

How Standard is Standardized MNC Global Environmental Communication?

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ABSTRACT. In this paper, we develop an argument to show why we expect that multinational companies will ensure that they communicate credibly about their environmental responsibility, across *all* their subsidiaries. Credible environmental communication helps to increase the firm's legitimacy and reduce its liability of foreignness on an issue that is globally relevant. We develop a measure to test if there is a standardized level of environmental communication credibility on the country-specific web sites of MNC subsidiaries around the world and find, in fact, that there is considerable variation across countries, among subsidiaries of different firms and among subsidiaries of the same multinational. We discuss the reasons for this and the implications for firm legitimacy.

KEY WORDS: credibility, environmental communication, legitimacy, multinationals, subsidiaries

Introduction

That multinational corporations (MNCs) communicate their concern for the natural environment is well known (Deegan et al., 2002). These communications have been shown to reduce scrutiny from non-profit organizations and governments (Delmas, 2001) and reduce stock market risk (Bansal and Roth, 2000). Research has shown that firms operating in

heavily polluting industries are especially likely to communicate their environmental responsibility (Russo and Fouts, 1997; Zyglidopoulos, 2002).

Christmann (2004) found evidence to suggest that institutional pressures from legitimacy-granting stakeholders (such as governments, industry members and customers) would lead MNCs to standardize their global environmental communication in terms of content, message and appearance, across their subsidiaries. However, she did not identify what aspects of environmental communication need to be standardized or why standardized environmental communication confers legitimacy. This paper builds on Christmann's research in two ways. First, we identify what aspects of environmental communication confer environmental legitimacy by demonstrating that it is rooted in the *credibility* of the communication. Second, we develop the credibility construct through a rigorous validation process that allows us to collect primary data, rather than having to rely on self-reported data from questionnaires.

We measured the credibility of communication of 113 subsidiary web sites from 10 of the largest MNCs that are in heavily polluting industries, to assess whether communication credibility varied across the sites.

We will first address environmental legitimacy in terms of its importance to MNCs. Next, we define environmental communication and discuss how it can contribute to environmental legitimacy when a firm's stakeholders perceive the communication to be credible. Finally, we discuss our findings and the theoretical and practical implications of our analysis.

Environmental legitimacy and the MNC

Environmental legitimacy is defined as "the generalized perception or assumption that a firm's corporate

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environmental performance is desirable, proper, or appropriate” (Bansal and Clelland, 2004, p. 94). However, it is important to note that environmental legitimacy is based on perceptions of the firm’s environmental performance, not its actual performance. Since perceptions can be managed (Elsbach, 1994), environmental legitimacy is not necessarily related to high environmental performance.

Environmental legitimacy is important to MNCs for a number of reasons. First, low environmental legitimacy poses a risk to stock prices (Bansal and Clelland, 2004) and corporate profitability (Ilinitch et al., 1998; Payne and Raiborn, 2001; Russo and Fouts, 1997). Second, high environmental legitimacy can pre-empt pressures from interest groups, thereby enhancing corporate reputation. The firm will be more likely afforded the opportunity to lead debates on appropriate environmental practice, thereby securing endorsements from key stakeholders (O’Donovan, 2002, p. 351). Environmentally legitimate firms are often perceived as more “caring” (Livesey and Kearins, 2002) and so they avoid the unwanted, and often expensive, scrutiny of regulators, non-governmental organizations, the media, or consumer groups (Bansal and Clelland, 2004). Environmental legitimacy can, therefore, be seen as a form of normative legitimacy granted by society. Environmental performance expectations are value-laden, making this form of legitimacy very culture-specific.

However, it is especially difficult for multinational corporations to gain environmental legitimacy. Due to their size, scope, and capacity to disrupt (or improve) the many natural environments in which they operate, MNCs’ environmental performance often receives greater scrutiny than does that of their domestic competitors, whether this attention is deserved or not (Christmann and Taylor, 2001). They face a liability of foreignness when operating in a market other than their home (Hymer, 1976; Zaheer, 1995; Zaheer and Mosakowski, 1997). And, they are often characterized as being environmentally unfriendly (Zyglidopoulos, 2002) seekers of pollution havens (Hart, 1995; King and Shaver, 2001).

