Journal of Management for Global Sustainability

Volume 8 | Issue 2 Article 11

12-31-2020

Full Issue

IAJBS Ateneo de Manila University

Recommended Citation
Ateneo de Manila University, IAJBS (2020) "Full Issue," *Journal of Management for Global Sustainability*: Vol. 8: Iss. 2, Article 11.
DOI: https://doi.org/10.13185/2244-6893.1183
Available at: https://archium.ateneo.edu/jmgs/vol8/iss2/11

ISSN 2244-6893 (Online)

Journal of Management for Global Sustainability

Volume 8, Issue 2, 2020

The Journal of Management for Global Sustainability is the official journal of the International Association of Jesuit Business Schools

ATENEO DE MANILA UNIVERSITY

The Journal of Management for Global Sustainability is managed by the Ateneo de Manila University

ISSN 2244-6885 (Print) · ISSN 2244-6893 (Online)

Launched in June 2013, the *Journal of Management for Global Sustainability* (JMGS) is an internationally peer-reviewed open access scholarly journal on management and global sustainability published semi-annually by the International Association of Jesuit Business Schools (IAJBS) and managed by the John Gokongwei School of Management of the Ateneo de Manila University. Printed copies are regularly distributed to more than 300 IAJBS member institutions and top business schools around the globe while the online version is available to all readers worldwide. JMGS is indexed in Cabells Journalytics, EBSCOHost, and EconBib.

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Journal of Management for Global Sustainability

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International Association of Jesuit Business Schools
www.iajbs.org

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THE BUSINESS OF BUSINESS … NOW

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Six decades ago, an early editorial in the fledgling *MIT Industrial Management Review*—which later became the *MIT Sloan Management Review*—focused on the disconcerting and even shocking scandal of that time: a set of business actions that became widely known as the "GE price-fixing scandal" (MIT Industrial Management Review, 1961). A set of coordinated and illegal actions among upper-level managers at General Electric and other companies turned out to be so egregious and widespread that high-level executives at participating firms were convicted and actually handed down prison terms for their collusion. It was a rare and ever-so-unusual event in the United States business scene at that time … and ever since, as noted in general by Jennifer Taub in *Big Dirty Money: The Shocking Injustice and Unseen Cost of White Collar Crime* (2020).

It was rare and unusual, indeed, when one reflects on what appears *not* to have happened in a much greater scandal (Krugman, 2006; Hall, 2015) that began a decade later, when researchers and then top-level executives at Exxon—now ExxonMobil—developed, buried, and denied clear and definitive research showing that continuing to burn fossil fuels would do exactly what it has done: put the very existence of our own and other species at the imminent risk of extinction.

The *Review* at the time of that 1961 editorial was a wholly student-run publication, modeled on law school journals, and edited by the "academically best and brightest." The editors concluded their essay by turning President Calvin Coolidge's famous quote—that "the business of America is business"—on its head with the suggestion that "the business of business is America." Not bad for a handful of graduate business students, and yet now, six decades and 100 more CO_2 parts per million (ppm)—from 316 ppm to 416 ppm (Keeling et al., 2001)—later, the phrase might be rewritten better as "the business of business is the world," or better yet, as

"the business of business is the world's well-being," or maybe even as "the business of business is future generations and the planet itself."

From prevention to mitigation to resilience to survival, all in a half-century—we have been warned for the last six, then five, then four, then three, then two, decades, and now in 2020, that the "next ten years" would be critical in preventing the rise of CO_2 and other greenhouse gases in the atmosphere and ending the many other systemic damages to our global ecological system. We have been told repeatedly that the damages need to be halted and then reversed if we are to mitigate the increasingly disastrous climate change and global warming outcomes that we are now already experiencing. Each ten-year warning has proven to be correct—every time we have failed to act, first moderately and calmly and then decisively and boldly, the damages have grown and the task has become harder, more expensive, and less likely to be successful. Now, many of the most informed and objective among us are warning that we have another ten years to avoid a truly catastrophic situation for all species, including our own, and that the next ten-year warning after this latest one may be irrelevant—that the game may be over by then (McKibben, 2019). The steps we take now must be urgent and bold.

The novelist Lydia Millet wrote in *The New York Times* on November 27, 2020 that "only big steps will save Earth" (Millet, 2020). She describes very clearly the level and extent of the commitments that we need to make now as well as of the costs of failing to make them—*now:*

> In colleges, high schools, even grade schools across the country and the globe, the children are struggling to lead us.
>
> We can marshal a broader social will. But it needs the strength of political will to be made flesh: the forces of the executive, the dedication of public and private money to climate-rational projects, the use of existing law and the cooperation of nations.
>
> In the absence of such a unifying paradigm shift, deadly storms and wildfires will get worse, removing from our descendants the safety of home. Rising seas will remake the coastlines before we can adapt, undoing our great cities. Forced migrations will bring civil strife and autocracy. Waves of extinction will unravel the ecosystems that give us clean water, clean air, forests and fisheries. And forever rob us of the beauty and possibilities of a living planet.

It is as clear now as it has been for decades that we, all of us—individuals, groups, nations, *and* businesses—need to take the bold and courageous actions that we all have long been called to take.

There is no shortage of valuable things that we can do; in fact, many of them are already somewhat underway—not nearly as powerfully driven and extensive as they need to be, but at least underway. James Arbib and Tony Seba (2020) have shown, for instance, that we already have all the technology that is necessary for making the energy production and consumption system transformations required to end climate change and global warming. Paul Hawken and his colleagues (Hawken, 2017) have described 100 available and viable projects that constitute "a comprehensive plan for reversing global warming." As Hunter Lovins and her colleagues describe in their recent book, we have the ability to "build a regenerative economy through a powerful combination of enlightened entrepreneurialism, technology, and innovative policy" (Lovins, Wallis, Wijkman, & Fullerton, 2018). Indeed, many other valuable and viable approaches have been offered by many other committed individuals and organizations, with more surely to come.

The likelihood that these existing initiatives, along with many more new ones, will come into being will increase dramatically as business schools around the world continue to move rapidly from being part of the problem of global unsustainability to being part of the solution. It is increasingly being recognized that teaching the practices, tools, values, ethics, and, above all, mindsets of business-as-usual—and conducting research that contributes to such—encourages, legitimizes, and aids the practices of businesses and other productive organizations that have, at worst, put the existence of our own and other species at risk and that have already guaranteed, at the very best, a long path of hard work to get us all out of the ecological, social, cultural, and spiritual morass that we have worked our way so deeply into.

The good news is that initiatives to change business education rapidly and in partnership with businesses and other institutions are occurring all over the world. In its previous issue, this journal reported how the network of Jesuit business schools is taking action to replace the neoliberal narrative at the very heart of our unfolding economic, social, environmental, cultural, and spiritual tragedy with a new economic, social, ecological, and spiritual mindset (Garanzini, 2020). Going well beyond simply calling for others to take action, teams in each of 11 business disciplines and approaches are creating and developing syllabi, curricula,

and textbooks that offer near-term possibilities for transforming business education not only at Jesuit and Roman Catholic institutions but also beyond them. An up-and-coming June 2021 special issue of the *Journal of Jesuit Business Education* will report on the goals, processes, and progress of this New Paradigm project. Across three major sections, it will address the need to rethink business education as well as describe the processes of curricular change being followed along with their pedagogy and content.

This particular initiative is just one of many around the world that seek similar goals—to transform business education in partnership with business and other leaders, with the intent of transforming business practice very, very soon. In the next few years, it will no longer be appropriate to say, whether metaphorically, provocatively, and maybe even a little humorously, that "business schools are doing the work of the devil." They will be "doing the work of the angels."

As has been noted by so many well-informed, committed, and objective scientists, leaders, and politicians, bringing about the changes that are needed to "save the earth" and therefore "save ourselves" is, of course, the greatest challenge our species has ever faced. And transforming business practice and its role in world society will be one of the greatest challenges within that great challenge. Business-as-usual has very likely been the single greatest contributor to the mess we are all in, and business will need all the help it can get to become the leading contributor to global sustainability, flourishing, and regeneration that we need it to become.

That transformation is starting, and business schools are emerging as key leaders in discovering how we can deal with the three most salient and immediate transformational needs of the great global challenge: 1) overcoming the realities of climate change and global warming, 2) determining how we can be the kinds of people who can live on this planet without destroying it and becoming precisely those kinds of people, and 3) learning how we can produce, distribute, and consume the goods and services that we need in ways that will heal our broken world and actually bringing those ways of producing, distributing, and consuming into being. To borrow Buckminster "Bucky" Fuller's trim tab metaphor for the seemingly small steps that lead to great change, business schools are starting to go beyond being just the trim tab on the great rudder of the enormous ocean liner that is the global economy, society, culture, and ecology; they are becoming that great rudder itself

as they begin to change our doomed course and head us onto a path that might be the only one we dare to follow.

For eight years—almost a decade—the articles and editorials in this journal have become increasingly emphatic about the need for business school education and all of business to turn away from the business-as-usual mindsets and practices that have put our own and other species on the path to extinction, calling on us to hear the words of so many, from Greta Thunberg to Pope Francis, to care for our common home and go from words to action *now*. The five articles in this issue of the *Journal*, therefore, like so many in the past, are all part of the explorations and desirable changes that are necessary for us to move that massive ocean liner in the direction that we need to discover and follow. Business schools are becoming more than the trim tab; they are becoming the great rudder for our global future and, in doing so, are taking the next steps six decades after the call those graduate student editors made in 1961, inspiring all of us to make true the possibility that "the business of business is future generations and the planet itself."

In "Benefits from Laguna Lake: Perspective of Small Fisher Households," Rosalina Palanca-Tan of the Ateneo de Manila University examines the role played by Laguna Lake, located near Metro Manila, in the economic life of fishing households in lakeshore communities. The article explores the realities of earning a livelihood at the most basic level—the fishing households around Laguna Lake are engaged mostly in small-scale open fishing and fish cage farming—as well as the impacts of business system arrangements and ecological changes on individuals and families seeking to earn a decent living from their work. The author describes how the economic benefits of fishing activities are enjoyed much more by a few non-lakeshore residents and fish pen-owning corporations and individuals than by the local fisherfolk themselves, and offers ways for overcoming the economic injustice her work reveals through the institution of a system in which huge resource rents from aquaculture are made to accrue to poor fishing households in the lakeshore communities.

The study also finds that the fishing activities and livelihood of the lakeshore households are seriously affected by pollution and other environmental conditions in the lake ecosystem. The author thus asserts that there is an urgent need to address the lake's pollution problems and concludes with suggestions on how to do so.

In "Developing a Framework for Understanding the Personal Motivations of Sustainability Leaders," Jennifer Licad Horn, formerly affiliated with the University of Surrey and now with Ateneo de Manila University, and Walter Wehrmeyer from the University of Surrey grapple with the challenge of creating leadership for sustainability, which is necessary for helping us become the kinds of people who can live on this planet without destroying it as well as contribute to transforming our production systems. They observe that sustainability education and leadership programs, more than just sharing new knowledge and skills, need to help create or strengthen an underlying motivation to act. Their article explores both the initial and sustaining motivations that drive the leaders they studied to pursue sustainability as a profession or vocation, along with perspectives coming from various sectors (business, government, non-government organizations, or civil society) and a developing world context in a country like the Philippines.

The authors' thematic analysis of interviews with 16 sustainability leaders revealed values and significant life experiences that drove motivation; feedback that sustained motivation; and the importance of self-reflection, self-awareness, and positive psychological factors in starting and sustaining the leaders' work or advocacy. The authors recommend that sustainability education and leadership programs utilize experiential learning to develop awareness, connectedness, and empathy with the world around oneself; create space for reflection on leaders' experiences and insights; integrate ways to cultivate hope and other positive psychological factors such as confidence, optimism, and resilience; and help leaders build social support in enabling environments.

In their article titled "The Role of National Culture in the Relationship Between Sustainability Practices and Sustainability Performance," Cristina Sancha, Annachiara Longoni, and Cristina Giménez from ESADE Business School-Universitat Ramon Llull explore an important factor in the development of the kinds of productive organizations that will meet our needs while protecting the planet.

The authors define sustainability practices as those practices and actions that allow a company to achieve business processes that lead to improved sustainability outcomes. Examples of these practices include the setting of policies oriented toward the protection of employees and the use of environmental management systems. The "one size fits all" view, moreover, has been frequently contested even though

globalization usually leads to the standardization of policies and practices. In this context, Sancha, Longoni, and Giménez address the following question: "What is the impact of national culture on the sustainability practices-performance relationship in different cultural environments?" They thus use an international sample of nine different countries to explore the contingent role of national culture in the sustainability practices-sustainability performance relationship.

The authors describe how the data show the uncertainty avoidance and masculinity/femininity dimensions to be relevant contingency variables that should be considered when analyzing the sustainability practices-sustainability performance relationship. In the domain of uncertainty avoidance, the data suggest that the implementation of sustainability practices will have greater impact in societies where individuals are willing to put in place systems and procedures that ensure the sustainability of both society and the environment (by reducing or removing uncertainties that might have a negative impact on such). Thus, in societies with high uncertainty avoidance, national culture will fit a firm's sustainability values more closely and employees will be more committed to the implementation of sustainability practices, thereby enhancing their impact.

With regard to the masculinity/femininity dimension, the data suggest that the implementation of social practices counterbalances the generally low level of care for the weak and for the quality of life as found in societies characterized by high levels of masculinity.

In "Quantifying the Order of Priorities in Student Choice of Graduate Business Schools: Does Sustainability Matter?", Robert Sroufe of Duquesne University and David B. Brauer of West Virginia University show that it is beneficial to consider a curriculum that includes sustainability when developing programs at graduate business schools. Their mixed methods study highlights factors that the leaders of such institutions are strongly advised to take into consideration when looking at building and maintaining viable business schools for the future. Moreover, as studies in this area have been noticeably neglected, this article gives a foundation upon which further research can be built and offers an approach that will yield concrete results.

Business schools have adopted a follow-the-leader strategy of maintaining the status quo or "business-as-usual" for far too long. While they may tinker with

aesthetics, such as stock trading rooms outfitted with electronic ticker tape and Bloomberg terminals, entrepreneurial maker spaces, and, most recently, rooms for recording role plays, these are not features that will attract new and high-quality students. Such aesthetic innovations will still produce unimaginative leaders as long as business school value propositions are stuck in the 20th century. The authors argue instead that we need to listen to the customer and build cutting-edge programs that yield high-paying jobs while integrating global sustainability goals within business school curricula. They believe that insights from mixed methods studies like this one can help illuminate what customers want as well as highlight methodologies that can help business schools stay relevant while simultaneously providing new opportunities for their evolution.

"Feedback-Guided Analysis as an Approach to Managing Sustainability in ASEAN Countries" by Maria Assunta C. Cuyegkeng and Charlotte Kendra Gotangco Gonzales, both of Ateneo de Manila University, introduces *JMGS* readers to a template for feedback-guided analysis of a system (Newell & Proust, 2017). The template is used to study four subsystems (science and environmental policies, cultural paradigms, states of ecosystems, and states of human health and well-being) and how they affect each other as indicated by seven links that connect one to the other.

The authors identify ecological education as a strategic intervention that can develop a culture that promotes a sustainable worldview and lifestyle for individuals and institutions. Developing such a culture can, in turn, have an impact on ASEAN policies, ecosystems, and human health and well-being. The mental model introduced in the article thereby offers a possible vehicle for developing a culture that cares for others and our common home.

Reading through the articles, it also seems that the template used for feedback-guided analysis could be applied to the other papers since they all suggest a deeper look at the paradigms that drive our practices, whether on a personal scale (in the motivations of sustainability leaders or choice of a business school), societal level (in the influence of national culture on business practices), or governance level (in the resource rents from aquaculture for poor fishing households). They also suggest that some form of intervention, whether educational, awareness-raising, or systemic, would be needed at those levels. Such a perspective would be consistent with the theme of transforming not only business education and business but also our whole approach to global sustainability.

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Journal of Management for Global Sustainability Volume 8, Issue 2 (2020): 11–35

DOI: 10.13185/JM2020.08202

BENEFITS FROM LAGUNA LAKE
Perspective of Small Fisher Households

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ABSTRACT

Fishing is considered to be the most important among the many uses of Laguna Lake, the largest lake in the Philippines and second largest in Southeast Asia. Using primary data gathered through focus group discussions, key informant interviews, and a household survey together with secondary data on revenue and cost estimates for aquaculture and catch fisheries, this paper discusses the lake's role in the economic life of two fishing communities located along the shoreline. The study, which uses a microscopic lens to look at issues from the perspective of small fisher households instead of from that of policymakers and non-government organizations, finds that households in these lakeshore communities are engaged primarily in open fishing, which has been threatened of late by poor water quality and the consequent proliferation of water hyacinths. Only the few well-off residents of these lakeshore communities are able to construct and operate small-scale fish cages while corporations and non-resident individuals own and operate large-scale fish pens. Moreover, while open fishing contributes more to fish production value and employment than does aquaculture, the latter generates more resource rent which accrues to the very few aquaculture capitalists from outside these communities. Some suggestions for redistributing the huge fishing resource rents to poor fishing households in these lakeshore communities are thus presented in this study. The need to address the issue of lake water quality and competing uses, with a view to sustainability and poverty alleviation, is also discussed.

KEYWORDS

aquaculture/fish farming; open fishing/capture fisheries; poverty; resource rent; water pollution

Submitted 3/31/20 | Accepted 7/30/20 | Published 12/31/20

INTRODUCTION

Laguna Lake, the largest lake in the Philippines and the second largest in Southeast Asia, has a total surface area of 90,000 ha, accounting for nearly half of the total lake area (190,000 ha) of the country. The benefits derived from it are manifold: it generates fishing income through aquaculture and capture fisheries; supplies water for domestic, industrial, and agricultural uses; supports hydropower production; serves as a retention basin for rainfall and mitigates flood risks in the southern part of Metro Manila; and serves as a sink for residential, commercial, industrial, and agricultural wastewater as well as surface water run-offs and water inflows from the Pasig River. Lastly, it has recreational value that has yet to be fully tapped.

Among the lake's many uses, fishing is considered to be the most important (Laguna de Bay Technical Working Group, 2016). In 1983, the Laguna Lake Development Authority (LLDA), a quasi-government agency with regulatory and proprietary functions for promoting the development and balanced growth of the Laguna Lake area, implemented a Zoning and Management Plan to delineate areas for open fishing, fish cages, fish pens, and a fish sanctuary. A 5,000 ha area is designated as a fish sanctuary while a total of 15,000, 10,000, and 5,000 ha are allocated for aquaculture, fish pens, and fish cages, respectively. The maximum area for fish pen operations is set at 50 ha for a corporation, ten hectares for a cooperative, and five hectares for an individual owner. The maximum area allowed for a fish cage is one hectare. LLDA collects annual resource fees of ₱6,000 per hectare from fish pen owners and ₱4,200 per hectare from fish cage owners, the proceeds of which are shared by LLDA with local government units for use in environment-related projects.

LLDA's list of fish pen owners in 2018 (LLDA, 2018) included 38 individuals operating 62 fish pens (totaling 818 ha) and 99 corporations operating 162 fish pens (totaling 6,010 ha). Yet while the lake is populated by large-scale fish pens owned and operated by corporations and individuals who are not residents of the lake-adjacent *barangays* (villages), poor households in rural and semi-urban barangays of Laguna and Rizal, and even in the urbanized cities of Metro Manila, surround and depend on the lake for their primary source of livelihood, either as fisherfolk in open fishing areas or as operators of small-scale fish cages and ponds. A recent study (Laguna de Bay Technical Working Group, 2016) highlighted the importance of the open fishing done by small fisherfolk in Laguna Lake and found that open fishing surpasses fish

cages and pens in fish output, revenues, employment, and labor income generation. LLDA estimated open fishing harvest in 2014 to be approximately 107 million kg, or about 33% more than production from fish cages in the same year. The estimated gross revenue of ₱3.8 million generated from open fishing in 2014 was double that of fish cages and almost six times that of fish pens. Open fishing in Laguna Lake also provided employment and livelihood to the households of 13,139 fisherfolk and generated labor income of ₱1.1 million, more than thrice that of fish cages and more than eight times that of fish pens.

