignored. The scope of this study cannot determine which actors have greater access to the two newspapers selected. Nevertheless, it has identified which actors are getting more coverage, and

those certainly seem to be well-established groups.

As was hypothesized, the dominant worldview appears more often in those stories whose main claimers are governmental agencies or private owners, while the post-industrial conception of the world is present more frequently in stories whose main claimers are NGOs or intergovernmental agencies. These groups maintain a certain position towards the exploitation of natural resources according, not only to a set of beliefs and values, but also to certain social, economic, political and historical context (Burgess et al., 1991).

The dominant worldview is associated to a high degree with stories about international topics, as well as with the point of view of a private owner or a governmental agency. In both cases, these attributes were the most frequent in their respective variables. It follows, then, that if a majority of stories are international, and these stories present more dominant themes, also in the case of the majority of stories with governmental agencies or owners as main claimers will the articles present more elements from the dominant paradigm.

Limitations of the study

1 - This research dealt specifically with the natural resource coverage of two major daily on-line newspapers: *La Nación* from Costa Rica and *El País* from Spain. Both are the leading newspapers in circulation figures of their country, which implies a broad coverage of issues that could interest and concern a broad audience. The results of this study cannot be generalized to the rest of the stories in either newspaper, to the hard-copy of the same newspapers for the reasons stated previously, or to the rest of the media in each country.

2 - Just examining the presence of both paradigms in *El País* and *La Nación* does not permit one to draw conclusions about how widely spread the dominant and the

post-industrial paradigms are among the general population of Costa Rica or Spain.

3 - The rather complex coding scheme that identifies certain elements as part of one of the worldviews could lead to different interpretations according to the values and beliefs of the coders. The first time that the intercoder reliability test was conducted this problem certainly became apparent. Very clear explanations of what each element is measuring were necessary, always taking into account how the different paradigms have been defined by Olsen et al. and other authors.

Conclusion

It is found, then, that only certain themes are crucial factors in determining the adherence to a certain worldview. Olsen et al. (1992) assumed that the most important theme in which the emergence of a new paradigm would occur would be the ecological realm, but they did not believe “that a paradigm change in that realm is necessarily—at least at the present time— carrying over into other realms of life such as economic and political systems, organizational structures, or interpersonal interaction” (Olsen et al., p. 8).

The authors wanted to find out whether individuals associated other elements of the post-industrial worldview with the environmental values, as had been suggested by the literature. For this purpose, they measured the relationship of several items with the ecological realm. Even though most of the 30 items were accepted by the respondents, only four of them were related to the ecological components. These four items had to do with the future concern of any action, human well-being, human development, and the role of government in economic stability. Olsen et al. factor analyzed the items to examine how were the individuals associating the items, how did they cluster them together. They concluded that the respondents who believe in the ecological aspect of the post-industrial worldview do tend to associate quite strongly those beliefs

with the “creation of a more desirable kind of society and with protecting the earth’s ecosystem. To a lesser extent, they also tend to link it with other clusters of preferences, including developing renewable energy sources, policies to promote social responsibility and government action to meet public needs” (p. 101-102).

This study cannot disregard the importance that some of the different components have in discerning between the paradigms. Nevertheless, it appears that the interpersonal, organizational and work categories do not help in that task.

It is possible to assume that the emergence of post-industrial ideas will be limited to certain areas of life, as for example environmental concerns and economic systems, while in other realms the post-industrial worldview will hardly appear. This study cannot prove whether the post-industrial paradigm is in fact emerging and shifting the dominant paradigm out of place. Rather, the findings suggest another possibility. The post-industrial themes may very well appear in certain affairs but without ever displacing the dominant paradigm. This emergence of a worldview will not develop into a ‘battle’ between paradigms. Furthermore, it will lead to a coexistence in which the dominant western worldview will maintain its position, while the post-industrial approach to the world will also exist but to a lower degree.

It is important to relate this situation to the advocates of each worldview. In the case of the sample studied, the articles in which private owners or sources from any governmental offices are the main claimers tend to show a higher number of themes from the dominant western worldview. On the other hand, stories that covered to a wider extent the point of view of NGOs or intergovernmental agencies had more elements from the nature-concerned and humanistic post-industrial worldview.