Environmental communication and environmental legitimacy

Researchers have suggested that firms must communicate their concern for the natural environment

to their stakeholders in order to gain environmental legitimacy (Milne and Patten, 2002; O’Donovan, 2002; Wilmshurst and Frost, 2000). Our definition of environmental communication is drawn from existing research and is as follows: any sort of communication between the firm and its external stakeholders regarding the firm’s environmental commitment or performance (Bansal and Clelland, 2004). For an MNC, environmental communication “can convey information regarding changes to its products or processes that demonstrate its commitment to the natural environment” in order to manage the legitimacy impressions of external stakeholders (Bansal and Clelland, 2004: 96). Firms have communicated environmental concern by publishing environmental or sustainable development reports, and by publicizing their membership in self-regulating industry associations (Christmann and Taylor, 2001) or their compliance with government regulations (King and Shaver, 2001). Firms often use their web sites to disseminate this type of information.

MNCs face institutional pressures from stakeholders such as governments, customers and from within their own industry, to present environmental communication in order to be deemed environmentally legitimate (Christmann, 2004; Christmann and Taylor, 2001). These stakeholders may require MNCs to report specific amounts of pollution released in the past year to governmental agencies like the U.S. Environmental Protection Agency (EPA) or to industry self-regulating bodies within the country. Environmental communication is particularly important for assessing a firm’s environmental legitimacy because environmental practices are not easily visible (Christmann, 2004). It is difficult for most external stakeholders to assess firms’ environmental performance because environmental science is complex and firms’ operations are opaque.

However, environmental legitimacy has been shown to be important to stakeholders; gaining legitimacy through environmental communication has real benefits for firms. For example, communicating environmental concern has been shown to reduce a firm’s unsystematic risk (Bansal and Clelland, 2004) and protect profitability by helping the firm maintain the legitimacy it needs to survive (Ilinitch et al., 1998).

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MNCs encourage their subsidiaries to communicate their concern for the environment as a way to increase the firm's legitimacy with stakeholders in their various host countries (Christmann, 2004). Communicating that *all* facilities are concerned about the environment can help dispel negative stereotypes and biases against the MNC (Bansal and Roth, 2000; Christmann, 2004) originating anywhere in the world.

The credibility of environmental communication

The credibility of an MNC's environmental communication is an important determinant of environmental legitimacy. We define credible communication as the extent to which the communication is both transparent and comprehensive (Livesey and Kearins, 2002). This definition is consistent with research in the area of management communications, which has shown that firms use transparent and comprehensive communication to manage their organizational legitimacy during times of crisis (Massey, 2001) and to maintain or rebuild relationships with stakeholders after a crisis (Hooghiemstra, 2000).

In the context of this study the term "transparency" is defined as efforts by the firm to "make known to those outside (as well as those in other parts of their own organizations) what they are 'really' doing." (Livesey and Kearins, 2002, p. 248). "Comprehensiveness" is defined as the extent to which the "full story" is presented or the communication discusses aspects of an issue in enough detail to meet reasonable expectations. These definitions were drawn from the communications literature and refined based on the construct validity tests discussed later.

For communication to be credible, the content and mode must be transparent and comprehensive. Credible communication offers detailed information on topics that reasonable stakeholders would expect to be discussed, supplemented with illustrative examples. On the other hand, non-credible communication tends to be more opaque and general. Further, non-credible communication also tends to omit important facts, topics, and discussions or presents information that is more favorable than would reasonably be expected.

An example of transparent environmental communication is an environmental report that presents specific descriptions of firm activities and goals, such as "reduce CO₂ emissions by 20% by the year 2006". Opaque communications use less specific terms such as "reduce emissions". Comprehensive environmental communication tends to provide a much larger array of information regarding environmental practices, such as the amount spent on an initiative, number of people involved in executing it, and the type and amount of pollution to be released or reduced. Communication that is less comprehensive tends to provide little if any information on a firm's activities or policies.

Credible communication directly affects firm legitimacy. Deegan and Rankin (1996) found that firms that did not report environmental issues and practices did not gain environmental legitimacy and were more likely to face prosecution for poor environmental performance. McGuire (1997) also found that failing to credibly communicate executive compensation practices compromised a firm's legitimacy. These studies suggest that stakeholders tend to question the credibility of opaque or superficial communication and that this can lead to a greater likelihood of prosecution, poorer performance, and reduced investor confidence.