A number of issues regarding the conditions and activities in and around the lake pose threats to the fishing livelihood of households in lakeshore communities. Laguna Lake water is highly euthrophic due largely to inflows of municipal wastewater from households and the services sector (Palanca-Tan, 2015, 2017). Wastewater from livestock and poultry production (Alcantara et al., 2008) and fertilizer residue from croplands (Baldia, Conaco, Nishijima, Imanishi, & Harada, 2003; Tirado, Bedoya, & Novotny, 2008) also contribute to this eutrophication, which causes the fast growth and accummulation of water hyacinths that obstruct open fishing and fish cage operations. Indeed, there have been times in recent years when fisherfolk were unable to fish for days and even weeks due to thick beds of water hyacinths that blocked their way to the fishing areas.

The absence of saltwater is also suspected to be a major cause of the proliferation of water hyacinths, with fisherfolk observing that the reverse water flow from Manila Bay to the lake during the dry season appears to be blocked at the Napindan Channel. Apart from the water hyacinths, the absence of saltwater has also introduced predator fish species that reduce fish populations and lower fish catches. Fish cage operators, moreover, claim that fish farming periods are taking much longer (12–18 months instead of the previous 6–8), attributing the slow growth of fish to poor water quality caused by toxic and hazardous industrial pollutants (Tamayo-Zafaralla, Santos, Orozco, & Elegado, 2002) as well as sediments and silts coming from agriculture, quarrying, deforestation, landfill, land conversion, illegal reclamation, and infrastructure development projects (e.g., the Laguna Lake Highway Project) in the surrounding areas. All these can aggravate the economic vulnerability and deprivation of poor fisherfolk in lakeshore communities who are dependent on small-scale open water fishing and fish farming (cages and ponds).

This paper, which looks at the role of Laguna Lake in the economic life of low-income fishing communities that surround it, uses a microscopic lens to explore the issues from the perspective of small fisherfolk instead of from that of policymakers and non-government organizations. Over the years, studies on Laguna Lake have focused mostly on water quality assessments (Barril & Tumlos, 2002; Chavez, Casao, Villanueva, Paras, Guinto, & Mosqueda, 2006; Maruyama & Kato, 2017; Nakajima, Nagaoka, & Ohgaki, 1996; Rosales & Rollon, 2011; Varca, 2012; Vicente-Beckett, Pascual, Kwan, & Beckett, 1991); only a few (Gong, Sakurai, & Kada, 2015; Israel, 2008) have looked at the impacts the lake has had on the livelihoods of surrounding communities as well as at the need to address such. This study aims to contribute to addressing this gap in the literature.

METHODOLOGY

The Study Sites

The vast surface area of Laguna Lake falls within the territories of the highly urbanized National Capital Region (Metro Manila) and the two partly-rural, partly-urban provinces of Rizal and Laguna in Region IVA, which is located south and southwest of Metro Manila. There are a total of 169 barangays bordering the lake—18 from the cities of Taguig and Muntinlupa in Metro Manila, 71 from 9 municipalities in Rizal, and 80 from 18 cities/municipalities in Laguna. This study focuses on two barangays in particular: Barangay Sampad in Cardona Municipality in the Province of Rizal and Barangay Sampiruhan in Calamba City in the Province of Laguna.

Despite having become increasingly more urbanized, the two provinces of Rizal and Laguna still make substantial contributions to the country's fisheries output due to their proximity to Laguna Lake. Rizal and Laguna ranked 8th and 10th, respectively, among all 81 provinces in the country in terms of contribution to the Philippines's municipal fishing catch. From 2008–2017, municipal fishing catch in Laguna totaled 382 thousand metric tons, accounting for 3% of the country's total municipal fishing catch, while Rizal's municipal fishing catch of 456 thousand metric tons was roughly 4% of the country's total output. In terms of contribution to Philippine aquaculture production, Rizal and Laguna ranked lower—13th and 32nd, respectively. In Laguna, aquaculture produce was only 106 thousand metric tons or 0.4% of total Philippine aquaculture produce during the period 2008–2017. Rizal's output of 483 thousand

metric tons, on the other hand, comprised 2% of the country's aquaculture produce (PSA, 2019).

The contributions of Laguna and Rizal to Philippine municipal fishing become less significant, however, when measured in value terms. This is because the types of fish caught in Laguna Lake are the cheaper varieties (Israel, 2008; Saguin, 2014). Tilapia, the main fish variety caught in open fishing areas in Laguna Lake, is currently the cheapest type of fish in the country, with fish varieties caught in marine waters being more preferred and more expensive. Hence, even if Laguna and Rizal ranked high in municipal fishing volume, they ranked very low—41st and 53rd, respectively—in terms of fishing value. The contributions of Rizal and Laguna to Philippine aquaculture, on the other hand, are slightly higher in value terms (12th and 30th, respectively) than in volume terms as the price per metric ton of seaweed is much lower than those of tilapia and milkfish, the two main aquaculture products of Laguna Lake. Seaweeds, tilapia, and milkfish are the top aquaculture products of the Philippines.

Figure 1 shows the locations of Barangays Sampiruhan and Sampad. Calamba City in Laguna, which houses more than ten industrial parks, claims to be the premier industrial hub outside of Metro Manila. Major income sources in the city are from manufacturing, tourism, agriculture, and services; only 2% or 4,157 of the city's 206,231 gainful workers are skilled agricultural forestry and fishery workers (PSA, 2016). The city is bounded by Laguna Lake in the east, with 11 of its 54 barangays adjacent to the west bay of the lake. Sampiruhan, one of these 11 that share the coastline, has remained a rural village with fishing as its main economic activity—of its 81 ha land area, 60% is residential, 30% is for agriculture (vegetable farms and fish ponds), and only 10% is commercial. In 2016, Sampiruhan had a population of 9,927 people living in 2,922 households (City Government of Calamba Official Website, 2018).

Sampad, a tiny lakeshore barangay in Cardona, has a population of only 2,125 in 380 households (DSWD, 2015). Cardona, a 3rd class municipality in Rizal, is a vertical strip of land bordering the west side of the central bay of Laguna Lake. As a consequence, 15 of its 18 barangays are along the shoreline of the lake, where fishing is the primary means of livelihood. Of the municipality's 20,006 gainful workers, 16.3% or 3,262 are skilled in agricultural forestry and fishery (PSA, 2016).

Cardona has been known for its fishing industry since the early 1970s, when a fish propagation program was pioneered in the lakeshore areas of Cardona and the Philippine Fisheries Development Authority developed the Cardona Municipal Fish Port. The municipality is visited by fish distributors from different regions, and its main source of revenue is income from the municipal fish port.

Figure 1: Survey Areas—Barangay Sampiruhan in Calamba, Laguna and Barangay Sampad in Cardona, Rizal

Data Collection

The study employed primary data collection methods, namely key informant interviews (KIIs), focus group discussions (FGDs), and a comprehensive household survey. FGDs with representative households in combination with KIIs with community leaders, local government officials, and non-government organizations were undertaken to obtain background information and provide inputs for the drafting of the survey instrument.

The 24-page comprehensive household survey instrument consisted of five parts. Part I covered household composition and asked basic demographic questions about each household member. Part II, which made up half of the questionnaire (12 out of 24 pages), contained detailed questions about the fishing activities of the household. Part III dealt with the household's consumption and asset profile—consumption

composition and pattern, ownership of physical assets (durable household goods such as furniture and appliances and other items that may be used for livelihood activities such as a refrigerator, computer, and automobile), financial assets and liabilities (savings and borrowing behavior), and access to utilities (electricity and water) and sanitation facilities. Part IV consisted of social capital questions, i.e., about membership in formal and informal organizations/social networks as well as questions on trust/cooperativeness to measure behavioral social capital. Part V posed questions about the experience of the household with strong typhoons and flooding and its adaptation measures to such.

This paper focuses on the results of the fishing part of the questionnaire; the results of the other parts were used by an earlier study (Palanca-Tan, 2020) which focused on the households' consumption behavior and vulnerabilities. In Part II of the questionnaire, household fishing activities were categorized into open-fishing (municipal fishing) and aquaculture. Questions about open fishing focused on the most commonly used methods, equipment and materials used and their costs, and fish most frequently caught. Questions about aquaculture dealt with types of fish farms, the costs of construction, equipment, fingerlings and feeds, growing period, and types and volumes of fish harvests. Problems facing the fisherfolk, their future plans, and the perceived impact of government projects in the Laguna Lake area were also considered.

A total sample of 113 fishing households from Sampiruhan and 65 from Sampad was generated for the study. In Barangay Sampad, respondents were selected using a systematic sampling procedure—from a random starting point, houses were visited according to a fixed interval of five. Every house that was approached needed to be the 5th house from the last household that agreed to participate in the study; if a household refused, the next house would be approached. In Barangay Sampiruhan, respondents were selected randomly by stationing student enumerators along the shore to interview fisherfolk as they arrived from the lake. The surveys were implemented through personal interviews during the months of March–September 2018. College students majoring in Economics served as survey enumerators as part of a service-learning activity for their Statistics class.[1]

[1]These two barangays were selected as study sites primarily because of this student service-learning aspect of the research project and based on fishing activities as well as safety considerations. They are among candidate survey barangays in Laguna and Rizal identified by

FINDINGS AND DISCUSSION

Survey Results: Fishing Livelihood of Households around Laguna Lake

This section presents the results of the survey on fishing activities of households in Sampiruhan and Sampad. Most of the fishing households in the sample are engaged in open (municipal) fishing—of the 113 respondents in Sampiruhan, three-fourths (83 households) are involved in open fishing while only a fifth (24 households) are fish farm operators; in the case of Sampad, 54 out of 65 fishing households (83%) engage in open fishing and about the same proportion as in Sampiruhan (21.5%) undertake fish farm operations. While some respondents are engaged in both open fishing and fish farm operations, it is understandable why most of the households are into open fishing as this provides a daily source of income and requires lower financial capital. Fish farming, on the other hand, requires the construction of fish cages, the cost of which varies according to size and materials. The cheapest and smallest farms require at least ₱40,000 in capital, and harvesting from these facilities requires waiting for a couple of months. This is because the fish farm cycle is relatively longer in the case of Laguna Lake, where natural food instead of feeds is used.

There are very few resident fish farm workers in either barangay (ten or 8% of respondents in Sampiruhan and ten or 15% of respondents in Sampad). Fish farms operated by households residing within the barangays are small-scale, and can be run and cared for by the household head with some help from other household members without having to employ regular workers from outside (except during harvest time). Only large-scale farm operations owned by corporations employ managers and workers, most of whom are not residents of the neighboring barangays. These farm workers are usually recruited from low-income rural provinces in other parts of the Philippines and are stay-in employees living in small shanty huts located in the vicinity of the fish farms. This explains the small proportion of fish farm workers among the residents of the barangays.

Fishponds, which usually grow catfish, predominate in Sampiruhan, where the level land (formerly planted with vegetables and rice) near the lakeshore and availability of groundwater make pond operation viable. Much of the agricultural

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the Community Organizers Multiversity and Rizal chapter of the Department of Social Welfare and Development, with which the Ateneo de Manila University has a collaborative relationship.

land in many parts of Luzon (particularly in Central Luzon, which is known to be the rice granary of the Philippines) has been converted into fishponds due to higher returns; indeed, a study conducted by ADB (2005) found that tilapia farming was four times more profitable than rice farming. It is not surprising, therefore, that vegetable and rice farms in Sampiruhan have been converted recently into fishponds in pursuit of higher profits. Fish farms in Sampad, on the other hand, are mostly cages and pens in the lake given the hilly and rolling land along the shoreline.

The two sub-sections that follow summarize the findings for open fishing and aquaculture.

Open Fishing. In Sampiruhan, the use of gill nets and fish corrals (a kind of fish trap structure) are the primary means of catching fish. In Sampad, the use of gill nets (78%) dominates the use of fish corrals (11%). Secondary methods of catching fish in the two barangays are diving and the use of fishing rods and fish dome traps. The choice of fishing methods employed appears to be dependent more on traditional practices as learned from older members of the community rather than on training and the costs of gear and materials.

Boats, boat motors, and fish nets are the basic gears used in open fishing. The average costs of boats and motors used by fisherfolk in Sampiruhan and Sampad are similar, indicating a similar scale of fishing in the two communities. The costs of fish nets and frames used in Sampiruhan are about double the costs for the same in Sampad; this is likely due to the more widespread use of fish corrals (which are made of nets and frames) in Sampiruhan. As for gasoline, which is used to run the boat motors, fisherfolk consume, on average, ₱105 (in Sampad) to ₱139 (in Sampiruhan) worth per fishing trip. The standard deviations for both barangays are quite high, however, which may be indicative of highly variable fishing hours.

A majority of fisherfolk in both barangays used their own household savings to purchase fishing gears (65% for Sampiruhan and 56% for Sampad). The same proportion of respondents (13%) in the two barangays also received financial assistance from relatives and/or friends. During the KIIs, some community leaders indicated that they provide and lend their boats, nets, and other gears to fisherfolk relatives and friends who need such; indeed, there are several cases where an informal "business" agreement was reached wherein they provide the gear and materials to the fisherfolk in exchange for a share in the harvest.

Borrowing does not appear to be a widespread option for funding gear and equipment purchases in Sampiruhan. Only 11% of respondents borrowed funds from relatives or friends to purchase gear, and more formal funding sources, e.g., cooperatives, banks, and government institutions, are rarely availed of—only two households availed of credit from government institutions and only three did so from cooperatives and banks. In Sampad, however, nearly half (42%) of the respondents borrow from cooperatives for the purchase of open fishing gear. Higher proportions of fisher households from Sampad likewise borrow funds from government institutions, friends, relatives, and banks. It appears, therefore, that more financial assistance from cooperatives and government is available in Sampad than in Sampiruhan. This may be because Sampiruhan, despite being a low-income rural barangay, belongs to a first-class city and is therefore no longer a priority area for assistance from NGOs, cooperatives, and government agencies.

In terms of daily expenses for open fishing materials, close to 80% of fisher households in both barangays use their own savings. Only 2 out of 83 respondent households (3%) from Sampiruhan borrow funds for daily fishing material requirements while a substantial proportion (73%) of Sampad households borrow from relatives, friends, and cooperatives in addition to using their savings. This can be indicative of more prevalent subsistence living conditions in Sampad relative to Sampiruhan. Those who borrow for daily fishing materials in both barangays indicate borrowing once every week, on average.

In Sampiruhan, the fish varieties most frequently and abundantly caught through open fishing are tilapia (60% of respondents), big head carp (19%), catfish (12%), and silver perch (6%). In Sampad, tilapia is the most frequently and abundantly caught fish among almost all of the open fishers surveyed (93%), followed by milkfish (4%) and catfish (2%). Milkfish, on the other hand, emerged as one of the most frequently farmed fish in Sampad as fish pens growing milkfish abound in the Rizal area. Milkfish is not indicated by any respondent in Sampiruhan, which is relatively far from the milkfish pen area.

With more varieties of higher value fish (catfish and silver perch) caught in Sampiruhan, the average selling price of fish in this barangay is slightly higher than in Sampad, where the catch is mainly tilapia. Table 1 reveals that the average daily fish catch ranges between 3–106kg in Sampiruhan and 3–59kg in Sampad.

The standard deviations are much higher than the mean values, implying wide differences in the scales of operation among fisherfolk—on a bad day, the catch can be as low as 3kg, most of which is sold and only 0.5–0.8kg is allocated for household consumption, giving the fisherfolk a daily sales income of just about ₱96–₱103, roughly a third of the minimum wage rate of the area. A good day's catch, however, gives the fisherfolk an average daily sales amount of ₱1,770 and ₱3,456 in Sampad and Sampiruhan, respectively, and leaves them with more than 4kg of fish for consumption at home or for giving away to relatives and friends.

	Bad Day		Good Day		Last Remembered Catch	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
	SAMPIRUHAN					
Catch (kg)	2.6	4.3	105.9	206.3	14.9	34.4
Amount sold (kg)	2.1	3.9	101.5	206.2	13.9	34.8
Sales value (₱)	96	131	3,456	5,757	575	11,778
Average price per kg (₱)	36	37	48	39	46	41
	SAMPAD					
Catch (kg)	3.0	2.6	59.0	97.1	6.5	6.8
Amount sold (kg)	2.2	2.2	54.8	95.2	6.5	9.8
Sales value (₱)	103	88	1,770	2,936	300	494
Average price per kg (₱)	37	21	41	16	39	25

Table 1: Daily Fish Catch

About 70% of the catch in both Sampad and Sampiruhan is sold at the nearest wet market, further reflecting the preponderance of small-scale fishing in both barangays.

Fishing-related problems cited by the majority of respondents in Sampiruhan include typhoons (77%), the proliferation of water hyacinths (62%), water pollution (61%), and lowered fish stocks (58%). Substantial proportions of fisherfolk in Sampiruhan also cited shortages of financial capital (45%), flooding (38%), and low and fluctuating fish prices (32%). A few cited illegal fishing and lake robbery (piracy of fishing gear and catch). To address the problem of shortages in financial capital,

subsistence fisherfolk enter into a fish catch-sharing arrangement with those who have financial capital and/or fishing equipment/material.

Problems cited by the majority of respondents in Sampad include the proliferation of water lilies (98%), typhoons (74%), the shortage of funds (59%), lowered fish stocks (59%), water pollution (56%), and the limited/slow growth of fish (50%). The Metro Manila and Rizal portions of the lake are more prone to the fast growth of water lilies due to large inflows of untreated municipal wastewater and the increasing absence of saltwater. Sampad fisherfolk observed that the reverse water flow from Manila Bay to the lake during the dry season seems to have stopped in recent years, and said that they were unable to fish for a couple of weeks during the third quarter of 2018 as thick beds of water hyacinths blocked their way to the fishing areas.

The last question asked of the respondents who were engaged in open fishing was about whether or not they plan to continue this livelihood activity. An overwhelming majority in both Sampiruhan (64%) and Sampad (83%) answered in the affirmative. In Sampad, the primary reason given was the lack of other job opportunities as the barangay is somewhat secluded and far from the commercial area of Rizal. In Sampiruhan, on the other hand, which is part of the fast-developing city of Calamba, a significant number of respondents specified other reasons (38%), due mainly to a personal preference for fishing: "it is what I want to do for as long as my body can still do it," "it is a form of recreation for me," "it is what I am used to," "it is what my mental capacity can handle," "I prefer fishing because I have no boss here." A comparable proportion of respondents (40%) in Sampiruhan also indicated the absence of other job opportunities. About a quarter of respondents in both barangays considered open fishing to be a good source of income. Only two of the fisherfolk interviewed in Sampad intend to discontinue fishing in the next five years to pursue other work and because of low fishing income and the problem of the water lilies. Among those planning to quit open fishing in Sampiruhan (27% of open fishing respondents), their reasons for doing so include low fishing income, pursuit of other types of work, that "fishing is hard," old age, and water pollution.

Aquaculture. There is a difference in the kind of fish farming undertaken between Sampiruhan and Sampad. In Sampiruhan, fish farm operations involve growing mainly catfish in fishponds near the lakeshore—a significant 82% of the farm

operator respondents grow catfish, with only 42% growing tilapia and much fewer (4%) growing milkfish. In Sampad, on the other hand, fish farms are all in the form of fish cages in the lake and grow tilapia (86%), milkfish (43%), and other fish species (64%).

The predominant reason for engaging in fish farming is its high earning potential (cited by more than 85% of respondents in both barangays). In Sampiruhan, household savings are, as is the case with open fishing, the primary source of funds for fish farm construction (as reported by 76% of fish farm owners). In Sampad, while only 43% of fish farm owners use their own savings, a substantial proportion (21%) borrowed funds from cooperatives, similar to open fishing. A similar proportion (slightly over 10%) of fish farm owners in both Sampiruhan and Sampad received financial assistance from relatives. For the daily operations of the fish farms, all of the fish farm owners/operators in Sampiruhan use household savings except for two respondents, one of whom has a financier from another municipality while the other borrows money from a bank. In Sampad, sources of funds for daily operations are more diverse; these include household savings (43%), assistance from relatives/friends (14%), and borrowing from cooperatives (21%), banks (7%), and relatives (7%).