Certainly, governmental agencies and private owners will maintain a capitalistic-oriented philosophy which is the most appropriate to their needs and goals. The other actors identified in this study (NGOs and intergovernmental agencies) consider that nature concerns as well as human needs and values are more important than money

making. However, they have a low representation in the sample studied, and possibly their views will not be adopted by the majority of the population. This alone suggests that the dominant western worldview will remain as the main way of thinking.

The other two variables that were examined, newspaper and location of the issue, did not present any differences in relation to the dominant paradigm. However, differences in relation to the post-industrial paradigm did become apparent. The Spanish newspaper was identified as the one to present more often the nature-concerned paradigm, and this fits into the expectations that it is because Spain is a “modern society”.

The stories about national issues tended to be more post-industrial than the international stories. This unexpected outcome is an important finding that may dispute those theories of attitudinal formation. The self-interest model explained by Sears et al. (1980) may have to be re-formulated in order to understand this trend.

Overall, Olsen et al.’s model of two contrasting paradigms is effective in identifying themes that depart from the general philosophy of success and happiness in life related to competitiveness and the strive for lucrative businesses. They are also accurate in assuming that the post-industrial worldview is appearing only in some very specific realms of life and not in every aspect. However, the post-industrial worldview may never overthrow the dominant worldview. Rather, it may just be a phase of concern about the environment and the way human beings behave in relation to it.

Suggestions for further research

1 - To provide further insight in the area of paradigmatic change, it would be necessary to conduct other content analyses that would cover a higher number of media in one particular country. This would allow the possibility of comparing large and small circulation newspapers, as well as conventional and alternative media. The advent of on-line media is also an important area of research to consider. In this study, the two

on-line newspapers were considered to contain very similar type of information as the hard copies, even though not identical to the hard copy. Stories written in English in *La Nación* are not offered in the printed version. Also, the regional stories that *El País* provides in its different editions were not available.

2 - The idea of comparing media of developed with media of developing countries should also be pursued, including more than just two countries, in order to identify a pattern that could support or dispute the idea that the post-industrial paradigm is basically emerging only in the developed societies.

3 - Increasingly there are more and more bilingual media, and not just in the United States. The fact that one of the newspapers included in this study had stories in English as well as in Spanish on its web site raised the concern of possible differences between these two groups. Certainly a potential difference could have been due to having two target audiences, which suggests that it is feasible to expect a different slant according to whether the story is published in English or in Spanish. In situations like this, it would be advisable to examine the language variable.

4 - Probably to provide more insight about the extent to which the post-industrial worldview is present in the population of any particular nation, it would be necessary to conduct survey research in an attempt to examine directly the values and beliefs that different communities have in relation to the holistic paradigms. Cross-cultural comparisons are also encouraged to answer the same concern mentioned previously. Are the values and beliefs of the post-industrial worldview only appearing in modern societies as Olsen et al. suggested? Or do we find some of that philosophy already in other cultures and societies?

5 - Longitudinal studies, whether in content analyses or in survey research, would illuminate if, in fact, there is a shift from the dominant western worldview to the post-industrial worldview, or if both paradigms are coexisting.

APPENDIX: CODE BOOK

VARIABLE NAME	VARIABLE LABEL	CATEGORIES
DATE	date of publication	actual date
NEWSPAPR	newspaper name	1=La Nación 2=El País
LANGUAGE	language of story	1=Spanish 2=English
N.WORDS	number of words	actual number
SECTION	section where story is found	1=economy 2=national 3=international 4=opinion 5=rest of sections

VARIABLE NAME	VARIABLE LABEL	CATEGORIES
TOPIC	Topic of story	1=exploitation of NR 2=national parks or protected areas 3=plan/animal species 4=contamination
COVERAGE	coverage assessment	1=negative 2=mixed 3=positive
LOCATION	location of issue	1=international 2=national
AFFECTS	where the issue affects	1=international 2=both 3=national
ECONOMIC	presence of economic terms	0=no mention 1=mention
FLOW	who wrote the story	1=agency 2=both 3=newspaper staff 9=missing