Most stakeholders that have high environmental expectations of MNCs are located in developed countries, such as the U.S., Canada, and Europe. These stakeholders include non-governmental organizations, like Greenpeace and the Sierra Club, local and federal governments, and institutional and private investors. The situation is particularly complex for MNCs because stakeholder standards and expectations differ across countries. Furthermore, environmental activists appear to be increasingly savvy; better connected because of improved information technology; and more able to mobilize support for their causes. Finally, environmental communication that is standardized across countries appears to be more credible than communication that differs across countries (Christmann, 2004). For these reasons, MNCs are likely to standardize their global environmental communications to achieve a common level of credibility across all subsidiaries. We assume that environmental communications are delivered locally, so it is unlikely that they will be identical across subsidiaries.

Standardization, then, refers to holding the degree of *credibility* constant worldwide, through devices such as content, message, and appearance. We, therefore, suggest that:

Hypothesis 1: The credibility of an MNC's environmental communication will be standardized across its subsidiaries.

Research methodology

We analyzed the content of subsidiary web sites to measure the credibility of environmental communication across MNC subsidiaries.

We chose to examine MNC country-specific web sites since they are a sound method for MNCs to communicate with key stakeholders in host countries. Web sites are relatively inexpensive to set up and maintain, easily updated, and widely accessible (Esrock and Leichty, 2000). Web sites are often used to provide information about the company's activities in a specific country and to communicate with shareholders and customers around the world. To that end, web sites allow firms to manage stakeholder impressions in almost real time. Subsidiary web sites are particularly important to MNCs, which operate in numerous jurisdictions and are scrutinized by governments, regulatory agencies, and non-governmental organizations from both host and home countries. Consequently, most country-specific subsidiary web sites are available in the language of the host country as well as that of the parent firm's home country.

Web sites are superior to annual reports for analysis because the reporting cycle of annual reports makes the information less timely. Furthermore, space has a real cost in annual reports, so subsidiaries are less likely to include non-financial information. In contrast, the cost of cyberspace is small, so subsidiaries are better able to communicate as much or as little as they desire. Finally, and most importantly, few subsidiaries issue separate annual reports from their parent, so country-specific subsidiary web sites provide country-level data that is not lost in aggregation.

Below, we describe the sample, the construct validation process, and the data analysis.

Sample

We drew our initial sample from the Forbes Global 500 list, which includes the largest MNCs in the world. We limited the sample to those firms that had 10 or more subsidiaries that clearly developed their own subsidiary-specific web sites, so that we would be able to measure the degree of credibility standardization. Subsidiary web sites had to be separate from those of the parent firms. This difference was often signaled by a suffix at the end of the web site address corresponding to the subsidiaries' host country (e.g. .ca. for Canada, .uk for the United Kingdom). We also selected firms from the 25 most polluting industries (as listed on the Toxics Release Inventory by the U.S. EPA) because we wanted to ensure that the firms in our sample experienced institutional pressures to respond to environmental issues.

We also limited the sample to firms headquartered in the U.S. and the Netherlands. We chose these home countries because they place intense institutional expectations on firms to act with a high degree of environmental responsibility. Consequently, MNCs headquartered in these countries experience even more pressure to present environmental communication that has a standardized level of credibility. Institutional pressures are imposed by the institutional field (DiMaggio and Powell, 1983) on the firm to act according to regulative, normative, and cognitive expectations (Scott, 1995). Had these MNCs not been under these pressures, there would be no legitimacy incentive for the subsidiaries to address the natural environment on their web sites at all, in which case the non-findings would not be interesting.