Table 2 reveals the scale and financial conditions of the small-scale fish farm operations of residents in the vicinity of Laguna Lake. The fish farm owners included in the survey sample have been engaged in aquaculture for an average of 15–16 years. In Sampiruhan, a fish farm owner has 5 farms on average, each measuring 584 m^2 for a total fish farm area of 1,300 m^2. In Sampad, the average fish farm owner has only one fish cage, which is usually 2,800 m^2 in size. The contrast in the nature and scale of fish farm operations between Sampiruhan and Sampad can thus be noted—aquaculture in Sampiruhan involves mainly fishpond structures for growing catfish along the shoreline while in Sampad it is composed mainly of fish cages for tilapia and other fish species that grow in the vast lake area. The average farm size in Sampiruhan is much lower therefore than in Sampad, and the average cost of fish farm construction in Sampiruhan is about double that in Sampad as a pond system setup involves a water supply source (deep well) with a pump system for regularly changing pond water (compared to fish cages that require only bamboo frames and nets). The much higher costs of fingerlings and commercial feeds used in Sampiruhan are also indicative of the more intensive aquaculture methods employed there.

Aquaculture in the waters of Laguna Lake in general, as is the case with Sampad, is dependent only on natural food.

The average harvest volume from Sampiruhan fish ponds is 1,731 kg while that of Sampad fish cages is 2,259 kg. In terms of monetary value, however, Sampiruhan's average total sales revenue of ₱100,367 is more than twice Sampad's ₱42,613. This is because Sampiruhan's predominantly catfish and big tilapia variety harvests command a higher price (₱58.02 per kg on average) compared to Sampad's small tilapia, big head carp, and other low price fish varieties.

	Sampiruhan (n=24)		Sampad (n=14)	
	Mean	Std Dev	Mean	Std Dev
Number of years engaged in aquaculture	15	13	16	10
Number of fish cages/pens/ponds	5	4	1.1	0.3
Size of each fish cage/pen/pond (m^2)	584	1,969	2,773	3,985
Total area of all fish cages/pens/ponds (m^2)	1,279	2,211	2,831	3,783
Cost of fish cage/pen/pond construction (₱)	41,188	46,622	22,500	24,324
INPUTS				
Number of fingerlings used	9,098	10,302	9,515.4	6,624.2
Total cost of fingerlings (₱)	43,404	51,446	23,667	35,247
Number of sacks of feeds used	51	187	2.9	1.7
Total cost of feeds (₱)	3,190	8,813	522	3,003
Growing period (no. of months)	15	11	8.8	2.8
HARVEST AND SALES				
Amount of harvest (kg)	1,731.4	2,917.0	2,258.9	3,484.2
Sold (kg)	1,730.0	2,917.6	2,237.8	3,495.6
Value of sales (₱)	100,367	210,968	42,613	83,630
Price per kg (₱)	58.02		19.04	

Table 2: Fish Farm Operations

The problems cited by most fish farmers (88%) in Sampiruhan are typhoons and flooding, with a little less than half citing water pollution (44%) and insufficient financial capital (40%). Other problems cited are the proliferation of water lilies (24%), bird and fish predators and/or parasite infestation (20%), fish kill (20%), high

feed prices/lack of supply (16%), low/volatile fish prices (16%), high fry mortality (16%), high fingerling prices/lack of supply (8%), lack of training/knowledge in aquaculture (8%), the construction of highways/dikes that makes it difficult to go to the fish cages/pens/ponds (8%), and government's dismantling of/ban on fish cages/pens/ponds (8%). Stringent aquaculture policies (e.g., zoning, license registration procedures/fees) are not cited at all—the fish ponds in Sampiruhan are apparently not subject to strict government control as much as the fish cages and pens in lake waters are. Typhoons and flooding are likewise the most cited problems by fish farmers in Sampad (71%), although a majority also cite water pollution and the proliferation of water lilies (57%). All the other problems listed in the questionnaire as mentioned above were cited to a lesser extent except for fry mortality and insufficient knowledge in aquaculture. Despite such problems, however, the overwhelming majority of fish farm owners in Sampiruhan (two-thirds or 16 out of 24) and Sampad (86% or 12 out of 14) have plans of continuing their farming operations.

Two main themes emerge from the survey results. First is the preponderance of households in the lakeshore communities that undertake small-scale fishing, with most households around Laguna Lake engaged mostly in open fishing rather than fish farming. Open fishing activities utilize very basic, low-cost fishing gear and materials (with large variations in daily fishing costs merely being indicative of highly variable fishing hours) which are funded mainly by a household's own savings and/or through borrowing from relatives and friends. Likewise, the aquaculture done by a few households in the lakeshore communities is small-scale fish cage farming, with an average of one cage measuring about two ha per household.

The second theme is that fishing activities—and hence the livelihood of the fishing households—are seriously affected by pollution and other environmental conditions in the lake ecosystem. The greatest proportions of respondents in both barangays cited the proliferation of water hyacinths, water pollution, and typhoons as the biggest problems and obstacles in their fishing activities.

The remainder of this section discusses and assesses these two issues within the larger fishing, social policy, and sustainable development context of the Laguna Lake ecosystem.

Resource Rents from Fishing in Laguna Lake: Where are These Going?

A look at all forms of fishing activities at the lake and at the key players in these activities can shed light on the relative share of fishing households residing around Laguna Lake in the total fishing income or resource rent generated from the lake. Analyzing data on the costs, revenues, and resource rents of open fishing, fish cages, and pens in a recent LLDA study (Laguna de Bay Technical Working Group, 2016) and combining such with LLDA records of fisherfolk and fish cage and pen owners, this section reveals that only minimal resource rents accrue to each fisherfolk and fish cage owner—₱142,933 and ₱90,500, respectively—every year, most of whom are residents of the lakeshore communities, compared to the exorbitant resource rents enjoyed every year by a few non-lakeshore resident, fish pen-owning corporations and individuals at ₱2,145,700 each.

The first panel of Table 3 presents LLDA's estimates of the fish output, revenues, and costs of open fishing, fish cages, and pens (Laguna de Bay Technical Working Group, 2016). Cost to revenue ratios were calculated (second panel of the same table) using these estimates, and the results reveal that open fishing has much lower intermediate input, fixed capital input, and user cost of capital to revenue ratios—and hence a much higher resource rent (net gain) to revenue ratio—compared to fish cages. Open fishing generates more revenues from every peso of fish caught than fish farming in cages generates for every peso of fish harvested. Cost ratios for the fish pens are much lower, however, likely due to economies of scale, which results in a very high resource rent to revenue ratio. These estimates highlight tremendous gains from the use of Laguna Lake, a natural water ecosystem that can generate natural food even for large-scale aquaculture operations.

On a per hectare basis, the resource rent estimates for open fishing, fish cages, and fish pens are ₱24,000, ₱95,000, and ₱49,000, respectively. There is a higher resource rent per hectare from fish cages than from fish pens due to the latter's larger farm area. Thus, with LLDA's annual "resource" fees of only ₱6,000 per ha for fish pens and ₱4,200 per ha for fish cages, which are merely minute fractions of their respective resource rents (12% for fish pens and 4% for fish cages), so much of the resource rent generated from Laguna Lake is enjoyed by the very few fish pen owners operating there, as is elaborated below.

	OPEN FISHING	FISH CAGE	FISH PEN	TOTAL
LLDA Estimates				
Area (hectares)	78,627	3,356	10,415	92,397
Catch/harvest (in thousands of kg)	106,669	80,395		
Gross revenues (₱ million)	3,846	1,910	691	6,447
Labor costs (₱ million)	1,077	343	131	1,551
Intermediate inputs (₱ million)	715	727	31	1,473
Fixed capital inputs (₱ million)	150	340	10	500
User cost of fixed capital (₱ million)	15	179	6	200
Resource rent (₱ million)	1,878	320	514	2,712
Calculated Cost and Profit Ratios				
Labor cost/revenues (%)	28.0	18.0	19.0	24.1
Intermediate/revenues (%)	18.6	38.1	4.5	22.8
Fixed capital/revenues (%)	3.9	17.8	1.4	7.8
User cost of fixed capital/revenues (%)	0.4	9.4	0.9	3.1
Resource rent/revenues (%)	48.8	16.7	74.4	42.1
Resource rent/area (₱ thousand/ha)	24	95	49	29

Table 3: Cost and Profit Ratios of Fishing in Laguna Lake
(Laguna de Bay Technical Working Group, 2016: 52–56 for panel 1; author's computations for panel 2)

Table 4 summarizes the profiles of fish pen owners in Laguna Lake in 2018. Most fish pen owners—99 out of 137, or 72%—are corporations. While majority (77) of the 99 corporate owners have only one fish pen each, a considerable number (22) own an average of four fish pens each, occupying a total area of 3,039 ha, which is almost half (45%) of the total registered fish pens' area of 6,831 ha. As for the 38 individual

fish pen owners (who are not even residents of the lakeshore barangays), 30 have one fish pen each (with an average size of 7.2 ha) and eight have an average of four pens each (with an average size of 18.8 ha). These data reveal scales of aquaculture operations that are well beyond the means of small fisherfolk.

	CORPORATION OWNERS		INDIVIDUAL OWNERS		Total
	Single fish pen owners	Multiple fish pen owners	Single fish pen owners	Multiple fish pen owners	
No. of fish pen owners	77	22	30	8	137
No. of fish pens	77	85	30	32	224
Average no. of fish pens per owner	1.0	3.9	1.0	4.0	1.6
Total fish pen area (hectares)	2,974.2	3,039.1	214.9	602.7	6,830.9
Average size of fish pens (hectares)	38.6	35.8	7.2	18.8	30.5
Average fish pen area per owner (hectares)	38.6	138.1	7.2	75.3	49.9

Table 4: Fish Pen Ownership in Laguna Lake
(LLDA, 2018; author's compilation and computations)

After deducting the resource fee of ₱6,000 per ha of fish pen collected by LLDA from the resource rent of ₱49,000 per ha, about ₱293,960,900 worth of resource rent per year is retained by just 137 registered fish pen owners (corporate and individual). Each fish pen owner thus keeps ₱2,145,700, on average, of resource rent per year for itself. The largest amount of resource rent is enjoyed by the multi-pen corporate owner (₱5,938,300) followed by the multi-pen individual owner (₱3,237,900).

Most fish cages, on the other hand, are owned by fisherfolk residing in the lakeshore barangays. Table 5 reveals that of the 340 fish cage owners surveyed, 213 or 63% are residents of Rizal, 79 or 23% are residents of Metro Manila, and 48 or 14%

are residents of Laguna. Barangay Sampad, however, has only three fish cage owners even though Cardona accounts for 73 (34%) of the fish cages in Rizal. In Laguna, most of the fish cage owners (34 or 71%) are from Biñan. There is no registered fish cage owner in Barangay Sampiruhan—as revealed by survey results, aquaculture operations in Sampiruhan are made up mostly of fishponds on land along the shore of Laguna Lake. Fish cage owners registered with LLDA are the relatively better-off fisherfolk in the lakeshore communities who have the financial resources to construct one hectare of fish cage and pay the annual fee of ₱4,500. As fish cage ownership is limited to individuals and the fish cage area for every owner is limited to one ha, the average annual resource rent enjoyed by each fish cage owner is just about ₱90,500.

AREA	ADDRESS OF FISH CAGE OWNER		LOCATION OF FISH CAGE				
	No. of fish cages	Share (%) in total fish cages	No. of fish cages	Share (%) in total fish cages	Total area (ha)	Share (%) in total area	Ave. area per fish cage (ha)
Total	340	100.0	340	100.0	249.9	100.0	0.73
Rizal	213	62.6	223	65.6	159.8	64.0	0.72
Cardona	74	21.8	85	25.0	58.7	23.5	0.69
Sampad	4	1.2	8	2.4	4.5	1.8	0.56
Others	70	20.6	77	22.6	54.2	21.7	0.70
Metro Manila	79	23.2	67	19.7	64.0	25.6	0.96
Laguna	48	14.1	50	14.7	26.0	10.4	0.52

Table 5: Registered Fish Cages
(LLDA, 2018; author's compilation and computations)

Likewise, in sharp contrast with the huge resource rent enjoyed by fish pen owners, total resource rent from open fishing of ₱1,878 million is shared among 13,139 fisherfolk, which results in an annual resource rent of only ₱142,933 per fisher.

Lake Water Quality Issues Affecting Fishing Households' Livelihood

Survey results indicate that fisherfolk in these two lakeshore barangays consider lake water pollution to be a serious obstacle in their fishing livelihood activities. Fish cages and even large-scale fish pen operations in Laguna Lake rely generally on natural food (and not commercial feeds), and hence they do not contribute substantially to lake water pollution. Instead, it is both aquaculture and open fishing that are

negatively affected by poor lake water quality, most particularly eutrophication that causes the proliferation of water hyacinths. Municipal wastewater disposed into the lake without adequate treatment is one major cause of eutrophication—indeed, much of the municipal wastewater eventually flows into the lake without adequate treatment due to a lack of wastewater treatment facilities (Palanca-Tan, 2015, 2017).

The absence of saltwater is another major cause of excessive water hyacinth growth. The reverse flow of water from Manila Bay to Laguna Lake during the dry season allows saltwater to enter the lake and combine with freshwater to produce brackish water which maintains the lake's ecological balance (Guerrero, 1996). According to fisherfolk groups, however, various pests, specifically water hyacinths and predator fish species such as the snake turtle, knife fish, and janitor fish, have been thriving ever since the construction of the Napindan Hydraulic Control structure in Taguig City. Built as a flood control measure for Metro Manila, the Napindan structure is closed during the rainy season to prevent the overflow of rainwater into densely populated Metro Manila. It is supposed to be opened during the dry season, however, to allow saltwater to flow into Laguna Lake due to its fishing benefits. Yet during the FGDs, fisherfolk expressed their suspicion that the Napindan structure is no longer being opened during the dry season as water from the lake is also being used for the domestic water supply and for watering golf courses in southern Metro Manila.

Lake water eutrophication that causes the fast growth and spread of water hyacinths in Laguna Lake reduces even further the miniscule fishing income of households in the lakeshore communities. Water hyacinths obstruct the movement of fishing boats and make fishing activities difficult—and, on many occasions, even prevent these completely—for several days and weeks. Water pollution and other activities (such as land conversion, land reclamation, and the construction of the Laguna Lake Highway) also disturb the lake's ecological balance, leading to the emergence of predators that reduce fish populations and lower daily fish catches. These factors contribute negatively to the worsening living conditions of poor fishing households and increase their economic vulnerability. Nearly half (49%) of the respondents in Sampad claimed that their households have missed meals in the past 12 months. The proportion in Sampiruhan was lower, though still substantial, at 27% (Palanca-Tan, 2020).

CONCLUDING REMARKS

This study assessed the benefits derived from fishing in Laguna Lake from the perspective of low-income fishing communities using primary data gathered through FGDs, KIIs, and a household survey as well as secondary data from LLDA. The findings and some policy implications are summarized below.

First, the survey reveals that fisher households in the lakeshore communities are engaged mostly in subsistence open fishing. Only a few relatively well-off residents are able to construct and operate fish cages while corporations and non-resident individuals own and operate fish pens. Open fishing contributes more to fish production value and employment than does aquaculture (fish cages and pens combined), even if aquaculture generates more resource rent per hectare of the lake. Due to the very small number of entities (corporations and individuals) engaged in aquaculture, the huge resource rents generated from the lake benefit only a few fish farm operators from outside the lakeshore communities.

The challenge, therefore, is to institute a system wherein huge resource rents from aquaculture can accrue to poor fishing households in the lakeshore communities. One way is to collect higher permit fees from fish farm owners and use the proceeds to provide assistance to open fisherfolk and small-scale fish farm operators (such as the fish cage operators in Sampad and fishpond operators in Sampiruhan). Another way is to promote and facilitate the creation and initial organization of cooperatives of poor fisherfolk for the operation of large-scale fish pens. In doing so, huge resource rents generated from aquaculture can accrue to fisherfolk members of such cooperatives.

Second, there is a need for policymakers to realize the optimum level of fishing output from the lake by addressing the issue of pollution. Aquaculture in Laguna Lake is dependent largely on natural food, and hence does not cause the pollution problems common in intensive feeds-dependent aquaculture environments. It is actually the fishing activities, including fish farm operations, that are negatively affected by the lake's poor water quality. Laguna Lake water is highly eutrophic (Delima & Baldia, 2012) as a result of inadequately treated domestic wastewater flowing in from congested Metro Manila and surrounding cities in Rizal and Laguna. This is one more compelling reason for government to implement a decisive and comprehensive sewerage program.

Poor lake water quality that impedes fish growth and causes the excessive proliferation of water hyacinths is also attributed to another factor—blockage of saltwater flow from Manila Bay. Fisherfolk suspect that saltwater is no longer being allowed to flow into the lake through the Napindan structure as water from the lake is being extracted for domestic water supply and watering golf courses. This is an issue of competing uses—does LLDA still consider fishing as the foremost function of Laguna Lake? If yes, then protection of the lake for fishing purposes needs to be prioritized. If other uses are turning out to be gaining precedence over fisheries, then government needs to be transparent about such and have plans for providing alternative sources of livelihood for the fishing households as well as for filling the fish supply gap that will result from the change in priority. It is also imperative that government examines carefully whether or not this change of priority is consistent with its poverty alleviation and income redistribution programs. Palanca-Tan (2018) notes the potentially significant contribution of aquaculture to poverty alleviation as it provides not only a major source of income to fishing communities around water bodies but also, and more broadly, a cheap source of protein for the growing population.

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Journal of Management for Global Sustainability Volume 8, Issue 2 (2020): 37–64

DOI: 10.13185/JM2020.08203

DEVELOPING A FRAMEWORK FOR UNDERSTANDING THE PERSONAL MOTIVATIONS OF SUSTAINABILITY LEADERS

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ABSTRACT

This study explores the initial and sustaining motivations that drive leaders to pursue sustainability as a profession or vocation. Exploratory interviews were conducted with 16 sustainability leaders in the Philippines working in sectors ranging from corporate to social enterprise, NGO, and academia. Findings from thematic analysis reveal significant life experiences that drive initial motivation, how feedback sustains motivation, and the importance of self-awareness and positive psychological factors in starting and sustaining their work or advocacy. A framework for understanding motivations is developed therein, drawing on themes extracted from the interviews, Stern's Value-Belief-Norm Theory, and Authentic and Transformational Leadership theories. Recommendations are given on how motivation can be instigated and sustained, namely, by cultivating hope and other positive psychological factors, integrating experiential learning to develop awareness, connectedness, and empathy, and creating social support and enabling environments. Further research to develop an instrument for measuring sustainability leadership motivation, one that can inform sustainability education facilitators of the effectiveness of their programs in inspiring participants to take action, is also recommended.

KEYWORDS

sustainability; leadership; motivation; hope

Submitted 5/14/20 | Accepted 11/4/20 | Published 12/31/20

INTRODUCTION

Haney et al. (2018) state that sustainability leadership development needs not only new knowledge and skills but an underlying motivation to act so knowledge and skills are utilized. Studies have been done on the values and attributes (Goleman, Boyatzis, & McKee, 2002; Goleman, 2004; Parkin, 2010; Schein, 2015), life experiences (Rimanoczy, 2013; Schein, 2015), and pedagogical practices (Burns, Diamond-Vaught, & Bauman, 2015; Haney, Pope, & Arden, 2018) that encourage the development of sustainability leaders. Studies on sustainability leadership and motivation, however, are sparse, and the few that exist particularly on the motivations of sustainability leaders have been limited to a developed world context and to corporate sustainability executives.

This study, therefore, hopes to add perspectives from other sectors and from a developing world context by asking, "What are the initial and sustaining motivations of individual sustainability leaders (whether in business, government, NGOs, or civil society) in a developing country like the Philippines?"

UNDERSTANDING MOTIVATION

Motivation and Leadership

Though some leadership theories describe the characteristics, skills, and behaviors of particular leader types that are suitable for sustainability, the motivations of these types of leaders are hardly discussed. Authentic Leadership, however, discusses the role of positive psychological factors and critical life events in the formation of sustainability leaders while Transformational Leadership discusses change or transformation as the goal of the leader. Both frameworks as such indicate possible motivations for leader emergence.

Environmentally-specific *transformational leaders*, such as Patagonia's Yvon Chouinard (Chouinard, 2006), Interface's Ray Anderson (Rimanoczy, 2013), The Body Shop's Anita Roddick (Pless, 2007), or primatologist Jane Goodall (Gerber, 2017), convey visions of the future to their team, explain how to make these a reality, exhibit optimism, and act as role models by openly discussing values and issues and taking actions in line with their values (Graves & Sarkis, 2018; Robertson & Barling, 2013, 2017).