VARIABLE NAME	VARIABLE LABEL	CATEGORIES
OWNER	mention of private owner	0=no mention 1=mention
GOVERNMT	mention of government	0=no mention 1=mention
INT.AGEN	mention of intergovernmental agency	0=no mention 1=mention
INT.NGO	mention of international NGO	0=no mention 1=mention
LOCALNGO	mention of local NGO or community	0=no mention 1=mention
MAIN-CLM	main claimer	1=private owner 2=govern. agency 3=intergov. agency 4=internat. NGO 5=indigenous-local NGO 9=missing

VARIABLE NAME	VARIABLE LABEL	CATEGORIES
ENV-1	humans as part of nature	0=does not appear 1=appears
ENV-2	humans control nature	0=does not appear 1=appears
ENV-3	nature is valuable in itself	0=does not appear 1=appears
ENV-4	nature is only valuable if it gives resources	0=does not appear 1=appears
ENV-5	NR are limited	0=does not appear 1=appears
ENV-6	NR are ample	0=does not appear 1=appears
ENV-7	world population must be controlled	0=does not appear 1=appears
ENV-8	size of world population will not affect NR	0=does not appear 1=appears

VARIABLE NAME	VARIABLE LABEL	CATEGORIES
TECH-9	most adequate technology	0=does not appear 1=appears
TECH-10	most advanced technology	0=does not appear 1=appears
TECH-11	need to always assess use of technology	0=does not appear 1=appears
TECH-12	NR will not decrease for use of more technology	0=does not appear 1=appears
TECH-13	for every solved problem technology creates new ones	0=does not appear 1=appears
TECH-14	technology solves most problems	0=does not appear 1=appears
WRK-15	creation of jobs that will not hinder NR	0=does not appear 1=appears
WRK-16	creation of jobs is more important than depletion of NR	0=does not appear 1=appears

VARIABLE NAME	VARIABLE LABEL	CATEGORIES
WRK-17	no need for job specialization	0=does not appear 1=appears
WRK-18	need for job specialization	0=does not appear 1=appears
ECON-19	exploitation NR for human needs	0=does not appear 1=appears
ECON-20	exploitation NR to maximize profits	0=does not appear 1=appears
ECON-21	limits to economic growth due to ecological concerns	0=does not appear 1=appears
ECON-22	mentions "no limits"	0=does not appear 1=appears
ECON-23	voluntary simplicity	0=does not appear 1=appears
ECON-24	maximize consumption and personal income	0=does not appear 1=appears

VARIABLE NAME	VARIABLE LABEL	CATEGORIES
POL-25	decentralized government	0=does not appear 1=appears
POL-26	centralized government	0=does not appear 1=appears
POL-27	decisions by citizens	0=does not appear 1=appears
POL-28	decisions by experts	0=does not appear 1=appears
POL-29	non-hierarchical authority	0=does not appear 1=appears
POL-30	hierarchical authority	0=does not appear 1=appears
IPERS-31	community activity or initiative	0=does not appear 1=appears
IPERS-32	individual activity or initiative	0=does not appear 1=appears

VARIABLE NAME	VARIABLE LABEL	CATEGORIES
ORG-33	town is positive	0=does not appear 1=appears
ORG-34	city is positive	0=does not appear 1=appears
VALUE-35	human development	0=does not appear 1=appears
VALUE-36	material accomplishment	0=does not appear 1=appears
VALUE-37	well being of human society	0=does not appear 1=appears
VALUE-38	cost/benefit of human activity	0=does not appear 1=appears
VALUE-39	human scale is better	0=does not appear 1=appears
VALUE-40	bigger is better	0=does not appear 1=appears

VARIABLE NAME	VARIABLE LABEL	CATEGORIES
VALUE-41	values, traditions other cultures	0=does not appear 1=appears
VALUE-42	values, traditions one culture	0=does not appear 1=appears
VALUE-43	concern about future state NR	0=does not appear 1=appears
VALUE-44	present state of NR is plentiful	0=does not appear 1=appears

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El País: <http://www.elpais.es>

La Nación: <http://www.nacion.co.cr>

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