The final sample consisted of 113 subsidiaries from nine U.S.-based MNCs and one MNC based in Holland. Table I identifies the sample used for this study. The MNCs ranged in size from over \$US 15 billion in revenues to roughly \$285 billion. The average organizational age was 119 years. Approximately, half of their assets, over 47% of their employees, and nearly 55% of their revenue was generated by their foreign operations. The average

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TABLE I
Sample parent firms and subsidiary locations

Parent firm	Subsidiary location		
3M	Australia	Argentina	Belgium
	Brazil	Canada	Chile
	France	India	Italy
	Mexico	New Zealand	Philippines
	Portugal	Singapore	Spain
	South Africa	UK	
Alcoa	Argentina	Australia	Austria
	Brazil	Belgium	Canada
	Chile	Colombia	France
	Italy	Mexico	Philippines
	Portugal	Spain	UK
BP/Amoco	Australia	Belgium	Colombia
	France	New Zealand	Portugal
	Spain	UK	
Chevron Texaco	Argentina	Australia	Brazil
	Canada	Chile	Colombia
	Italy	Philippines	Spain
	UK		
Dow Chemical	Argentina	Brazil	Canada
	Colombia	France	Spain
Du Pont	Argentina	Australia	Brazil
	Canada	Chile	Colombia
	India	Mexico	Singapore
	Spain	UK	
Exxon Mobil	Argentina	Australia	Belgium
	Brazil	Canada	France
	Ireland	Italy	New Zealand
	Singapore	UK	
Ford	Argentina	Australia	Belgium
	Brazil	Canada	Colombia
	Chile	France	India
	Mexico	Philippines	South Africa
	Spain	UK	
Kodak	Argentina	Australia	Brazil
	France	India	Mexico
	UK		
Royal Dutch Shell	Argentina	Australia	Austria
	Belgium	Brazil	Canada
	Chile	France	India
	Ireland	Mexico	New Zealand
	Philippines	Singapore	Spain

age of the 113 subsidiaries was 68 years and each parent firm had, on average, four manufacturing or processing facilities in the host country in which they were operating.

Construct validity and reliability

Construct validity refers to the extent to which a variable in a theoretical model is measured

accurately. To this end, we needed to identify a set of items that would reflect the “credibility of environmental communication” described above. We followed two processes.

First, 10 people were asked to review two, pre-selected, subsidiary-specific web sites that represented extremes of what we considered to be credible communications. These subjects were asked to provide feedback on which site was more credible and why. Most of the respondents confirmed our choices of credible web sites. From their list of rationales, we identified the themes that were common to at least three responses, as these were seen as most persuasive. We labeled the three themes as follows: Honesty, Usefulness of Information and Quantity of Information.

Second, we tested whether the items we had chosen reflected the overall credibility of environmental communication construct. To determine this, we administered a questionnaire to approximately 60 senior-year, graduate and undergraduate international business students, none of whom had participated in the generation of the items. Using a 5-point Likert scale, students were asked to analyze the same two subsidiary web sites and indicate the extent to which a list of 15 items, generated from the themes identified above, influenced their answer about the credibility of a firm’s communication.

Construct validity is often tested by performing a confirmatory factor analysis (CFA). In this study, we used the LISREL statistical package developed by Joreskog and Sorbom to perform a CFA. LISREL compares the hypothesized model with the actual data and calculates the differences in the covariance matrixes – a χ^2 (chi-squared) test. The higher the χ^2 (in other words, the larger the difference between the observed and predicted covariance matrixes), the poorer the fit. LISREL also presents indexes that suggest the extent to which the predicted versus the actual matrixes “fit”. The indexes that are most commonly reported are the goodness-of-fit (GFI) and the adjusted goodness-of-fit (AGFI) indexes (Hayduk, 1987). We were also able to test convergent and discriminant validity through LISREL. Convergent validity “represents empirical assessments of the degree to which multiple measures of the same construct with different methods are in agreement” (Hoskisson et al., 1993, p. 219) and discriminant validity “involves assessments of the

extent to which the construct of interest differs from other concepts” (Hoskisson et al., 1993, p. 219).

The reported chi-squared value for the initial hypothesized model was $\chi^2 = 276.05$ ($p < 0.0001$) indicating that the hypothesized model was not a good representation of the observed correlations matrix. By testing convergent validity, LISREL also suggests ways in which the model can be improved to fit the data. To improve the model, we examined the factor loadings of the items and eliminated those that confound the model (Segars, 1994). In the original hypothesized model, the high residual values on items X6, X7, X8, and X15 and their low factor loading scores indicated that there was a lack of unidimensionality and that eliminating the items would reduce χ^2 by 231.48. The reported chi-squared value for the revised model was $\chi^2 = 44.6$ and was not significant ($p = 0.183$) indicating a good fit. Our revisions were also supported by the GFI (0.936) and AGFI (0.886) and fact that the modification indexes did not suggest any further χ^2 reductions.