Authentic leadership focuses on leading with authenticity and trustworthiness, particularly in times of social upheaval, environmental crisis, or situations that create fear and uncertainty (Avolio & Gardner, 2005). Walumbwa et al. (2008) conceptualize authentic leadership with positive psychological factors of *confidence*, *hope*, *optimism*, and *resilience*. These factors, combined with *critical life events*—whether these be negative or positive—and the meanings that leaders attach to them, shape them to lead with their values (Northouse, 2016; Shamir & Eilam, 2005). This echoes the transformative effect of some life experiences of corporate leaders in the Rogers (2012), Rimanoczy (2013), and Schein (2015) studies discussed in the following section.

Motivations of Sustainability Leaders

In one study on the worldviews of executives and their ability to confront global environmental challenges, Rogers (2012) found that they identified specific moments that caused shifts in how they thought about the environment. These were sometimes described as *epiphanies* while others experienced more gradual shifts as they grew older.

In Rimanoczy's (2013) study on corporate leaders, the range of moments or experiences discussed came from their early childhood role models or upbringing as well as from their epiphanies as adults. This aligns with studies wherein learning and behavior are correlated with the observation of models, whether these be individuals in real life or in media (Bandura, 1977). Rimanoczy's study also revealed how transformational encounters with nature contributed to these leaders' connectedness with the environment.

Building on Rimanoczy's work, Schein's (2015) study focused on the development of corporate sustainability leaders' *ecological worldview* or their beliefs about their relationship with the environment. He states that ecological worldviews can enhance the perception of interdependence with the ecosystem, which can strengthen one's commitment to sustainability despite resistance to changes in the status quo. Schein found five key life experiences that shape the ecological worldviews and motivations of senior sustainability executives at multinational companies, namely, family origin and early childhood experiences in nature; environmental education and memorable teachers and mentors; seeing environmental degradation in developing countries;

perceiving capitalism as a vehicle for environmental or social activism; and having a sense of spirituality and service.

These studies indicate how the insight gained from life experiences in both childhood and adulthood created an impetus for leaders to take action toward sustainability. They also highlight the importance of ethical values and a desire to change the status quo (as mentioned in transformational leadership) as well as of critical life events (as discussed in authentic leadership). The following section as such links these with values, beliefs, and norms that help drive leaders to behave sustainably, influence others, and, ultimately, to contribute to social or environmental transformation.

Theoretical Framework on Motivating Sustainable Behavior

Research citing leaders' values (Parkin, 2010; Schein, 2015) suggests that because sustainability leaders challenge the status quo, they will not necessarily be motivated by prevailing *social* norms. The Value-Belief-Norm Theory or VBN (Figure 1; see Stern, Dietz, Abel, Guagnano, & Kalof, 1999; Stern, 2000) proposes that sustainable behaviors follow when one's *personal* norms—feelings of moral obligation to perform or refrain from specific actions—are activated by an awareness of consequences. Such an awareness is affected by one's ecological worldview which, in turn, is influenced by one's values (i.e., guiding principles in one's life; see Schwartz, 1992, 1994).

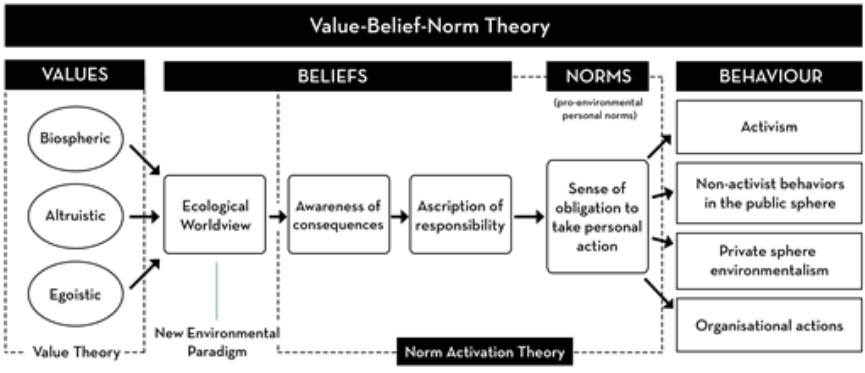

Figure 1: The Value-Belief-Norm Theory (Stern, 2000)

The Value-Belief-Norm Theory also cites three main values: 1) biospheric and 2) altruistic values (both of which are considered self-transcendent), which tend to be more positively related to sustainable behavior, and 3) egoistic (or self-enhancement) values, which are more negatively related to sustainable behavior. People will be more motivated in general to act upon their self-transcendent values when these are activated in a specific context, linked to their self-concept, and supported by cognitive reasons (Steg, van den Berg, & de Groot, 2013). In other words, most people would be more motivated by internalized or *self-determined* reasons for engaging in sustainable action. Leaders, therefore, need more self-determined motivations to engage consistently in sustainable behavior in the face of challenges across different contexts (Bamberg, Hunecke, & Blöbaum, 2007; Dovidio, Piliavin, Schroeder, & Penner, 2006; Hunecke, Blöbaum, Matthies, & Höger, 2001; Ryan & Deci, 2000; Venhoeven, Bolderdijk, & Steg, 2016).

SIGNIFICANCE OF THE STUDY

By developing a framework based on existing literature and newly gathered data, sustainability leadership programs can be improved particularly when they integrate ways to develop motivation alongside technical knowledge and skills. Exploring the *initial motivations* of sustainability leaders can also help inform how to influence sustainability advocates to take on more significant leadership roles in their community or organization, while looking into *sustaining motivations* can aid in keeping sustainability leaders doing the necessary work despite bleak outlooks or challenges that come their way.

METHODOLOGY

Given the lack of research on individual motivations of sustainability leaders, particularly in the Philippines, an exploratory approach was adopted using qualitative methods. This allowed the researcher to navigate through the individual experiences of sustainability leaders in depth, allowing better understanding and contextualization of the data (Gilbert, 2001; Miles, Huberman, & Saldaña, 2014; Silverman, 2014).

Sampling

Data from specific individuals identified as "sustainability leaders" was gathered using purposive and snowball sampling. A sustainability leader was broadly defined as follows: an individual who has been working in sustainability or sustainable development for at least five years (to ensure that they have committed a meaningful amount of time to working on sustainability while still allowing for the inclusion of younger sustainability leaders in their 20s and 30s); manages a team or collaborates with others, in that a leader is one who leads others; and influences positive change toward sustainability through their projects, products, or programs. An initial form was sent to prospective interviewees to ensure that they met the criteria and to include a diversity of perspectives across sector, industry, age, and gender.

The 16 respondents in the study came from social enterprises, NGOs, corporations, and civil society organizations, with 12 of them hailing from either the social enterprise or NGO sectors. Industries also varied, ranging from manufacturing to agriculture, conservation, and tourism as well as to real estate, research and urban planning, and campaigning and policy. Ages ranged from 26 to 58 with a mean age of 40. 57% were female and 43% were male. All the respondents had been working in sustainable development for 5 to 35 years, with 16 years as the average, and had considerable influence and decision-making capabilities within their organizations. Ten out of the 16 interviewees were either presidents or executive directors, with seven of them being co-founders of their respective organizations. The remaining six interviewees were directors of sustainability or heads of departments or offices in which they worked.

Research Method

Data was collected through semi-structured interviews that focused on the main research questions while allowing for flexibility to alter their sequence or probe for more information when appropriate (Silverman, 2014). The use of focus groups was rejected due to logistical reasons and, more importantly, because individuals might modify their responses in the presence of others or feel restricted to speak about personal matters.

The interview questions were informed by the main research question. In exploring initial motivations, the questions asked included the following: "Why do you do what you do? What motivated you to get into this line of work in the first place?" In exploring sustaining motivations, interviewees were asked to recall their biggest challenges or moments where they were close to giving up. They were then asked how they overcame those challenges, or what they learned from those challenges that made them manage to stay on in doing sustainability work. A total of 16 interviews were scheduled throughout June 2019.

Thematic analysis (Braun & Clarke, 2006) was the chosen method for understanding the data. The researcher also found it useful in the process to compare resulting themes to concepts present in reviewed literature. Swain (2018) refers to this as hybrid thematic analysis, which allows the researcher to be flexible in using inductive and deductive approaches to data analysis, thereby allowing the data to reveal themes while having theories to help inform such.

KEY FINDINGS

Themes were clustered into two main groups: initial motivation and sustaining motivation, as seen in Figure 2. Themes could then be further categorized as internal motivations, such as positive psychological factors, self-awareness, or self-interest, and external ones, or those influenced by other people or the environment.

Although both groups share some sub-themes, it was important to distinguish what got the interviewees into sustainability in the first place from what keeps them going. Underlying their overall motivation are positive psychological factors like confidence, hope, optimism, resilience, and a sense of moral obligation. Initial motivations are instigated largely by life experiences; sustained motivation, on the other hand, is fueled by feedback and the overarching goal of social and environmental transformation. The following sections describe this in further detail.

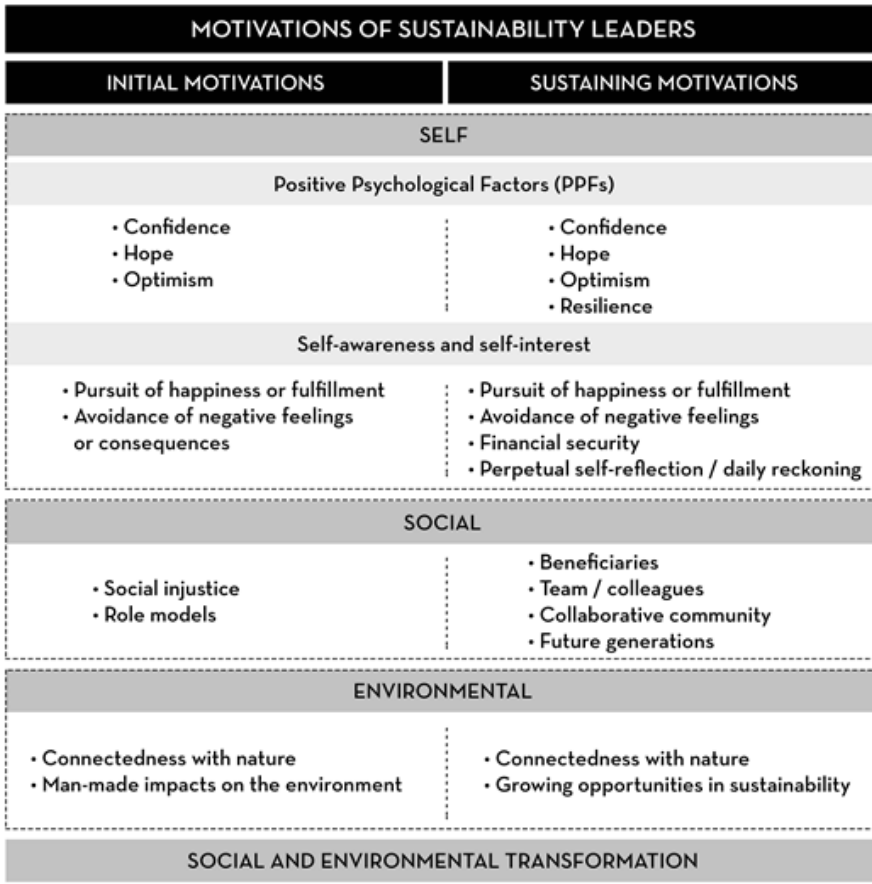

Figure 2: Motivations of Sustainability Leaders

Initial Motivation

A common theme that emerged was the respondents' personal insights from exposure to the consequences of unsustainable behavior or the positive feelings and opportunities associated with sustainable behavior. These consequences are related to social injustice (e.g., poverty, violations of indigenous peoples' rights, victims of calamities, etc.) or the destruction of nature (e.g., trash along the coast, growing landfills, flooding, etc.) while the positive feelings could be connected with people, such as role models (whether individual persons or organizations), or nature—spending time outdoors or with wildlife, or learning about the natural world through school or media (e.g., reading a perspective-shifting book or watching

a moving documentary, enlightening travel experiences, etc.). Four main clusters of initial motivations came from positive psychological factors, self-awareness and self-interest, exposure to other people, and exposure to the environment.

Positive psychological factors. Confidence, hope, optimism, and resilience gave the interviewees belief in their personal capacity to effect positive outcomes. They spoke repeatedly in ways that validated their possession of *self-efficacy*, or *confidence* in their ability to accomplish a specific task (Northouse, 2016). For example, they would express frustration with the government, other businesses, or other citizens and feel like they were capable to work more effectively toward a solution. They also frequently said that stubborn *hope* or *optimism* helped them believe that something could be done about the problem, and that it was within their power to create change, as one social entrepreneur stated:

> If each Filipino would invest their time in actually helping somebody else, instead of just blaming somebody, doing instead of just talking, then maybe the world would be a better place.

Self-awareness and self-interest. This also played a role in the interviewees' decision to pursue their path. In some cases, it indulged them in the *pursuit of happiness and fulfillment* (something they love or are good at). One NGO executive director talked about his desire to continue experiencing the pleasurable things in life as one of his motivations:

> Sometimes I think it's also hedonistic…. What are the pleasurable things? Pleasurable things are snorkeling, watching the fish, breathing fresh air. It could also be self-serving, you know?… Fun for me is really enjoying the earth, but not destroying it.

Conversely, they could also act in their self-interest through the desire to *avoid negative feelings or consequences*. This involves feelings of moral obligation or guilt, the desire to follow their personal norms, or acting in "enlightened self-interest." One entrepreneur shared:

> We want to have a sustainable relationship with our customers because if we gave them food contaminated with chemicals, eventually they will get sick and die…. With our farmers, we didn't want to pay them unfairly, because if we don't provide a fair price to them, tomorrow, they will run out of business, and you will lose your supply.… And it's also the same with your environment. If you pollute the environment now, later on, you won't have anywhere to plant. It's better to use it sustainably.

Several respondents also mentioned their religious belief as a contributing factor in seeing themselves as stewards of the planet and thus in pursuing their spiritual mission. This sense of moral obligation was present not only among those who professed to be Roman Catholic but also in those with other religious beliefs (e.g., Buddhism); indeed, it was also present in those who claimed not to be religious at all.

Social exposure. Exposure to other people in both positive and negative situations also served to influence the interviewees' motivation. They often reported being motivated by seeing *social injustice* first rather than something linked directly to the environment. One environmental lawyer shared:

> I started as a human rights advocate and lawyer, especially defending IPs (indigenous peoples) from incursions [into] their territory, and discovered that environmental law was the best defense for IPs when companies and the government try to dispute on their land.… You can use all of that to make the case that IPs should be left alone or that a project shouldn't be done in their territory.

Indeed, Schein's (2015) study also found that corporate sustainability executives often reported that their exposure to poverty, inequality, and environmental degradation in developing countries motivated them to pursue the work they do or influenced their worldview.

Role models, such as family members, mentors, or working models of projects or organizations elsewhere also served as strong influences. Some interviewees credited the formation of altruistic and biospheric values to their childhood; others shared how good models later in life created powerful shifts in their thinking and motivation. In a similar way, Baden & Parkes (2013) also found how working with social entrepreneurs and/or "responsible" business professionals provides business students with inspirational role models and positive social learning opportunities.

Environmental exposure. Lastly, exposure to the environment in both positive and negative ways also served to influence the initial motivations of sustainability leaders. After observing *human impact on the environment* (as seen through coastal cleanups, disaster response, etc.), the interviewees concluded that humans could stop the problem too. One conservationist shared:

> There was a series of events. The earliest I can remember was joining an underwater clean-up. I joined it because I wanted to escape an exam. The teacher gave us an option to take an exam or volunteer in a clean-up, and I

> was like, well, you know, it wasn't a very hard choice to make. And it was one of those ICC [international coastal clean-up] things that you know, I never really was interested in. So, I was in third year college then, and when I picked up all this trash underwater, it was really an awakening that [expletive], there's so much trash in the ocean already.

Experiences like this could activate biospheric values, whether or not these were already explicitly held (Steg et al., 2013), or provide an awareness of consequences that was difficult to ignore. Such experiences have the potential of leaving the individual with strong negative feelings that they can only get rid of by *doing something* (Dovidio & Penner, 2001).

On the positive side, exposure to the natural environment served to enhance an intangible and spiritual *connectedness with nature*. As some interviewees expressed:

> All of this is God's creation and we are called to be stewards of God's creation.

> I believe this now, that sustainability is also spiritual. It's about looking deeper into your purpose as a being, as a living being on this planet. How are we participating in this ecosystem? And I think when Buddha became enlightened … he basically understood the interconnectivity of everything in this universe, in this earth. He woke up to the truth of interdependence, and I mention this because, now this is something that I really believe is in the core of the work that I do.

Three interviewees, all male, cited this specifically; whether or not this is related to traditional gender stereotypes of boys being allowed more time outdoors while girls spent more time indoors could be an area for further inquiry. Nevertheless, it was less surprising that those who expressed connectedness to nature were in the fields of conservation, ecotourism, or environmental policy. It is worth noting, however, that it was a connection with people, or seeing the world through an Aeta (an indigenous people in the Philippines) worldview of *kainumayan* (holistic well-being, comfort) and *kasaganahan* (abundance in balance, prosperity), that helped shape one climate activist's ecological worldview. This can be related to the lawyer who shared about going into environmental law after seeing the plight of indigenous peoples.

The interviewees' exposure to both the beauty and destruction of nature followed by reflection thus helped propel them toward sustainability. Indeed, moments for reflection were critical for them to gain insight from their experiences and further develop their *ecological worldview* (Schein, 2015; Steg et al., 2013).

Sustaining Motivation

Positive psychological factors and the desire to pursue what is personally fulfilling to them or avoid what may cause them personal detriment continue to underlie the interviewees' motivations. However, what constitutes fulfilment and detriment may have changed since the time they started and after having devoted more time to their work. These beliefs would have evolved through enhanced self-awareness, social relationships, and connectedness to nature. A long-term vision, therefore, of social and environmental transformation further reinforces other motivations, creating a positive cycle that helps one overcome barriers and challenges. Six main clusters were identified for sustaining motivations, namely, positive psychological factors, self-awareness and self-interest, social relationships, connectedness to nature, growing opportunities in sustainability, and social and environmental transformation.

Positive psychological factors. These factors continued to give interviewees belief in their personal capacity to effect change, find ways forward, and envision positive future outcomes. Some spoke about their *optimism*, or their stubbornness or willingness to go against the odds, even at the risk of failure. One conservationist shared:

> Knowing that I can make it happen, I need to make it happen. Like I can't just sit back and not do it, you know?… And I remember reading Big Magic, where Elizabeth Gilbert wrote that you know you love what you do when failure or success doesn't matter. Because people always say, what would you do if you weren't afraid, right? But she flips the question and asks: what would you do if you knew that you would fail still? And I had an epiphany … whether I fail or succeed in the campaigns that I do, this is still what I'm called to do, you know? I'm not religious, but I feel like this is my purpose.

Their history of success and their potential for success in the work they have yet to do gave them a greater sense of *confidence* or *self-efficacy* and a willingness to take risks. Indeed, the conservationist above exhibited an internalization (Ryan & Deci, 2000) of motivation, with work integrated with self-identity and purpose.

Interviewees also had feelings of confidence, hope, and optimism because they also saw the value in starting small, if only to just get started. One respondent talked about how some people get so daunted by the complexity of the problem that they choose not to start at all:

> I also realized that there is a lot of self-flagellation happening nowadays, with people saying, "Oh, the small initiatives are fine, but they're not enough to save the world." I agree. But where do you even begin? And that kind of thinking is dangerous because it pushes people back, and that doesn't really help.

As Walumbwa et al. (2008) describe *hope*, it serves to create willpower and waypower by setting sub-goals that give one a sense of progress or forward movement. One interviewee celebrates milestones along the way, validating their efficacy and increased feelings of hope:

> Small victories matter, so that also gives me hope.… And wow, I drafted this law and now I'm implementing it. When you see that whole range of your impact, you have to be hopeful.

For one urban planner, work entails long periods of planning and approval, and is subject to long, bureaucratic processes. To cope, this interviewee engages in short-term activities to gain a sense of accomplishment while pursuing other long-term projects:

> I would also write articles, or give talks or do other things, because at least it feels like there's something you've finished? Right? Because there's so many things I've started but have been unable to finish in these 11 years, like so many. Or you finish the report, but you never do the project. Or you get the first phase, but you never get the continuation, you know? And it would be nice to finish something completely from A to Z. For a sense of accomplishment personally, that would be incredible.

Indeed, while acknowledging the long-term nature of sustainability work, this interviewee shares that short-term wins provide the motivation to go on:

> We may not achieve the objective right away, but we also see ways that our efforts have made a difference somehow.… In advocacy, I've also learned that we win in inches. We barely win in miles. So when we see that crack of light, that's already okay, until we see the next level.

The interviewees' *resilience*, discipline, and determination to get back up in the face of failure, treat mistakes as learning opportunities, and see obstacles as greater fuel for creative problem-solving added to their resolve to continue doing their work. As one respondent said,

> There are days when you really just have to put one foot in front of the other, and fortunately, what keeps me going is that there are deadlines to meet, because I got a grant, or because I got hired to do something, there are

> deliverables that I need to work on. And that's when passion becomes irrelevant and when discipline becomes more important. In fact, discipline's probably the most important.

Self-awareness and self-interest. As with initial motivation, respondents continued *finding happiness and fulfillment* through intrinsic rewards such as joy in the work itself and feelings of accomplishment as well as through extrinsic rewards such as creating a model for others to follow and getting validation from others for their work. Two interviewees share below:

> The rewarding part for me is when I see other people either repeating or referencing your ideas or stuff that you've worked on, so that you know at least that it's disseminating and inspiring other people.

> Sometimes I don't even understand the impact of our work, like, sometimes someone will come up to me and say, "I started this organization in school because I went to one of your talks," or "I wrote a letter to my government about this, and now my government is doing this…." As long as I know that I'm being effective, as long as I'm growing personally and professionally, then I think I'm going to stay in this field.

The desire to *avoid negative feelings or consequences* also triggered the interviewees' *sense of moral obligation* that underpins the recognition of their environmental impact as an individual or as a business. This compelled them to continue pursuing sustainability and be consistent in finding more ways to either reduce the harm or increase the good they bring to other people (e.g., by providing equal opportunities) or the environment (e.g., by minimizing their waste). One entrepreneur spoke about their dilemma:

> I have manufacturer's guilt, because I'm seeing we have all these good products, which is really what it was about in the beginning. Because even in the beginning when we were choosing the bottles, we were choosing polymers that we knew were highly recyclable—PDPE, HDPE, all of those things were high value…. Because ten years ago, I was naïve enough to think that all of that was being recovered from the market anyway, because they were high value. But ten years down the line, I realized that's not enough. I can't just kind of justify it because, it's okay because all the bottle recyclers will pick it up anyway, and it will be recycled and all of that. Especially after being faced with all the data that's saying only 2% of all the waste is recycled, and most of it is still sitting in dumpsites, landfills.

It was in the interviewees' interest to live in alignment with their values to avoid the cognitive dissonance if they did otherwise.

While *financial security* was *not* an initial motivator for the interviewees, it was clearly something necessary for most of them to continue on in the pursuit of sustainability.

> When people tell me stuff like, "Oh, you're doing such a noble job" or like "You're such a hero," it's gross because the truth is one, I love what I do, obviously, and two, I get paid to do it. If I'm not getting paid to do this work, I wouldn't be in this field. So of course, I built a career out of it, or I'm building a career out of it.

> We put everything into this company. It wasn't just that we were do-gooders, but it also meant that it was our survival, so I have a family to support, this needs to work, we need to pay the bills.

To continue their work, it was necessary for sustainability leaders to secure funding, either through a regular-paying job or consultancy, or through acquiring grants or greater sales.

Perpetual self-reflection involves the interviewees' need for idle time to ponder on what success, happiness, and fulfillment mean to them. This space for reflection allows them to think about what is valuable to them, and if they have been living in congruence with their values and strengths, while also ensuring their own needs. This can also be related to the Japanese concept of *ikigai* or "reason for being" which involves achieving a life wherein one finds balance and harmony at the intersection of what one loves, what one is good at, what the world needs, and what one can get paid for (García & Miralles, 2017).

Finally, it seemed as if the *time* interviewees put into their work allowed them to *internalize* their motivation as well as identify more reasons to stay committed and on course, as with the sustainability director who has a "daily reckoning" to recommit themselves to their values and goals:

> At some point, I had to make a decision whether I would want to move forward with it or not. And I kept saying yes, and I kept saying yes, and I kept saying yes, and this is not just about [my organization], this is also about the company I decided to keep, the way we raised our children, the way we worked at our marriage, the way we worked on our projects.

Through reflection and internalization, interviewees identified themselves more with the work they do, the values they hold, and the goals they are working toward. Sustainability leadership is a conscious, self-determined choice they live out day by day.

Social relationships. One particular social relationship that motivates the interviewees' is their relationship with *beneficiaries*, whether it be through livelihood creation, defense of human rights, building community platforms, etc. As a result of their work, they saw how people had shifts in perspectives on how they valued the environment and themselves, which echoes the goals of transformational leaders (Bass & Avolio, 1994). One entrepreneur shared:

> I look at our employees: we have 600 people; they have families to support. So if I give up, then I'm also destroying the dreams of 600 people (laughs). That's a lot of pressure!… And for me, it's really the transformation that I see … there's a shift in how they see themselves, and because they transform how they see themselves, they're able to accomplish more, they're able to dream about the things that are important … they transform their own dreams.

A *supportive team, colleagues, or company culture* also helped make interviewees feel less fearful of failure and, more than that, held them more accountable to continuing the work.

> I've been very, very, very fortunate that despite the numerous change[s] of hands, the people who have owned the company over the years have exhibited sincere and deep commitment to the environment and to the communities around us.… That also provides for a sense of community that keeps us grounded and when you're in that circle, you can get tired but you really cannot quit.

Apart from their own team or direct work colleagues, having a *collaborative community* also served to strengthen sustainability leaders' motivation and resolve to continue. Parkin (2010) and Schein (2015) both speak of how sustainability leaders are systems thinkers and "collaborators-in-chief."

> If you work in sustainability, it's by nature, [it] cannot be a work by an individual, it has to be work by a community. That gives me joy, to be able to work with a whole range of people all over the world.… So that's also one of the things that gives you hope, right?

Aligned with this, practitioners in sustainability have a relatively higher degree of openness and transparency than those from other fields due to their access to a "safe space" to air their worries, concerns, dreams, and goals.

> It's just so important to have people who will empathize with you in the language that you speak in this field. Because we're all just going through the same thing, so it's so important to have that kind of support, to help keep you from burning out and feeling like you're alone, which is like one of the worst feelings ever.

This gives fellow practitioners a greater sense of being part of a bigger movement, especially when they see the breadth of potential collaborators across sectors, borders, and generations.

Lastly, *future generations* also play a significant role for many interviewees. One respondent expressed a moral duty to their children to pursue their cause. Acknowledging, moreover, that the work of sustainability is not something that can be fully achieved in their lifetime makes it all the more important that future generations take up the mantle and continue the work that the respondents started. Some cited how Greta Thunberg and the youth strikes for climate served as powerful inspirations for them to keep going. Seeing the youth find careers in sustainable development also gave them hope:

> I can see the renewal, so even when it's difficult and we're defeated, I have someone beside me who will take this fight up.… That's the one that gives me hope.… But you know, there's never any end to what you have to do.… And I see replenishment in all the issues that I care about, whether it's locally or nationally or internationally, and that's big. To see that, you know you'll never be defeated.

Connectedness to nature. The spiritual connection with nature continues to play an important role because it makes sustainability more than a profession; instead, it becomes a calling to a higher purpose that is *integrated* with one's core being. This makes one conservationist more resilient in the face of challenges in their field:

> To be honest, if I am a scientist and a development worker only without any spiritual source of strength, I don't think I'll ever be happy.… If I'm in that world only because of the profession or only because it's a job, I don't think I'll keep it.… I need to connect to that spiritual purpose.

Growing opportunities in sustainability. Increasing public interest, funding, and support also served to encourage interviewees to pursue this path. Since David Attenborough's *Blue Planet II* documentary in 2017 as well as Greta Thunberg's and Extinction Rebellion's mobilization efforts in 2018 and 2019 (Laville, Noor, & Walker, 2019), there has been greater awareness of and social movement on the issues surrounding plastic pollution and climate change. As one interviewee shared,

> There's so much more attention on plastic. Money is being thrown into recycling and plastics, and like, I have to ride this wave while it's here, because in a few years, who knows, no one will care about the ocean. Because there are different trends in the environmental movement. So for now, I think I have to just walk into these opportunities that have opened up that weren't there a few years ago.

Indeed, it is worth noting that while going against the status quo was expected of early sustainability leaders, support for sustainability is increasingly becoming a social norm that drives other leaders to emerge as well.

Social and environmental transformation. Most interviewees shared a larger overarching motivation for changing mindsets and behavior, regenerating the environment, challenging the status quo, "hacking the system," creating working models, and blazing the trail for the next generation of leaders. Their work is a lifelong mission the results of which they may not see in their lifetime, although that would not stop them. One interviewee expressed this powerfully:

> Campaigning or advocacy work, sometimes you don't reach your objective. But along the way, you're contributing to something, whether you're changing the system, you're inspiring other people to do it, or yeah, you're planting seeds that will one day bloom into something, and maybe you won't even be alive to see it, you know? But there is value in the pursuit of something even if you don't win. And I always try to think about that when I get frustrated with my work.

Possessing positive psychological factors, having acute self-awareness, finding validation and feedback from various social groups, enhancing their ecological worldview, learning about new opportunities, and keeping their goals in mind—all these contributed to sustaining the initial motivation of the interviewees.

A FRAMEWORK FOR SUSTAINABILITY LEADER MOTIVATION

Based on the results of the study, the initial and sustained motivation of sustainability leaders are a combination of positive psychological factors, life experiences, validation or feedback, and long-term goal orientation.

Positive psychological factors can be related back to authentic leadership and to the predisposition of sustainability leaders for confidence, hope, optimism, and resilience (Northouse, 2016; Walumbwa, Avolio, Gardner, Wernsing, & Peterson, 2008). *Life experiences* or exposure and subsequent reflection as described by the interviewees can also be related to the findings by Rogers (2012), Rimanoczy (2013), and Schein (2015) as well as to the discussion on how critical life events shape authentic leaders by Walumbwa et al. (2008). *Validation and feedback* from self-reflection, peers, beneficiaries, and the wider public, along with the positive impact that one's work produces, further reinforce motivation (Dovidio et al., 2006). Lastly, the sustainability

leaders interviewed were guided by a long-term vision of sustainability, one of *social and environmental transformation*, and of a society that values purpose, mindfulness, compassion, community, and oneness with nature.

The resulting framework as such draws on elements seen in the Value-Belief-Norm Theory (see Figure 1) and theoretical approach to authentic leadership.

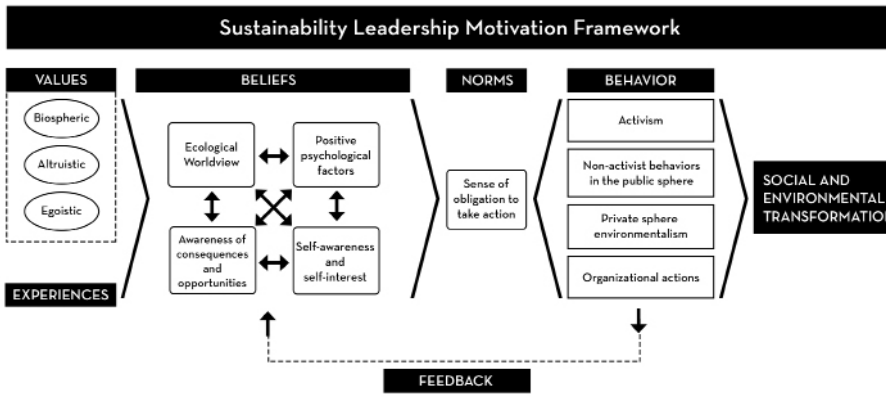

Figure 3: A Framework for Understanding the Motivation of Sustainability Leaders

The VBN, however, does not discuss how sustainable behavior might also be influenced by more *positive* factors, including an awareness of *opportunities* and not just of consequences; a sense of *personal fulfilment or happiness* and not just obligation; and a *goal or goals* directing the motivation or behavior given that motivation is the process wherein *goal-directed* behavior is instigated and sustained (Schunk, Pintrich, & Meece, 2008). It also does not factor a more dynamic interaction of one's beliefs. This provides room to explore how the theory can be built to factor in these components, along with other motivations, beliefs, and attributes of leaders who possess personal norms of moral obligation. The VBN as such is adapted to understanding the motivation of sustainability leaders with the inclusion or modification of the components explained in the following paragraphs.

Experiences. Interviewees consistently reported how experiences, more than just their existing values, would shape or reshape their beliefs, including their awareness of the world around them and their own capabilities, interests, and responsibilities (Rimanoczy, 2013; Rogers, 2012; Schein, 2015). Powerful experiences would serve to create epiphanies while other, more prolonged ones would gradually mold their beliefs over time.

An awareness of opportunities. For the more entrepreneurial interviewees, finding *opportunities* such as new business ideas, community networks, partnerships, funding, or grant competitions helped motivate them. More than just an awareness of negative consequences, therefore, were other key motivators such as knowing the areas where they can effect change and the strategies they can use.

Positive psychological factors. Confidence, hope, optimism, and resilience contributed to an empowered mindset that allowed the interviewees to set greater goals, have greater commitment, and work harder to lead others toward sustainability.

Self-awareness and self-interest. More than just an ascription of *responsibility* (Stern et al., 1999; Stern, 2000), the more *congruent* or *aligned* the interviewees felt with their own values, strengths, interests, and goals, the more motivated they were to pursue sustainability leadership (Ryan & Deci, 2000; García & Miralles, 2017). For some interviewees, the more they identified with their role or their work as part of who they were, the stronger their commitment to their behaviors and goals. Furthermore, both intrinsic and extrinsic motivators, ranging from joy in the work itself to the need to make money to support one's self and one's family, played a role in shaping their beliefs about the advantages of continuing in their work.

Dynamic interaction of beliefs. The VBN model discusses a linear process to explain sustainable behavior, with each factor leading to the next. However, it does not factor in how self-awareness and positive psychological factors interact with one's ecological worldview or awareness of consequences and opportunities. Indeed, an awareness of opportunities may also result from further introspection on one's values, strengths, and goals. For some interviewees, it took some (or perpetual) self-reflection to understand what they were or were not capable of, and it was not until they realized their strengths and developed greater confidence that they saw more opportunities available to them.

Feedback. This contributed to shaping the interviewees' beliefs about how they work as well as what works and what does not. It was rewarding for them, for example, when they saw beneficiaries being able to send their children to school and whenever they receive gratitude from employees or community members for the work they do. The sense of *congruence* validated their need for identity and the sense of *accomplishment* validated their need for creation, participation (Max-Neef, Elizalde, & Hopenhayn, 1991), and a feeling of *relatedness* (Ryan & Deci, 2000). Feedback

could likewise come in the form of barriers which shaped their learning about how the world works or about the extent of their personal capacity, and which gave them insight on how to proceed better with the work that they do (Bandura, 1997).

Social and environmental transformation. Motivation is said to be *goal-directed* behavior (Schunk et al., 2008). Hope requires an end goal for it to exist. As such, it is necessary to illustrate what the beliefs and behaviors of sustainability leaders are working toward. The interviewees had a common desire to create change beyond their personal sphere and empower those they influence (e.g., followers, employees, customers, etc.) to effect change in their own way as well. Although they vary in the scale of *ambition* (to effect organizational, community, national, or global change) and *clarity* (having specific, detailed, and measurable goals in the next one, five, or ten years), they were ultimately guided by a desire to contribute to changing the world for the better.

CONCLUSION

What do these findings reveal about developing future sustainability leaders or sustaining the momentum of existing ones? From these results, we can reasonably infer the importance of creating leadership development programs that enhance the positive psychological capacities of individuals, utilize experiential learning, and highlight community-building and connectedness to nature. All this must be done while showing participants how to set their own short- and long-term goals so that they can celebrate milestones or small wins on the way toward a greater goal of social and environmental transformation. This is by no means an easy feat, and yet a necessary one to consider. It will be made possible by employing some or all of the following strategies, whether in the context of corporate sustainability leadership programs or higher education.

Cultivating Hope

One theme that came out strongly across the interviews and emerging in leadership theories is the development of positive psychological capacities, particularly hope. It is fortunate that hope, while recognized as a trait, is a state that can be developed (Helland & Winston, 2005; Rego, Sousa, Marques, & e Cunha, 2014; Luthans & Youssef, 2004), whether in higher education, corporate learning

and development, entrepreneurship bootcamps, or other such programs. Students or participants can learn appropriate goal-setting and envision realistic pathways, break down big goals into sub-goals, delegate and empower others, engage in positive self-talk, re-frame and readjust goals when faced with barriers, and have peer support groups or coaching (Luthans & Youssef, 2004; Rego et al., 2014).

Experiential Learning

The most critical insights in this study came from the awareness of consequences and opportunities that came through first-hand experience. The Cambridge Institute for Sustainability Leadership (CISL, 2017) also suggests that leadership development programs should integrate placements or immersions for key functions and for all levels within the business, including the board. For these approaches to be truly effective, it is important that clear structures for reflecting upon the experience and applying the learning accordingly be put in place. Making issues more personal for individual leaders helps them to be more committed and empowered to act in favor of sustainability (Arden, 2019; Haney et al., 2018).

Existing sustainability leaders can also benefit from self-reflection and regular feedback mechanisms from others when they actually do the work. By creating space to reflect upon the experience, they can learn what to do to be more effective the next time around. Getting constructive feedback from beneficiaries, team members, partners, and peers is also helpful, and not just in informing them of better actions to take but, when given well, also in serving to strengthen their motivation.

Social support and enabling environments. To sustain motivation, it was important for the interviewees to have a reasonable expectation for success as well as a support system from which they could gain not only technical knowledge but also, and more importantly, a source of emotional strength and empathy (Max-Neef et al., 1991). As such, community or peer learning groups (Leal Filho et al., 2018), getting executive buy-in by involving the board in sustainability leadership programs (Arden, 2019; CISL, 2017), and coaching are measures to integrate in sustainability education and leadership programs. Creating platforms to keep participants connected after the programs, moreover, can also help provide continued support in their journeys and challenges (Leal Filho et al., 2018).

Suggestions for Future Research

The relationship between ecological worldviews, positive psychological factors, and the motivation to engage in sustainability leadership can be examined further with bigger samples, and particularly through the use of instruments such as the New Ecological Paradigm (NEP; see Dunlap, van Liere, Mertig, & Emmet Jones, 2000), Motivation Toward the Environment Scale (MTES; see Pelletier, Tuson, Green-Demers, Noels, & Beaton, 1998), and Authentic Leadership Questionnaire (ALQ; see Avolio, Walumbwa, & Weber, 2009; Walumbwa et al., 2008) to provide better information on how these factors contribute to sustainability leadership. An instrument can also be developed to measure sustainability leadership motivation at the beginning and end of sustainability leadership programs to help inform about their effectiveness not only in passing on information to those who attend their classes or workshops but also in inspiring participants to take greater action for sustainability.

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Journal of Management for Global Sustainability Volume 8, Issue 2 (2020): 65–95

DOI: 10.13185/JM2020.08204

THE ROLE OF NATIONAL CULTURE IN THE RELATIONSHIP BETWEEN SUSTAINABILITY PRACTICES AND SUSTAINABILITY PERFORMANCE

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ABSTRACT

This paper aims to examine the role of national culture in the relationship between sustainability practices (social and environmental practices) and sustainability performance (social and environmental performance). While previous literature has focused on the influence of national culture on the decision-making and ethical behaviors of managers, the role of national culture on the effectiveness of sustainability practices has been rather neglected. Our study addresses this gap by highlighting the relevance of national culture as a contextual element when implementing sustainability practices in different countries. Based on a multilevel regression analysis using data from 484 firms in nine countries (China, Germany, Hungary, India, Italy, Japan, Malaysia, Slovenia, and Sweden), we found that the impact of social practices on social performance is accentuated in countries characterized by high uncertainty avoidance and high masculinity. The impact of environmental practices on environmental performance, however, is not affected by national culture.