Overall discriminant and construct validity were maintained, even though some factor loadings were beyond the usual threshold of 0.7 and could not be included in the model. Following Segars (1994), we used a formula developed by Fornell and Larcker (1981) to test the factor reliability and discriminant validity of the constructs by calculating the average variance explained (AVE) by the model. For the revised model, the reported AVE was 0.532, which is larger than the 0.50 threshold of acceptability (Segars, 1994).

We also used LISREL to test discriminant validity by comparing the chi-squared value of the freely estimated model (i.e. the revised model) and a restricted model in which the correlation between the two factors was set at 1.000 (Segars, 1994). When a restricted model was estimated, the reported chi-squared value was $\chi^2 = 50.6$ ($p = 0.083$). The resulting difference in χ^2 of 6 (50.6–44.6) suggests that the freely estimated model represented the data better than the restricted model and further indicated acceptable construct validity.

The revised 11-item model confirmed that two hypothesized factors (transparency and comprehensiveness) were appropriate measures of the construct of “credibility of environmental communication”. Table II lists the final coding units used in the content analysis, as well as the loadings and error

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TABLE II
Final coding units, factor loadings, and error terms

	Coding unit	Factor loading	Error
Comprehensiveness			
X1	Information on the amount of pollution	0.703	0.184
X2	Information on the type of pollution	0.881	0.153
X3	Message from subsidiary manager regarding the environment	0.652	0.153
X4	Provides a country-specific environmental report	0.766	0.135
X5	Discusses ISO 14001 registration	0.505	0.365
Transparency			
X9	Information on amount of money spent on environment	0.306	0.139
X10	Information on what subsidiary does regarding the environment	0.897	0.103
X11	Information on why subsidiary does what it does	0.860	0.110
X12	Web pages specifically for environment	0.809	0.151
X13	Subsidiary specific policies regarding the environment	0.879	0.120
X14	Locating environmental information is easy	0.502	0.121

terms for the corresponding factor (Items X6, X7, X8 and X15 are removed). Figure 1 presents the revised factor model.

The coding units used in the construct validity tests and ultimately the data collection were derived from the three themes mentioned earlier. An example of a coding unit that was derived from the theme related to “Honesty” is “Information on what the subsidiary does regarding the environment”. When pre-test participants described the web site that we felt lacked credibility, they suggested that it seemed to be designed to obfuscate rather than clarify what the subsidiary was doing with respect to the natural environment.

An example of a coding unit that was derived from the theme related to “Usefulness of Information” is “Provides a country-specific environmental report”. The pre-test participants felt that the presence of an environmental report created specifically for the subsidiary’s host country gave the impression that the MNC was serious about its expressed concern for the natural environment. Thus, the MNC’s environmental communication was judged to be more credible because the firm spent time and resources reporting its local environmental impact.

An example of a coding unit that was derived from the theme related to “Quantity of Information” is “Web pages specifically for environment”. Some subsidiary-specific web sites had many pages devoted to environmental communication; others simply mentioned the environment along with other information, if at all. The pre-test participants indicated that more environmental communication, and web sites specifically devoted to the environment and the subsidiary’s environmental activities, was more credible than little communication.

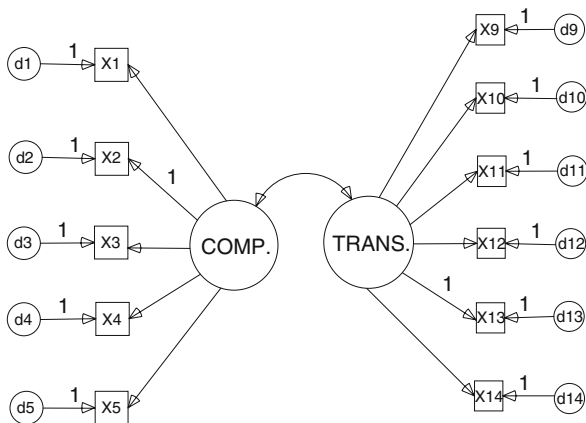


Figure 1. Revised LISREL CFA model.