KEYWORDS

sustainability practices; environmental performance;
social performance; Hofstede cultural dimensions; multilevel regression

Submitted 8/7/20 | Accepted 11/3/20 | Published 12/31/20

INTRODUCTION

In light of increases in sustainability concerns and growing globalization, firms are being called to understand the effects of implementing sustainability practices in a global context. Sustainability practices are defined as those practices and actions that make a company achieve business processes that lead to improved sustainability outcomes (Seuring & Müller, 2008). Examples of these practices are energy, water consumption, and pollution reduction programs or the implementation of work/life balance policies (Longo, Mura, & Bonoli, 2005; Sarkis, 1998). Sustainability performance is then operationalized through the concept of the triple bottom line and includes not only economic indicators as measures of firm performance but also environmental (e.g., reduction in pollution levels) and social (e.g., improvements in employees' health and safety) measures (Gimenez, Sierra, & Rodon, 2012).

Although globalization usually leads to the standardization of policies and practices (Newman & Nollen, 1996), the "one size fits all" view has often been contested. Contingency Theory proposes that organizational practices should fit the context in which they are implemented for these to be effective (Lawrence & Lorsch, 1967; Drazin & van de Ven, 1985). In that sense, Thanetsunthorn (2015) pointed out that firms should be sensitive toward national culture and define sustainability practices that are in line with the cultural values of the country in which they are implementing such. For instance, the implementation of sustainability practices that imply collaboration between partners might be more or less effective depending on certain cultural aspects such as a country's collectivistic-individualistic orientation.

The literature shows differences in the adoption of sustainability practices in different national culture environments (e.g., Wagner, 2009; Vachon, 2010; Caprar & Neville, 2012; Thanetsunthorn, 2015; Luo, Tang, & Peng, 2018). Countries that score high on power distance, for example, are more reluctant to implement sustainability practices since these countries exhibit higher levels of corruption and lower levels of human rights policies in corporations (Vachon, 2010). These results, however, do not investigate the effect of national culture as a contingency factor affecting the effectiveness of sustainability practices; that is, these papers have looked at the direct effect of national culture on the adoption of sustainability practices but not at how differences in national cultures might affect the effectiveness of these practices on sustainability performance. Indeed, as predicted by the Contingency Theory, which states that a firm's performance is dependent upon the fit between

its processes, practices, and external factors (Lawrence & Lorsch, 1967; Thompson, 1967), the effectiveness of a specific practice may vary according to the (national culture) context in which it is adopted (Wong, Sancha, & Thomsen, 2017).

This paper attempts to fill this gap by adopting a contingency perspective on the sustainability practices-sustainability performance relationship and thus answer the following research question: *What is the impact of national culture on the sustainability practices-performance relationship in different cultural environments?* It adopts the lenses of the Contingency Theory and empirically tests the effectiveness of sustainability practices in countries characterized by different national cultures. As such, while previous literature has studied differences in the adoption of practices due to differences in national cultures, this paper will contribute to the understanding of the effectiveness of sustainability practices in a global context, that is, of what practices are more effective in specific national cultural contexts. We therefore aim to extend the knowledge we have about the relationship between national culture and sustainability by understanding in which national cultural contexts do specific sustainability practices lead to higher (lower) sustainability performance improvements.

The findings of this study, moreover, are relevant for managers as these will help them predict the effectiveness of their sustainability practices in their global units and identify areas where specific organizational practices can be implemented to counterbalance the negative impact of specific national cultural traits.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Sustainability is concerned with the impact present actions will have on the ecosystems, societies, and environments of the future (Elkington, 1994). Firms need to reflect such concerns in their strategic and operational planning by considering a set of responsibilities that focus on environmental and social dimensions. Sustainability as such consequently entails environmental and social practices—environmental practices include various elements such as pollution control or prevention (Klassen & Whybark, 1999) while social practices deal with the health, safety, and satisfaction of employees (Longo et al., 2005). These practices involve evaluative and preventive measures (for example, EMAS/ISO 14000, SA 8000) and/or work/life balance policies.

Multinational companies are called to deploy sustainability practices in different countries and with different partners worldwide. In light of the Contingency Theory, however, the same practices may not have the same effectiveness everywhere, which may vary according to the context in which such practices are adopted. Rather than developing a standard and homogeneous approach, high levels of cultural-specificity will require different practices fitting to each local context while focusing on contingencies related to national culture. As suggested by Caprar and Neville (2012), certain sustainability principles are more compatible with certain national cultural dimensions than are others. For instance, those cultural contexts that include norms and values aligned with sustainability principles (e.g., countries that score high in the femininity dimension) present a higher likelihood of sustainability practices adoption.

Consistent with prior literature, we define national culture as "patterns, explicit and implicit, of and for behaviour acquired and transmitted by symbols, constituting the distinctive achievements of human groups" (Kroeber & Kluckhohn, 1952: 13). In this study, moreover, we adopt Hofstede's national culture framework (1983) which comprises the following dimensions: power distance, individualism-collectivism, masculinity-femininity, and uncertainty avoidance. While this model has evolved to include two additional dimensions related to long-term vs. short-term orientation and indulgence, only the original four dimensions will be considered to avoid construct-validity related issues and following previous research on sustainability which did not include these two newly added dimensions (e.g., Vachon, 2010; Thanetsunthorn, 2015). This will ensure that results will be in line with previous conceptualizations of national culture.

It is important to mention that some authors have pointed out some critiques of Hofstede's model based on its lack of generalizability, the validity of its constructs, the date of the study, and the assumed homogeneity in each of the studied cultures (Magnusson, Wilson, Zdravkovic, Zhou, & Westjohn, 2008; Sivakumar & Nakata, 2001; Smith, 1992). Hofstede's cultural dimensions, however, have been adopted extensively in several studies and are widely accepted in the management literature (e.g., Cagliano, Caniato, Golini, Longoni, & Micelotta, 2011; Pagell, Katz, & Sheu, 2005; Power, Schoenherr, & Samson, 2010; Vecchi & Brennan, 2009; Wiengarten, Fynes, Pagell, & Búrca, 2011). The construct validity and relevance of Hofstede's dimensions have also been reconfirmed (Merritt, 2000), and it has been shown that

Hofstede's model compares satisfactorily with other existing models (e.g., GLOBE). Thus, while all national culture frameworks show strengths and weaknesses, we have chosen to use Hofstede's model not only because of its extensive use in previous literature but also in light of the objective of this study, which is to include the national culture perspective (and not defend the use of one specific framework).

The different sets of values, beliefs, ideas, attitudes, and morals that are ingrained in a national culture guide individuals on which behaviors are acceptable and unacceptable (Vitell, Nwachukwu, & Barnes, 1993). Indeed, this is true not only for individuals but also for organizations (Hofstede, 1985). In an organizational context, the different characteristics of national cultural dimensions are reflected in managerial values, beliefs, and business mindsets (Peng & Lin, 2009). Specific predictions regarding the impact of the different dimensions of national culture on the sustainability practices-performance relationship have thus been developed; these are discussed in the following paragraphs. While these dimensions are seen to moderate the relationship between practice and performance, they do not mediate between the two because such would imply that practices would lead to higher performance results only if that particular national culture dimension is present.

Power Distance

The power distance dimension of national culture refers to the degree to which less powerful members of a society accept that power is distributed unequally (Hofstede, 1980). In a context of high power distance, a questionable business practice tends to be accepted as ethical (Cohen, Pant, & Sharp, 1996), and the following behaviors seem to be more present than they would be otherwise in low power distance contexts: managers showing less consideration for employees (Vachon, 2010) and individuals being less sensitive toward ethical acts and more tolerant of inequality (House, Hanges, Javidan, Dorfman, & Gupta, 2004; Scholtens & Dam, 2007). High power distance societies, in addition, tend to manifest higher acceptance levels for poor working conditions and pollution (Husted, 2005; Park, Mezias, & Song, 2004). Based on these characteristics, therefore, it can be expected that sustainability practices do not fit well with high power distance societies, thereby limiting the effectiveness of such efforts. Indeed, the recognition and remedy of social and environmental risks are more timely addressed in contexts characterized by low power distance (Ringov & Zollo, 2007). This latter context might fit better

with an effective implementation of sustainability practices, thereby leading to higher sustainability outcomes. As such, we hypothesize that

H1: *The national culture dimension of power distance negatively moderates the relationship between a) environmental practices and environmental performance and b) social practices and social performance.*

Individualism

Individualism is generally defined as the cultural belief that individuals should take responsibility primarily for their own interests and those of their immediate family (Hofstede, 1980; Triandis, 1995). In societies with high individualism, individuals tend to value personal time, freedom, and independence; they believe that personal interests are more important than the interests of others. Such individuals, in fact, are characterized by superficiality and avoid cooperative as well as socially-oriented practices (Gray & Massimino, 2014; Arellano, Sancha, Netland, & Thomsen, 2020). Accordingly, individuals in highly individualistic societies demonstrate less concern about the broader impact of business on both society and the environment unless doing so is in their recognized self-interest (Thanetsunthorn, 2015). This context might not fit, therefore, with the implementation of sustainability practices, thereby limiting their effectiveness. Instead, one is more likely to find a strong focus on the well-being of the broader community and the environment as well as a feeling of responsibility to contribute by being a good corporate citizen in societies with a strong collectivist orientation (Moorman & Blakely, 1995). Practices that include a social objective or component fit well in highly collectivistic environments (Arellano et al., 2020), making such contexts a more likely and better fit for the adoption of sustainability practices and thereby enhancing the effectiveness of such efforts. As such, we hypothesize that

H2: *The national culture dimension of individualism negatively moderates the relationship between a) environmental practices and environmental performance and b) social practices and social performance.*

Masculinity

Highly masculine societies place a low value on caring for others, inclusion, cooperation, and solidarity; conversely, career advancement, material success,

and competition are considered paramount. Some of the most frequently cited reasons for unethical behaviors are related to the greed and competitiveness of masculine individuals (Vitell & Festervand, 1987). Husted (2005), furthermore, found that masculinity was inversely related to social and institutional capacity for environmental sustainability. Given that masculine societies emphasize the need for competitiveness, success, individual achievements, and low cooperation (Tice & Baumeister, 1985), we therefore suggest that a high masculinity context does not fit well with sustainability practices, thereby reducing their impact on sustainability performance according to the tenets of the Contingency Theory. Indeed, as opposed to masculine contexts, countries with high levels of femininity prioritize the conservation of the environment and adopt a service orientation (Katz, Swanson, & Nelson, 2001). We thus posit that they favor an effective implementation of sustainability practices and therefore formulate the following hypothesis:

H3: *The national culture dimension of masculinity negatively moderates the relationship between a) environmental practices and environmental performance and b) social practices and social performance.*

Uncertainty Avoidance

Uncertainty avoidance indicates the extent to which individuals tolerate ambiguity in their lives and are willing to take risks. In high uncertainty avoidance societies, people tend to be more anxious (Hofstede, 2001). They create rules and regulations and set up institutions to ensure standardization and conformity that foster continuity (Katz et al., 2001). Individuals in low uncertainty avoidance societies, on the other hand, have a higher propensity for risk and are less likely to be reliant on written and explicit rules and regulations in dealing with unfamiliar situations (Hofstede, 2001). Based on the characteristics of high uncertainty avoidance societies, therefore, it can be expected that sustainability practices fit well with their context and are not in line with low uncertainty avoidance environments. We therefore hypothesize that

H4: *The national culture dimension of uncertainty avoidance positively moderates the relationship between a) environmental practices and environmental performance and b) social practices and social performance.*

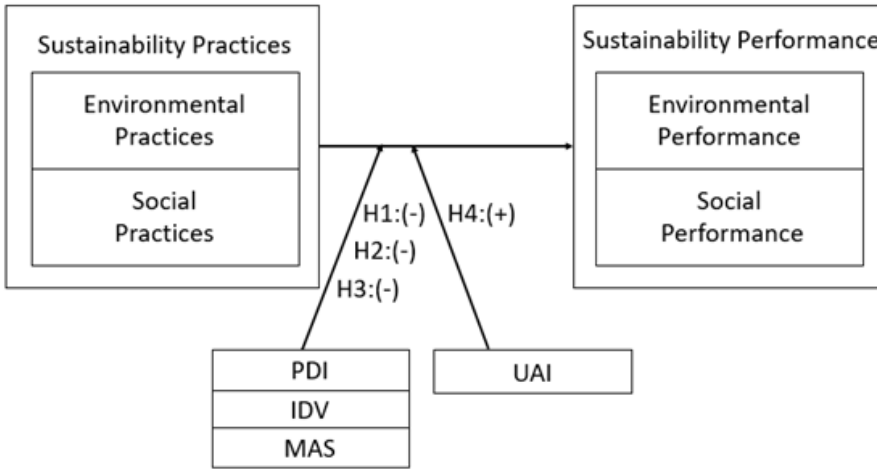

Figure 1: Research Framework

METHODOLOGY

Data Collection

To test our hypotheses, we combined primary and secondary data. Primary data was collected through the International Manufacturing Strategy Survey (IMSS, 2013). Launched in 1992 by the London Business School (U.K.) and the Chalmers University of Technology (Sweden), the IMSS studies manufacturing and supply chain strategies across countries. It comprises three different sections: the first includes items related to business units' competitive strategy and manufacturing plant organization, the second deals with the strategy and performance of the plant's main dominant activity, and the third describes current manufacturing and supply chain practices. The IMSS is a common survey instrument with a data collection protocol developed by researchers from different institutions, with the same questionnaire administered simultaneously in different countries by local research groups. The magnitude of the survey (i.e., its relatively high sample size), the involvement of companies in developing the questionnaire (ensuring content validity), and the history of the survey (both instrument and protocol have been extensively pre-tested) are the strengths of the IMSS data set (Wiengarten, Pagell, Ahmed, & Gimenez, 2014). Local research coordinators in each country also perform non-response and late-response

bias tests before sending the data to the central coordinator. For the purposes of this study, we used manufacturing plant level data on sustainability practices and sustainability performance from the second and third sections of the survey.

The initial sample of the original IMSS-VI consisted of 931 manufacturing plants from 22 countries. Given that the same questionnaire with the same items was distributed across countries, we computed the reliability scores of environmental and social practices as well as of environmental and social performance for each country. Following previous studies, we dropped those countries that had a Cronbach α lower than 0.70 (Singh, 1995; Parboteeah, Addae, & Cullen, 2012). This measure was taken to ensure the consistency of construct reliability across different countries, and resulted in a final sample size of 484 plants from 9 countries. The descriptive statistics of the sample can be found in Table 1.

Country	N	%	ISIC Code*	N	%	Size	N	%
China	128	26	25	112	23	Less than 50	15	3.10
Germany	15	3	26	76	16	Between 50 and 249	168	34.7
Hungary	57	12	27	95	20	Between 250 and 499	82	16.9
India	91	19	28	112	23	More than 500	218	45
Italy	48	10	29	58	12	Not defined	1	0.2
Japan	82	17	30	31	6	**Total**	484	100
Malaysia	14	3	**Total**	484	100			
Slovenia	17	4						
Sweden	32	7						
Total	484	100						

Table 1: Descriptive Statistics of the Sample
*ISIC Codes: 25—Manufacture of fabricated metal products, except machinery and equipment; 26—Manufacture of computer, electronic, and optical products; 27—Manufacture of electrical equipment; 28—Manufacture of machinery and equipment not elsewhere classified; 29—Manufacture of motor vehicles, trailers, and semi-trailers; 30—Manufacture of other transport equipment.

For the secondary data, we used Hofstede's (1983) national culture framework. Hofstede developed a quantitative model that allows for the measurement of differences between national cultures according to four cultural traits: power distance, individualism-collectivism, masculinity-femininity, and uncertainty avoidance (Hofstede, 1983). The most updated scores of this model (2010) were used in this study, making for a difference of three years between the national cultural values and

the collected primary data (2013). Recent studies have shown, however, that there are cultural traits that remain stable even after 25 years (Matei & Abrudan, 2018), thereby ensuring coherence between both sets of data.

The scale of each dimension runs from 0 to 100. A score lower than 50 for a certain dimension means that country scores LOW for that particular dimension while a score above 50 registers as HIGH. China's scores, for example, are 80 (power distance), 20 (individualism), 66 (masculinity), and 30 (uncertainty avoidance), meaning the country is characterized as having a national culture where power distance, masculinity orientation, and collectivism (as opposed to individualism) are high and where uncertainty avoidance is low. Table 2 shows the Hofstede scores for each country.

Country	Power Distance	Uncertainty Avoidance	Individualism	Masculinity
China	80	30	20	66
Germany	35	65	67	66
Hungary	46	82	80	88
India	77	40	48	56
Italy	50	75	76	70
Japan	54	92	46	95
Malaysia	100	36	26	50
Slovenia	71	88	27	19
Sweden	31	29	71	5
Mean	60.44	59.67	51.22	57.22
SD	21.62	24.44	21.90	27.76

Table 2: Hofstede's Cultural Dimension Scores per Country

Measures

In our analysis, we have two constructs related to practices (environmental practices and social practices) and two constructs related to performance (environmental performance and social performance). All items were developed based on previous literature. Environmental practices include programs related to managing energy and water consumption and pollution emission as well as waste recycling programs (Sarkis, 1998; Klassen & Whybark, 1999). Social practices include items related to occupational health and safety management systems and work/life

balance policies (Longo et al., 2005). Environmental performance considers items that measure the reduction in levels of energy consumption, pollution, emissions, and waste production (Zhu & Sarkis, 2004) while social performance includes workers' motivation and satisfaction as well as health and safety conditions (Gimenez et al., 2012). Appendix A provides more details with respect to these constructs and items, and other studies using the IMSS database have measured environmental and social practices in a similar fashion (e.g., Golini, Longoni, & Cagliano, 2014; Golini, de Marchi, Boffelli, & Kalchschmidt, 2018).

In addition to these four main constructs, we also included some control variables in our model. We added firm size (measured as the natural logarithm of the number of employees) given that previous literature points out that larger firms are more inclined and have more resources to invest in green and socially-oriented sustainability dimensions (Min & Galle, 2001). We also considered the per capita gross national income (GNI) of a country using the purchasing power parity estimation of GNI (Parboteeah et al., 2012) to control for a country's wealth as previous research has connected country wealth to sustainability (Husted, 2005). This country-level variable was collected from the World Bank economy and growth indicators database (World Bank, n.d.).

Assessment of Validity and Reliability

The adequacy of the scales was evaluated by analyzing convergent validity, discriminant validity, and reliability. Convergent validity was assessed through confirmatory factor analysis (CFA) (O'Leary-Kelly & Vokurka, 1998). Our proposed structure of environmental and social practices and environmental and social performance resulted in a reasonably good fitting model (X^2/df = 1.37, RMSEA=0.030, CFI=0.995, and SRMR=0.017). Furthermore, results in Table 3 show that all factor loadings exceeded the suggested threshold of 0.5 (Vickery, Jayaram, Dröge, & Calantone, 2003). All factor loadings also exceeded twice the value of their associated standard error, suggesting good convergent validity. Table 4 provides support regarding discriminant validity since the square root of the AVE of each construct is higher than its correlations (Anderson & Gerbing, 1988). Lastly, reliability was judged by using Cronbach's alpha coefficient. Results in Table 3 show that all the scales have a value greater than the threshold value of 0.70 (Nunnally, 1978), indicating that all constructs are reliable.

Construct	Item	Mean	SD	Loading	S.E.	Cronbach's α
Environmental Practices	ENV1	3.51	1.001	0.643	0.032	0.81
	ENV2			0.875	0.017	
	ENV3			0.866	0.017	
Social Practices	SOC1	3.21	1.007	0.811	0.024	0.76
	SOC2			0.668	0.032	
	SOC3			0.645	0.034	
Environmental Performance	EPF1	3.46	0.73	0.758	0.041	0.78
	EPF2			0.836	0.041	
Social Performance	SPF1	3.29	0.66	0.740	0.035	0.77
	SPF2			0.846	0.034	

Table 3: CFA Results, Convergent Validity, and Reliability

	(1)	(2)	(3)	(4)
Env. Practices (1)	0.802[1]			
Social Practices (2)	0.741[2]	0.712		
Env. Performance (3)	0.299	0.295	0.798	
Social Performance (4)	0.351	0.449	0.449	0.795

Table 4: Discriminant Validity
[1]AVE square root (note: all values in the diagonal are the square-root of AVE).
[2]Correlations

Since our data was collected from one single respondent and at one single point in time, we checked if common method variance (CMV) would be a threat to the validity of our results using a priori and a posteriori procedures. A priori, the dependent (performance) and independent (practices) variables were placed in different and separate sections of the questionnaire (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), thus contributing to diminishing the effects of consistency artefacts. A posteriori, we used the Harmans single factor method (Podsakoff et al., 2003). The results of this analysis suggest that a single factor model produces a significantly worse model fit compared to our proposed and confirmed four-factor model (X^2/df = 13.97, RMSEA=0.179, CFI=0.756, and SRMR=0.102), thereby suggesting that CMV is not a threat to the validity of our results.

DATA ANALYSIS AND RESULTS

The objective of this study was to analyze whether national culture, operationalized through the four Hofstede dimensions (power distance, individualism-collectivism, masculinity, and uncertainty avoidance), affects the impact of environmental and social practices on environmental and social performance. In other words, our objective was to analyze the moderating role of national culture in the sustainability practices-sustainability performance relationship. The data in the present study are multilevel in nature, with national culture dimensions and GNI at the country level and practices, performance, and size at the plant level. This implies that the data are clustered with plants nested within countries and that variables are at different levels of analysis. Such characteristics suggest, moreover, that multilevel regression analysis would be the most appropriate method for analyzing the data.

Before estimating our models, we standardized our independent and moderating variables. We also checked the correlation measures between constructs. Tables 5a and 5b show the correlation matrix between national culture dimensions, environmental practices, social practices, environmental performance, and social performance. Given that the results suggest that there is a strong correlation between the two types of practices and between the four dimensions of national culture, we checked for the presence of multicollinearity in our data and computed the variance inflation factors (VIFs). Results suggest that multicollinearity is not an issue in our study since all VIFs were below four, which is less than the commonly used threshold of ten. Moreover, following Wiengarten et al. (2011), we also tested the regression analysis that included the interaction terms in separate models. This allowed us to ensure even further that multicollinearity is not an issue in our analysis.

The results of the multilevel regression analyses are shown in Tables 6 and 7. A series of models were run for each dependent variable (environmental and social performance). The first was an empty model, which decomposed the variance of the dependent variable into within-group (plant level) variance σ^2 and between group (country level) variance τ^2_0. Next, we included our control variables (Model 0), namely, firm size and GNI. Model 1 then included the direct effects of environmental/social practices on environmental/social performance. Lastly, we ran four models (Models 2.a, b, c, and d) in which the national culture moderating variable (power distance, individualism-collectivism, masculinity, and uncertainty avoidance) and the interaction effect between it and practices were introduced.

	Mean	SD	(1)	(2)	(3)	(4)	(5)
Internal Environmental Practices (1)	3.513	1.001	1				
Internal Social Practices (2)	3.213	1.007	0.741	1			
Environmental Performance (3)	3.287	0.655	0.300	0.296	1		
Social Performance (4)	3.463	0.726	0.351	0.450	0.449	1	
PDI (5)	63.68	17.66	0.119	0.295	0.102	0.208	1
IDV (6)	65.87	23.49	-0.144	-0.190	-0.007	-0.148	-0.122
MAS (7)	56.20	25.72	-0.162	-0.293	-0.140	-0.269	-0.593
UAI (8)	47.54	21.97	-0.031	-0.195	-0.033	-0.094	-0.804
Size (9)	6.13	1.673	0.329	0.274	0.097	0.047	-0.012
GNI (10)	22814.52	13890.33	-0.197	-0.335	-0.192	-0.293	-0.809

	Mean	SD	(6)	(7)	(8)	(9)	(10)
Internal Environmental Practices (1)	3.513	1.001					
Internal Social Practices (2)	3.213	1.007					
Environmental Performance (3)	3.287	0.655					
Social Performance (4)	3.463	0.726					
PDI (5)	63.68	17.66					
IDV (6)	65.87	23.49	1				
MAS (7)	56.20	25.72	0.559	1			
UAI (8)	47.54	21.97	0.089	0.488	1		
Size (9)	6.13	1.673	-0.073	-0.120	-0.076	1	
GNI (10)	22814.52	13890.33	0.104	-0.640	0.463	0.057	1

Tables 5a & 5b: Correlation Matrix

Dependent Variable: ENVIRONMENTAL PERFORMANCE							
Parameters	Empty Model	Model 0	Model 1	Model 2.a. PDI	Model 2.b. IDV	Model 2.c. MAS	Model 2.d. UAI
Grand intercept							
Cons	3.24***	3.29***	3.29***	3.29***	3.29***	3.29***	3.29***
Control variables							
Firm size		0.07**	0.01	0.01	0.01	0.01	0.02
GNI		-0.13***	-0.09**	-0.16**	-0.09**	-0.09**	-0.11**
Independent variables							
Environmental Practices			0.17***	0.17***	0.17***	0.17***	0.17***
National Culture Moderator				-0.085	0.032	-0.005	0.037
Nat. Cult X Env. Practices				0.002	0.026	0.000023	0.002
σ^2	0.413	0.409	0.383	0.381	0.381	0.383	0.382
τ^2_0	0.018	$1.21e^{-21}$	$1.30e^{-23}$	$8.78e^{-18}$	$1.20e^{-24}$	$2.78e^{-24}$	$1.54e^{-24}$
Deviance (D)	841.15	828.32	800.56	797.92	798.87	800.55	799.49
AIC	847.15	838.32	812.56	813.92	814.87	816.55	815.49
BIC	859.31	858.60	836.89	846.36	847.31	848.99	847.92

Table 6: Multilevel Regression Results: Environmental Performance
*p ≤ 0.10; **p ≤ 0.05; ***p ≤ 0.00

Dependent Variable: SOCIAL PERFORMANCE							
Parameters	Empty Model	Model 0	Model 1	Model 2.a. PDI	Model 2.b. IDV	Model 2.c. MAS	Model 2.d. UAI
Grand intercept							
Cons	3.42***	3.47***	3.47***	3.49***	3.48***	3.49***	3.49***
Control variables							
Firm size		0.04	-0.04	-0.04	-0.05	-0.05	-0.03
GNI		-0.19***	-0.11***	-0.18***	-0.11***	-0.08*	-0.13***
Independent variables							
Social Practices			0.30***	0.30***	0.28***	0.29***	0.30***
National Culture Moderator				-0.097*	-0.03	-0.053	0.067*
Nat. Cult X Soc.Practices				-0.048	0.06*	0.078**	0.081**
σ^2	0.457	0.457	0.392	0.387	0.387	0.383	0.384
τ^2_0	0.037	0.005	$1.94e^{-20}$	$5.34e^{-18}$	$3.76e^{-18}$	$9.65e^{-17}$	$2.54e^{-17}$
Deviance (D)	888.15	879.15	809.73	805.57	804.69	800.24	801.58
AIC	894.15	889.15	821.73	821.57	820.69	816.24	817.58
BIC	906.31	909.42	846.05	854.00	853.12	838.68	840.02

Table 7: Multilevel Regression Results: Social Performance
*p ≤ 0.10; **p ≤ 0.05; ***p ≤ 0.00

Environmental Practices and Performance

The ICC at the country level for environmental performance is 4%, which means that 4% of the unexplained variance of environmental performance is between countries. Model 0 shows that both firm size and GNI are significant, with a firm's size positively associated with environmental performance while GNI is negatively associated. From these two control variables, however, only GNI remains negative and significant across models. Model 1 shows that environmental practices are positively and significantly associated with environmental performance ($\beta = 0.17$, $p<0.001$). None of the moderating models (Models 2.a, b, c, and d) show significant results for the moderating role of national culture on the positive and significant relationship between environmental practices and environmental performance. The assessment of model fit also highlights the absence of moderation effects and indicates that the best model is Model 1 since it has the lowest values for Deviance, AIC, and BIC. These results do not provide support for H1a, H2a, H3a, and H4a,

which hypothesized a moderating role of national culture in the environmental practices-performance relationship.

Social Practices and Performance

The ICC at the country level for social performance is around 8%, which means that 8% of the unexplained variance of social performance is between countries. Model 0 shows that GNI is negatively and significantly related to social performance. Model 1 indicates that social practices are positively and significantly associated with social performance ($\beta = 0.30$, $p<0.001$). Models 2.c and 2.d show that masculinity ($\beta = 0.78$, $p<0.005$) and uncertainty avoidance ($\beta = 0.081$, $p<0.005$) positively moderate the positive relationship between social practices and social performance. Model fit indicators show that the deviance for moderating models (Models 2.a, b, c, and d) is lower than that of the direct effects model (Model 1). However, given that deviance is always reduced by the inclusion of additional predictors, it is necessary to check AIC and BIC indicators. The lowest AIC and BIC values as such correspond to Models 2.c and 2.d.

HYPOTHESIS	ENVIRONMENTAL MODEL	SOCIAL MODEL
H1: Power distance *weakens* the relationship between practices and performance	No effect NO SUPPORT FOR H1a	No effect NO SUPPORT FOR H1b
H2: Individualism *weakens* the relationship between practices and performance	No effect NO SUPPORT FOR H2a	No effect NO SUPPORT FOR H2b
H3: Masculinity *weakens* the relationship between practices and performance	No effect NO SUPPORT FOR H3a	**Positive effect (not in the hypothesized direction)** NO SUPPORT FOR H3b
H4: Uncertainty avoidance *strengthens* the relationship between practices and performance	No effect NO SUPPORT FOR H4a	Positive effect **SUPPORT FOR H4b**

Table 8: Hypotheses Testing

Overall, these results provide support for H4b, which posited that uncertainty avoidance strengthens the relationship between social practices and social performance. Our results also found a significant moderating effect of masculinity on the social practices-social performance relationship, although not in the direction hypothesized. Table 8 summarizes the results of hypotheses testing.

DISCUSSION

Our results in general contribute to the stream of literature that is at the crossroads of sustainability and national culture (e.g., Ringov & Zollo, 2007; Caprar & Neville, 2012; Thanetsunthorn, 2015). Previous literature show that national culture plays a role in the organizational decision to implement sustainability practices. Our study adds to this research by showing not only that national culture influences the adoption of sustainability practices, as is also indicated by previous research, but that some of its dimensions also moderate the relationship between sustainability practices and sustainability performance. This means that while certain national cultural environments favor or deter the adoption of sustainability practices, the results of such implementations of sustainability practices can also vary according to different national cultural traits.

Regarding the specific dimensions of national culture, our results have found support for the moderating effect of the uncertainty avoidance and masculinity dimensions but only for the social dimension of sustainability. In other words, countries that score high in uncertainty avoidance and masculinity will have higher social performance as a result of the implementation of sustainability practices.

We now examine the specific results for each dimension, with the remainder of the discussion structured as follows: first, we comment on our results by comparing the environmental and social models and providing possible explanations for the existence of the moderating role of national culture only in the social model, and second, we provide some explanations for the moderating role of the different national culture dimensions.

Environmental Model vs. Social Model

While our results show some limited support for a moderating role of national culture in the social model, we have yet to find support for the moderating role of national culture in the environmental model. This result can be explained by the fact that environmental practices are more related to products and technologies than to human resources, which are influenced by the external environment in which they are embedded. For example, programs aimed at reducing energy and water consumption in a manufacturing context may be more related with the technology used than with the actions of employees. Programs to reduce pollution emission, in similar fashion, will be more likely related with technology than with the actions of human resources. On the other hand, the impact of social programs such as health and safety actions and the implementation of work/life balance policies on performance depends more on the beliefs and attitudes of individuals than on technology. National culture influences employees' understanding of work and their approach to it (Newman & Nollen, 1996), making it reasonable to infer that it influences mainly the impact of social practices on performance.

The Social Model: The Moderating Role of Different National Culture Dimensions

Our results also show, contrary to what we hypothesized, that the dimensions of power distance and individualism-collectivism have no moderating effect. This means that the impact of sustainability practices on sustainability performance is the same regardless of the levels of power distance and individualism. Indeed, while Ringov and Zollo (2007) found that recognition and remedy of social and environmental risks are timely addressed in contexts characterized by low power distance scores, our results show that this context does not affect the effectiveness of sustainability practices. Despite the fact that individuals in high power distance societies are less sensitive toward ethical acts and more tolerant of inequality (House et al., 2004; Scholtens & Dam, 2007), this cultural trait does not affect the effectiveness of health, safety, and work/life balance practices. Based on these results, we can thus conclude that while the power distance dimension acts as a context variable leading to the implementation of sustainability practices, it does not affect the effectiveness of their implementation.

We hypothesized that individualism would moderate the relationship between social practices and social performance given that individuals in societies with high

individualism believe that their personal interests are more important than those of others and demonstrate less concern about the impact of business on society and the environment (Thanetsunthorn, 2015). Our results show, however, that the effectiveness of work/life balance and health and safety practices is the same regardless of the individualistic trait of the society in which they are implemented.

Regarding the role of uncertainty avoidance, our results provide support, in line with Thanetsunthorn (2015) and Wagner (2009), for the hypothesized positive moderating effect. Our findings suggest that the adoption of social practices will fit well and hence exhibit higher levels of performance in organizations located in high uncertainty avoidance societies compared to those in low uncertainty avoidance contexts. The fact that high uncertainty avoidance societies value the existence of norms and codes of conduct that avoid risky behaviors helps them better grasp the benefits of implementing social practices. The interaction plot in Figure 2, which depicts the two-way interaction of social practices and uncertainty avoidance on social performance, shows that social practices have a stronger positive impact on a firm's social performance in contexts of high uncertainty avoidance.

Although we found a significant interaction from the masculinity/femininity national culture dimension, its direction is not as was expected. Based on the fact that an environment characterized by high femininity levels would favor the implementation of sustainable practices (Katz et al., 2001; Husted, 2005), we hypothesized that masculinity would weaken the relationship between sustainable practices and sustainable performance due to a lack of fit between masculinity traits and sustainability practices. Our results show, however, that the higher the level of masculinity, the higher the effect of sustainability practices.

To explain such an interaction effect, the slopes of the regression of social practices on social performance at low (one SD below the mean) and high (one SD above the mean) levels of masculinity are shown in Figure 3. As it can be appreciated, the slopes of this figure are different from those of Figure 2. The social performance of firms located in low masculinity countries, which are characterized by a preference for cooperation, modesty, caring for the weak, and quality of life, is lower than that of firms located in high masculinity countries and with the same level of implementation of social practices. As such, while previous research found that a masculinity context does not favor the adoption of sustainability practices (e.g., Thanetsunthorn, 2015; Katz et al., 2001), future research might want

to consider additional moderating variables that might counterbalance this effect (e.g., organizational culture).

In summary, whereas the dimensions of power distance and individualism-collectivism have no moderating effect, the dimensions of masculinity and uncertainty avoidance have a moderating role but with different effects. In societies characterized by high levels of masculinity, the implementation of social practices counterbalances their generally low level of care for the weak and for the quality of life. A high level of uncertainty avoidance, on the other hand, facilitates the implementation of these practices and strengthens their impact.

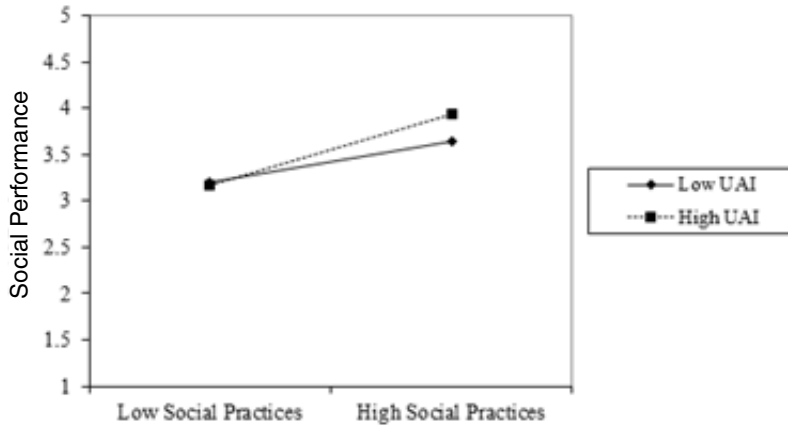

Figure 2: Interaction Slopes for Social Practices and Social Performance and UAI

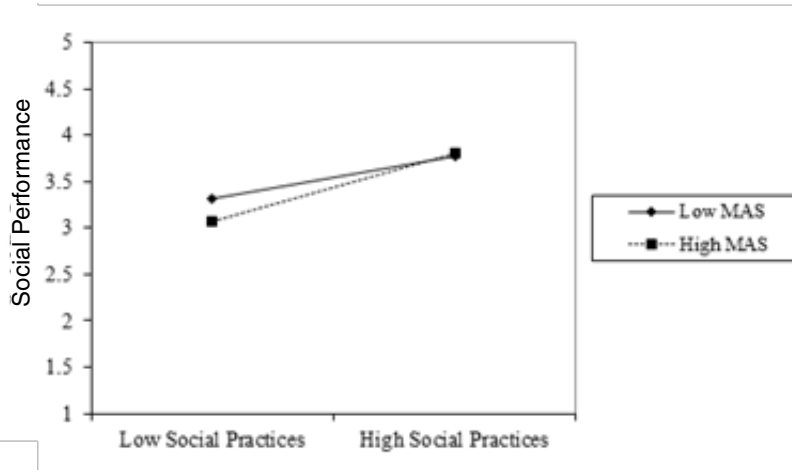

Figure 3: Interaction Slopes for Social Practices and Social Performance and MAS

CONCLUSIONS

In this paper, we showed the contingent role of national culture on the sustainability practices-sustainability performance relationship. More specifically, our results indicate that both the uncertainty avoidance and masculinity dimensions are relevant contingency variables that should be considered when analyzing the aforementioned relationship. Regarding uncertainty avoidance, our results show that the impact from implementing sustainability practices will be more significant in societies where individuals are willing to put in place systems and procedures to ensure the sustainability of the society and the environment (by reducing or removing any uncertainty that might have a negative impact on them). In the case of the masculinity-femininity dimension, our results indicate that the implementation of social practices results in higher performance results in societies characterized by high levels of masculinity than in countries scoring low on masculinity.

Our findings are interesting for both researchers and managers. Previous literature had focused on managerial perceptions, the decision-making processes of managers, or the direct impact of national culture on sustainability performance. Our paper as such contributes to the sustainability literature by showing the moderating effect of some aspects of national culture on the sustainability practices-performance relationship and that culture needs to be considered as a contingent variable given that some cultural environments can enhance the impact of sustainability practices.

The following managerial implications have been derived as a result of our study. First, managers of global firms need to distinguish between environmental and social practices; more specifically, they should pay special attention to the role that national culture plays in the effectiveness of social practices. Second, managers of multinational firms can understand better why the impact of their social practices on performance is not uniform. They can expect the implementation of social practices such as SA8000, OHSAS 18000, formal occupational health and safety management systems, and work/life balance policies to have a higher impact on workers' motivation as well as on health and safety conditions in countries with high uncertainty avoidance and/or high masculinity levels. Third, there will be less need for the implementation of social practices in countries with low masculinity scores as this national culture trait already favors the motivation of workers as well as improved health and safety conditions. In the case, therefore, of firms with subsidiaries or plants located in different regions across the globe, these aspects

highlight the need for managers to adapt and define their sustainability action plans in consideration of possible national cultural differences.

Besides these contributions, however, our paper has some limitations that need to be acknowledged. First, we used the perceptions of managers regarding their environmental and social performance with respect to their major competitors. Although we are not interested in the direct effect of practices on performance, using perceptual measures is a limitation nevertheless. Further research, therefore, should consider objective data for these performance measures. Second, additional control variables at the firm level, such as R&D expenditure or corporate governance policies, might also be included as they can play a role in achieving better sustainability performance outcomes. Third, we considered the moderating role of national culture. Further research, however, should consider if an organizational culture that fits the sustainability values can counterbalance the possible negative effect of a specific trait of the national culture.

We also used survey methodology which is excellent for identifying contingency effects but does not provide explanations for the observed effects. Future studies should therefore develop case research to understand the moderating role of national culture better. Also, while we have been able to ensure high internal validity by choosing and limiting our study to the manufacturing setting, we are aware that results may differ in other settings (i.e., the service sector). Both the environmental and social models may behave in a similar way, for example, in industries or sectors that are less capital intensive. In terms of generalizability, therefore, it would be useful for further research to explore if our findings also hold for other industries and sectors. Lastly, while different national cultures were included in our study, the sample of countries was limited to European and Asian regions. Further research should expand the sample to include countries in other regions such as America and/or Africa, thereby including more variation in national culture environments.