Content analysis

According to McMillan (2000), researchers should identify coding units and coding contexts when

analyzing the content of web sites. Coding units are the actual segments of the communication format that are counted or identified, and the coding context is the body of the material around the coding units. In this study, the categories were credible and non-credible environmental communication; the coding units were aspects of the content presented on the web sites; and the coding context was the country-specific subsidiary web sites.

As a first step in defining the credible and non-credible categories, we examined 152 country-specific subsidiary web sites, all of which did not fit the final sample criteria, from 23 parent MNCs in our preliminary analysis. These subsidiary web sites were not used in the final sample for two reasons. First, methodologically, it is not appropriate to include data used to create constructs to measure those same constructs. Second, the parent MNCs of the 152 subsidiaries either had too few country-specific web sites or had web sites in countries where too few others had sites. Including these MNCs in the sample would have led to too many single cases, making it difficult to infer any results from the statistical analysis.

We identified differences in communication credibility through a five-step content analysis process described by Krippendorff (1980) and refined specifically for web sites by McMillan (2000). Respondent bias to purpose-built questionnaires is often an issue of concern in evaluating communications pertaining to a highly normative subject such as environmental responsibility. We reduced the likelihood of respondent bias by analyzing the content of what the subsidiary communicates through its web site. Furthermore, when it comes to web sites, what is *not* communicated is often as interesting as what is communicated and how it is expressed. In this project, it was important information if the subsidiary did not mention environmental issues or mentioned them only superficially, especially when the parent and some of its other subsidiaries professed to be deeply concerned about the natural environment.

Data collection and analysis

To increase data reliability, two well-trained research assistants collected the data and the first

author recorded the data. The assistants understood the content being studied and were given brief descriptions of each of the coding units. All pages and links that kept viewers on the country-specific site were opened and followed. The assistants examined any mention of the natural environment, or pollution, or a number of key words, such as “green, ISO 14001, emissions, CO₂” and so forth. They were asked to assess and record the extent to which they felt the coding units were present on the sample web sites using a 5-point Likert scale ranging from 1 (is not present at all) to 5 (fully present).

We chose to use the 5-point scale rather than to just code web sites as “present or not present” for several reasons. First, a 5-point scale is a more nuanced tool than a dichotomous scale. Second, only two coding units were truly dichotomous: “Message from subsidiary manager” and “Discusses ISO 14001 registration”. Therefore, a 5-point scale more accurately reflected the fact that the coding units existed to varying degrees on the web sites studied. Third, the content and presentation of environmental communication on the web sites varied widely. Using a dichotomous scale could have biased our results because the assistants could only choose from two options.

To illustrate this point we will use the coding unit “Information on the amount of pollution” as an example. A site that did not mention the amount of pollution the subsidiary produced was coded “1”. A site that said, “we produced less pollution this year than last” was coded “2”. But a site that said, “we produced x-amount more pollution this year than last” was coded “3” because it not only admitted that it produced more of the bad thing this year than last, but also described *how much more*. This site was more credible. A site that provided statistics on the amount of pollution produced, but did not have a full report on a separate link or a site dedicated to reporting polluting activities was coded “4”. A site that had extensive separate reports listing the amount of all the specific forms of pollution they produced was coded “5”.

Any disagreement about the scoring of a coding unit on a subsidiary web site was settled by the first author, in consultation with the assistants. Prior to re-evaluating the collected data, a Cohen’s Kappa was measured to ensure inter-rater reliability. The

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Kappa value was 0.906 ($p < 0.0001$), which suggests that there was very little disagreement among the coders. Where there was disagreement, we re-evaluated the item conservatively and applied a score counter to the study's proposition in order to improve the robustness of the statistical results.

Finally, we calculated an overall credibility score for the subsidiary by summing the scores of all the individual coding units. This final score represented the level of environmental communication credibility of the subsidiary. The minimum score a web site could receive was 11 (11 items with a score of 1 for each item). The maximum score a web site could receive was 55 (11 items with a score of 5). To be conservative, any web site with a score between 34 and 55 was categorized as being of high credibility; any web site with a score 33 or lower was categorized as being of low credibility. Therefore, there were 22 possible scores (11–33) in the low credibility category and 21 possible scores (34–55) in the high credibility category. Since the study proposed that there would be a greater likelihood of credible communication, having a roughly equal chance for the communication to be coded as being of low credibility required more robust results to support the hypothesis.

Results

Using the scoring system discussed in the previous section, only 27 of the 113 subsidiaries were communicating credibly; 86 web sites were not credible. The sample's mean credibility score was 26.248 out of a possible 55. The range of scores was 11–53 and the standard deviation was 11.54.

The subsidiaries were divided into two groups (high and low credibility) and a t -test was performed to see if there was a significant difference in the mean credibility scores. The mean score for high-credibility subsidiaries was 37.378 and 18.0308 for low-credibility subsidiaries. The results of the t -test suggests that the difference in the means between the two groups was statistically significant ($t = 5.93$, $p < 0.0001$, $df = 112$). Figure 2 presents the distribution of the subsidiary credibility scores. The results do not support Hypothesis 1. There appears to be differences in the level of credibility of MNC subsidiaries' environmental communication even

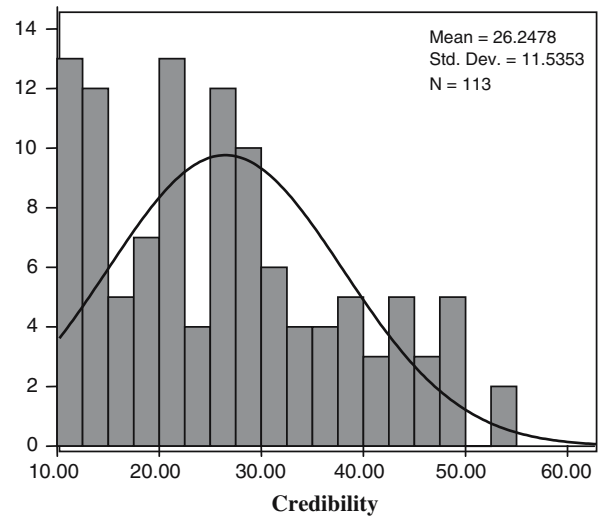


Figure 2. Distribution of subsidiary credibility scores.

though there are strong institutional pressures for global standardization.

Discussion

We hypothesized that, due to institutional pressure from global and domestic stakeholders, subsidiaries within an MNCs network headquartered in countries where there were high environmental expectations would ensure their environmental communication was credible. We found that this was not the case. Instead, we found that the credibility of the subsidiaries' environmental communications varied considerably. This suggests that subsidiaries are more responsive to local environments than their corporate office. These results should be of interest to global managers because low levels of subsidiary communication credibility may place the MNC's environmental legitimacy at risk.

There are a number of reasons why the credibility of environmental communications may vary among an MNC's subsidiaries. First, subsidiaries of an MNC face institutional duality (Kostova and Roth, 2002). In the case of environmental communications, it appears that the host country's institutional expectations dominate, even with respect to the natural environment, an issue that is global in nature. Parent MNCs that communicate their environmental concern credibly expect their subsidiaries to do the

same in order to gain environmental legitimacy. However, the subsidiary is likely to only symbolically adopt the practice if there are differences between the parent's institutional environment and institutional environmental expectations in the host country (Kostova and Roth, 2002). Hence, while the subsidiary is attempting to comply with the parent's expectation to communicate its environmental practices, it does not know how to do so credibly.

Autonomous subsidiaries of MNCs with dispersed organizational configurations often depend more on local institutional environments for resources, such as revenue, employees and capital, than upon their parent. A subsidiary must be perceived as legitimate in its host country to secure the resources it needs (Zaheer, 1995). Subsidiaries have to fend for themselves; they may gain legitimacy by adopting local practices that are very different from those followed by the parent (Birkinshaw and Morrison, 1995).

The variability in the credibility of subsidiary environmental communication brings the environmental commitment of parent MNCs into question. Low credibility in some subsidiaries may compromise the environmental legitimacy of the whole MNC network, as it will appear that the MNC is "green-washing", paying only lip service to its concern for the environment.

The liability of foreignness that MNCs face when operating in new countries means that subsidiaries are often expected to exceed local legitimacy requirements to "fit in" (Zaheer and Mosakowski, 1997). However, it has also been argued that firms that exceed standards generate negative impressions and resentment and actually compromise their legitimacy (Nebenzahl et al., 1997). Competitors or suppliers who do not share or communicate their environmental concerns may resent firms that do. By communicating their environmental concerns, an MNC subsidiary may raise institutional expectations among customers, governmental, or non-governmental agencies and in this way increase costs for all local businesses. The subsidiary that disrupts the status quo may be alienated, resulting in higher supplier costs, market loss, or competitor retaliation, all of which could reduce its profits. Maintaining the status quo allows the subsidiary to stay "under the radar" of competitors, regulators, and environmental watchdogs and simply focus on market entry. It seems that

the parent MNC enjoys the benefits of credible environmental communication, but the subsidiary bears the costs and potential negative ramifications.

We can make a few observations about why subsidiaries may not communicate credibly, even when they are required to do so by their parent MNC. First, MNCs may not provide sufficient incentives to their subsidiaries to produce the kind of environmental communication that meets the parents' standard and is so important in gaining environmental legitimacy. This may be because the parent MNC does a poor job of educating its subsidiaries on the importance of global environmental legitimacy. It may also be because the parent MNC does not share costs or provide the resources that subsidiaries need to create credible environmental communication. MNCs may be sending mixed messages to their subsidiaries. Subsidiaries have financial goals that they are expected to meet, but at the same time they may face environmental communication expectations, which hinder their financial performance. Subsidiary managers may decide to focus on achieving the goals for which they, and their subsidiary, receive the greatest reward. If financial goals are rewarded more than communication goals, then managers will likely implement practices focused on achieving financial goals. It is costly to collect and communicate content that is credible (Christmann, 2004), so subsidiaries may simply choose not to. However, one subsidiary with low credibility can compromise the credibility of the whole network, so it is incumbent on MNCs to find ways to lower costs and educate subsidiaries.

Alternatively, global managers may simply be unaware, or unconcerned, that there are differences in the credibility of their environmental communications, and that these differences threaten the MNC's environmental legitimacy. Since MNCs and their subsidiaries often operate independently, it is also incumbent on the corporate office to monitor their organization's environmental communications.

In discussing our results, we must be cautious in generalizing to all MNCs and their subsidiaries. Our study examines MNC subsidiaries that are wholly owned and not joint ventures. Past research has suggested that joint venture control (which could increase or decrease the likelihood of credible environmental communication) may be affected by such things as the nationality of the managers, managerial

experience in a given host country or with international business, equity disparity, agreements, joint venture boards and so forth. (Geringer and Hebert, 1989). We have not explored these factors.

Another potential limitation of our study is that there may be alternative explanations for the empirical results. Although we took great care to ensure construct validity and measurement reliability, there may be other explanations for the results because the strength of the relationship we found was small (although statistically significant) and opposite to our hypothesis. However, if the data collection methods were reliable and the constructs valid, then there is strong support to suggest that there are differences in environmental communication credibility across subsidiary web sites within MNCs and across borders. This assertion has strong face validity given the differences in what is actually presented on the web sites of the various subsidiaries. However, we do not offer *the* explanation for differences in environmental communication credibility; there are opportunities for further research.

Conclusion

This paper has shown that the credibility of environmental communication within the MNC subsidiary network is not globally standardized. This finding contradicts prior research, our hypothesis, and the statements of some MNCs. Prior research had suggested that subsidiaries' environmental communication was standardized, but until now, there have been no criteria for assessing this standardization. In this paper, we suggest that the most relevant measure is the credibility of a firm's communication, as it is through credibility that a firm builds legitimacy. The communications and impression management literatures show that firms often communicate with stakeholders to present a desirable image in order to gain legitimacy. We therefore developed a tool to measure environmental communication credibility. This measure has an advantage over prior research (e.g. Christmann, 2004) because it does not rely on self-reporting to assess standardization. It is also theoretically grounded in institutional theory.

Given the relationship between credible environmental communication and environmental

legitimacy, our finding that the credibility of environmental communication varies considerably among subsidiaries should be of concern to global managers. Since overall corporate environmental legitimacy can be placed at risk by the actions of subsidiaries, global managers must monitor their subsidiary web sites, provide stronger incentives to achieve standardization, and educate their managers. Understanding why there are differences, and how they can be overcome, are interesting avenues for future research.

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How Standard is Standardized MNC Global Environmental Communication?

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