CONSTRUCT	ITEM (scale of 1 to 5, where 1 indicates none and 5 indicates a high level of implementation)	REFERENCES
Environmental Practices	ENV1. Environmental certifications (e.g., EMAS or ISO 14001)	Adapted from Klassen and Whybark (1999) and Sarkis (1998)
	ENV2. Energy and water consumption reduction programs	
	ENV3. Pollution emission reduction and waste recycling programs	
Social Practices	SOC1. Social certifications (e.g., SA8000 or OHSAS 18000)	Adapted from Longo et al. (2005)
	SOC2. Formal occupational health and safety management system	
	SOC3. Work/life balance policies	

CONSTRUCT	ITEM (scale of 1 to 5, where 1 indicates much worse than, 3 equal to, and 5 much better than main competitor)	REFERENCES
Environmental Performance	EPF1. Materials, water, and/or energy consumption	Zhu and Sarkis (2004)
	EPF2. Pollution emission and waste production levels	
Social Performance	SPF1. Workers' motivation and satisfaction	Gimenez et al. (2012)
	SPF2. Health and safety conditions	

Appendix A: List of Items, Description, and Source

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Journal of Management for Global Sustainability Volume 8, Issue 2 (2020): 97–131

DOI: 10.13185/JM2020.08205

QUANTIFYING THE ORDER OF PRIORITIES IN STUDENT CHOICE OF GRADUATE BUSINESS SCHOOLS
Does Sustainability Matter?

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ABSTRACT

Business schools expend resources to attract more and higher-quality applicants to their institutions, yet our understanding of what criteria resonate with those who want to find the right fit with a business school and its programs is, paradoxically enough, either not clear or dated. There is a dearth of research on what business students value, resulting in missed opportunities to engage existing students so as to translate their interests and aspirations into prospects for program design, delivery, and enrollment. One important and often overlooked criterion, for example, is the desire of business students to learn about sustainability. Thus, while most studies aim to discover and quantify the selection criteria in students' choice of business schools, this paper builds on the aspect of sustainability. We propose a multi-criteria decision analysis (MCDA) methodology that uncovers an array of essential criteria, including sustainability, for schools to consider in future program revision and development efforts. The proposed approach allows schools to be exact with their resource expenditures in areas that are critical to applicants, including those aligned with sustainability, as well as attract larger numbers of more qualified students. Insights from this study show that with the proper approach to understanding business school candidates, it is possible to quantify the order of priorities that students consider when choosing a business school.

KEYWORDS

applicant criteria; business schools; global sustainability;
higher education institution; mixed methods; multi-criteria decision-making

Submitted 8/29/20 | Accepted 11/25/20 | Published 12/31/20

INTRODUCTION

Business schools are at a crossroads. With various parts of the world experiencing the effects of climate change, volatility in global economic markets, social unrest, and a pandemic, applicants are left with questions about their future. The dynamics of business school programs are changing, enrollments have decreased in recent years, the pandemic has forced many into online-only teaching and learning, and there are predictions that some business school programs and even entire colleges are closing for good. Given such complex times, does sustainability even matter for those applying to business schools? Sustainability, for the purposes of this study, is operationalized based on the Brundtland Commission's definition of sustainable development, i.e., using environmental, social, and economic practices to meet the needs of a current generation without compromising the ability of future generations to meet theirs (WCED, 1987).

It has been understood for over a half-century that a good education increases the earning ability, economic value, and human capital of individuals (Zhang, 2005; English, 2012). Is there more that we can do, then, to understand what applicants want from business school programs? Are there other considerations for incoming students, such as learning skills for catalyzing change? Bower and Paine (2017) have shed new light on the persistent error at the heart of corporate leadership and its perpetuation in business schools. Not only have they found flaws in the agency-based model that is at the foundation of most of today's business school teaching, but they may have also foreshadowed the kind of change that applicants to business school programs want. Instead of a myopic view of the fiduciary responsibility of a firm, which is to create value only for shareholders, what if business students want programs and degrees that deliver skillsets and insights that allow them to align future business practices with a diverse economic value proposition and elements of the United Nations' 17 Sustainable Development Goals (SDGs)? Waddock (2020) gets at this by asking if "business schools are able to meet the grand challenges of the era" with calls for collaboration, stewardship, and connection to others.

Figure 1: The United Nations' Sustainable Development Goals

In this study, we propose that applicants to business schools want more than just "business as usual." As we explore the changing business school landscape, we also propose a method for gathering and interpreting the data necessary for grasping the type of changes desired by incoming students and other stakeholders. This will hopefully provide opportunities for resilient business schools to meet the challenges of this new era in global management education as well as new insights and an opportunity to be out in front of emerging trends. We define resilient schools the same way we would resilient businesses—as "having the capacity to absorb stress, recover critical functionality, and thrive in altered circumstances" (Reeves & Whitaker, 2020). Indeed, higher education institutions (HEIs) have recognized several issues threatening their survival.

HEIs, not unlike other businesses, are subject to fulfilling their customers' (i.e., students') needs. Yet most schools lack experience operating in an aggressive environment (Card & Card, 2007), and the economic crisis has had a negative impact on endowments and the ability of students to pay for the increasing costs of education (Carter & Yeo, 2009). Add to this the current pandemic, moreover, and one will find that decreased incomes have not been offset by decreased expenses in many cases. Ballooning fiscal pressures, reduced applications, emerging global markets, and cyber competition are all challenges facing the schools of business today.

A market-oriented organization understands its customers, adjusts constantly to changing factors, and communicates robustly with both its internal and external stakeholders (Parvu & Ipate, 2012). However, have schools and their administrators asked what happens if a continued focus on the neoliberal paradigm of economics is no longer aligned with applicants' changing wants and employers' needs in a global business management landscape? Business school programs depend heavily on quantitative analysis in their curricula and tend to leave unfulfilled the teaching of necessary soft skills such as communication, which are critical to becoming effective managers (Simpson, 2006; Slater & Dixon-Fowler, 2010).

Virtually every company in the Standard & Poor's (S&P) 500 develops annual sustainability reports, follows Global Reporting Initiative (GRI) guidelines, and links performance to the U.N. SDGs (3BL Media, 2020; Brown, 2013). Yet studies by Navarro (2008) and Rubin and Dierdorff (2009) found supporting evidence for the lack of curricula in such areas as required by present-day managers (Slater & Dixon-Fowler, 2010). Are HEIs keeping up with these global efforts to measure, manage, and report sustainability initiatives? Improved stakeholder understanding and satisfaction have a positive impact on HEIs' finances; indeed, the link connecting stakeholder satisfaction with improved finances is asymmetrical (Gupta & Zeithaml, 2006). Paraschivescu and Radu (2011) wrote that "the most important challenge for universities is to adjust their structure for new expectations in the 21st century" (p. 119). There thus appears to be an increased awareness surrounding the benefits of co-curricular activities when it comes to assisting students attain necessary skills. These types of engagements "help students develop self-awareness, autonomy, self-worth, altruism, reflective thought, interpersonal skills, and decision-making skills" (Rusinko, 2010: 509).

Yet while research in this area will help institutions design new programs and rethink existing ones, we could not find any to date that has quantified business students' selection criteria for which school best fits them. The review of business school critiques is deficient in empirical studies (Pfeffer & Fong, 2002; Slater & Dixon-Fowler, 2010) which are essential as a business school's ability to differentiate itself from others is critical for supporting marketing, program development, and recruitment efforts. It will enhance an institution's ability to attract prospective students and recruiters (Hammond & Webster, 2011). This present study, therefore, has significant relevance for business schools concerning their resource allocation

and long-term strategic planning. When it is possible to quantify the criteria students prioritize and use in choosing a school, administrators and decision-makers can devise and map out a path toward essential selection criteria that include sustainability and the U.N. SDGs.

This study's primary research questions are as follows: What are the criteria prospective students use to choose business schools? What is the relative importance of various criteria? What is the order of the difference between these relationships? Does sustainability matter, moreover, when studying these questions? Given that organizations with a market focus continually review their goals and established support systems, the viability of HEIs can be determined based on their understanding of the "needs of potential customers and [on] being prepared to adapt technology to suit them" (Bailey, 1991: 448; Brauer, 2012). An understanding of the criteria students use when deciding to attend a particular institution is essential, therefore, to align the objectives of HEIs.

ISSUES FACING GRADUATE BUSINESS SCHOOLS

As the challenges schools are now facing are too many to dive into in the space of this study, we focus our attention on declining enrollments, retention, changing competencies needed in the workplace, the integration of global sustainability, and relevance. We then look at the issues of differentiation and resistance to change before transitioning to the need for understanding what students want.

Declining Enrollment

Declining student enrollment places many middle-ranking HEIs in the position of having to make some tough program decisions in the immediate future. One study in the United Kingdom accurately forecasted a 6% decline in students by 2019 (Dobson, Quilley, & Young, 2010). This is a result of the declining birthrate in many developed countries, including the U.S. (Tavares & Cardoso, 2013; see also the Chronicle of Higher Education report on the looming enrollment crisis [Kelderman & Gardner, 2019]). Those seeking an education are also no longer restricted to a local choice; instead, there is a global market for education at colleges and universities that have become "hypercompetitive" (Carter & Yeo, 2009: 167; Tavares & Cardoso, 2013). Many countries are now imposing stricter guidelines for visas as well, resulting

in greater competition among those students able to obtain the necessary documents but which in turn leads to reduced demand (Carter & Yeo, 2009).

Retention

Business schools are challenged to obtain new students and retain them until graduation, a fact exacerbated by the declining birth rate in developing countries and the economic pressures felt by prospective students and their families (Punj & Staelin, 1978). For many institutions, maintaining the student population at the very least is critical to prevent having to discontinue some of their class offerings and reduce their hazard of mortality (Vander Schee, 2009). The fact that student retention has a linear relationship with financial results (Gupta & Zeithaml, 2006), however, can price the HEI out of the market range for many prospective enrollees in situations where the education is cost-sensitive.

Changing Competencies

Business schools need to produce graduates with competencies that meet the requirements of international business. Multiple academic papers have cited business school programs as being out of touch with such needs (Pfeffer & Fong, 2002; Slater & Dixon-Fowler, 2010). Global organizations are hiring individuals capable of working in a global environment while meeting global goals, making a greater emphasis on interdisciplinarity and international business acumen a differentiator in the education industry (Datar, Garvin, & Cullen, 2010). A positive differentiation from other business schools can help a HEI attract quality students and recruiters, nurture employee loyalty, and create a proper market focus for the institution (Hammond & Webster, 2011). Early adopters of sustainability, for example, can be found among the signatories of the U.N. Principles for Responsible Management Education (PRME). The competitiveness of the institution's offerings is also a critical focus area for business schools when attracting future applicants. Such offerings can include courses and entire programs that integrate management and sustainability within the curriculum (Sroufe, 2018).

Integration of Global Sustainability

In 2009, Rubin and Dierdorff analyzed the management coursework of 373 universities accredited by the Association to Advance Collegiate Schools of Business (AACSB) and discovered failures to incorporate relevant course content that included

essential corporate management aspects. Competencies related to human capital management and managing a decision-making process were found deficient in the curricula, leading them to conclude that business school programs "have adopted a form of pluralistic ignorance in which stakeholders seem to agree on what competencies ought to be emphasized privately, but fail to manage such agreement in practice, inevitably maintaining the curricular misalignment that remains so persistent" (Rubin & Dierdorff, 2011: 154).

To remedy this situation, the AACSB now includes "engagement and societal impact" as a focal accreditation area where they see business schools and businesses as forces for good in society, able to address significant issues on a local, national, and international scale. Indeed, we also see organizations such as the Aspen Institute as well as the Corporate Knights ranking of sustainability integration in MBA programs as realigning competencies needed in the workplace. These corporate management competencies include measuring and managing environmental, social, and governance (ESG) performance.

Too many business school programs are focused on a "profits-first" mentality in their curricula (Ghoshal, 2005; Giacalone & Thompson, 2006; Slater & Dixon-Fowler, 2010). This opportunistic-oriented educational format and emphasis on the bottom line can be responsible in part for the unethical behavior of businesses and their executives (Henle, 2006). We thus highlight three key findings of the 2014 Net Impact Business as Unusual guide (Net Impact, 2014). First, future leaders forecast a significant increase in the social and environmental concerns of how businesses operate. As a consequence, students expect a greater emphasis on discussing sustainability integration in their curricula. Lastly, business school programs will be required to focus on curricula that create increased employment opportunities (Hoffman, 2018).

Relevance and Differentiation

Many institutions have remained unchanged and have not kept up their relevance in society. Indeed, some of these schools may even be forced to close their doors—according to the *Business of Branding Report* published by the European Foundation for Management Development and CarringtonCrisp, most business schools' products are similar and prospective students see little differentiation from one institution to another (CarringtonCrisp, EFMD, & ABS, 2013). Schools

of business must differentiate themselves to maintain a competitive advantage (Montgomery & Ramus, 2011; Gopalan, Pagiavlas, & Jones, 2008). To be viable at all, moreover, a segment of differentiation must be identifiable, have a large enough mass to be considered, and possess unique needs. The demographics and segmentation of the population attracted to the segment also need to be identified and analyzed (Parvu & Ipate, 2012).

Various rankings of HEIs also end up fragmenting their offerings in the eyes of prospective applicants, who then have an independent reading of the institutions for their disciplines of interest. These institutions, which constantly provide a mix of disparate offerings in their attempts to meet the needs of a multiplicity of stakeholders, need to choose their niches so they can allocate their resources optimally toward the best desired outcome. The product offerings of HEIs, in particular, need to reflect the current needs of organizations that are hiring their graduates. The more competitive these offerings are, the more applicants will be attracted to the institutions that provide them.

Resistance to Change

HEIs have historically been adverse to change (Barnett & Shore, 2009; Blass & Hayward, 2014). This is not unique to the educational field—many organizations in established industries and that have complex established structures suffer from deliberate resistance to change, which is often referred to as inertia. Since consumers demand consistency, organizations will resist change to satisfy them (Negro, Hannan, Rao, & Leung, 2007).

When approaching change, some first movers seek out state-of-the-art approaches and invent new technologies to implement such. This is strategic flexibility, i.e., when an organization can "identify major changes in the environment and quickly commit resources to a new course of action in response to those changes" (Shimizu & Tamura, 2012). Examples of this flexibility can be seen in the early years of MBA program rankings that integrate sustainability, such as in the Aspen Institute's "green" MBA guide which was meant to help prospective students find socially responsible MBA programs (Aspen Institute, 2008). Indeed, while innovation is risky, "failure to adapt and adopt will see institutions losing their future students" (Barth, 2013: 1).

Changing a HEI's core features, however, is "especially destabilizing" (Hannan, Baron, Hsu, & Koçak, 2006: 755). One such core feature of a university is its curriculum, which provides the HEI with an identity and dictates resource distribution. Changes such as making room for sustainability as part of the curriculum threaten established identities, yet institutional change is what moves an organization from where it is now to a more desirable alternative (Lozano, Ceulemans, & Seatter, 2015). Business schools are under enormous pressure from accreditations and rankings that create standardization but which now consider ESG performance as an essential element of the curriculum.

Impediments to change include a lack of data in support of the opportunity, faculty resistance, a lack of faculty to teach new subject matter, a lack of interest and understanding among faculty, staff, and other stakeholders, and many disciplines competing for restricted space in the curriculum (Rasche, Gilbert, & Schedel, 2013). Change does not come easy to organizations that have been teaching the same curriculum for half a century without regard for the environment and social impact. "Organizational changes that threaten the status quo, such as moving away from unsustainable practices towards more sustainable ones, are bound to face resistance at different organizational levels" (Lozano et al., 2015: 207). Such changes can often "confuse and anger" stakeholders (Hannan et al., 2006: 756).

The core features most challenging to alter are "mission, form of authority, [and] core technology, i.e., employees' skills and marketing strategies" (Hannan et al., 2006: 756). Changing these creates questions coming from all stakeholders about the organization's crux as "opportunities" for change can encounter more resistance than acceptance. Survival is thus enhanced by effectively communicating well thought-out plans that embrace new data, reliability, and accountability (Hannan et al., 2006). Change is perilous indeed, though a lack of it can sometimes be fatal.

Figure 2 depicts a conceptual model of the issues, obstacles, and opportunities that business schools are facing today. Administrators can thus view the marketing of their programs "as both a viable philosophy, and a strategy for developing [a higher education] sector" (Hemsley-Brown & Oplatka, 2006), a sector that will be producing graduates who need to tackle real-world problems while meeting the expectations and needs of its incoming members at the same time.

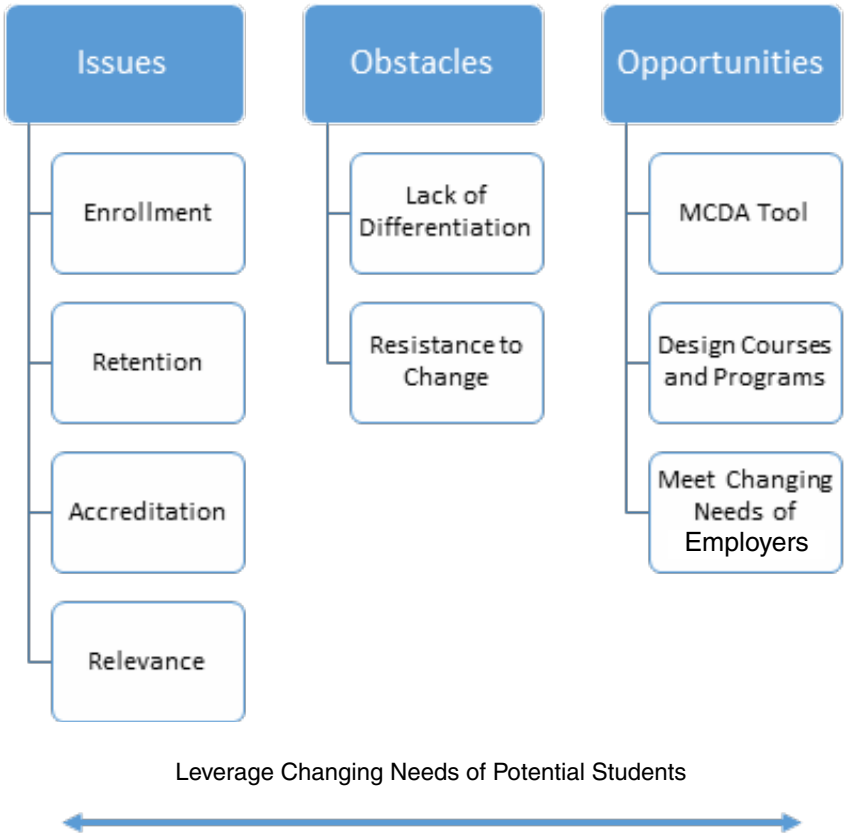

Figure 2: Issues, Obstacles, and Opportunities Faced by Business Schools

UNDERSTANDING WHAT STUDENTS WANT (CRITERIA)

We now review the research as to why a prospective graduate student chooses one HEI over another. Indeed, even with the limited claims of studies in this area (Chapman, 1986; Kallio, 1995; Montgomery, 2002; Blackburn, 2011; English, 2012), we have identified several essential criteria and methods used to identify such. A 2008 analysis of over 500 business school students in particular considered the following student selection criteria: availability of on-campus housing, availability of international studies, racial diversity of students, residential requirements of programs, class sizes, reputation of the staff, availability of financial aid, tuition, length of programs, and reviews and reputation of the institution (Ivy, 2008). We

used these same criteria as a foundation for this present study, drew from others in the literature, and conducted a qualitative interview.

We found a study on student selection by Webster, Hammond, and Rothwell (2010) along with another by Hammond and Webster (2011) that looked at the criteria students used in choosing an educational institution. Important insights from these studies include findings that marketing efforts focused on the students have the quickest and best payback for institutions of higher education and that institutions with a greater degree of marketing orientation perform at a higher level (Webster, Hammond, & Rothwell, 2010; Hammond & Webster, 2011).

In 2011, a study of 76 business students at the University of Queensland identified five key criteria: reputation of the university, quality of the facilities and academic standing of the institution, perception of students regarding available curricula and time required to complete the studies, perceptions of the campus and department, and students' perceptions of return on investment (Blackburn, 2011). Other similar studies have been conducted, the majority of which were quantitative using Likert scales. Researchers in a 2007 study, for instance, conducted telephone interviews with deans at 50 of the top graduate business schools in the United States (Christensen, Peirce, Hartman, Hoffman, & Carrier, 2007; Franceschini, Wang, & Cort, 2015; Hammond, Harmon, & Webster, 2007; Essary, 2011).

Traveling abroad for education is also not a new concept in a global economy. "Students have been traveling internationally to study in countries not their own [since] 600BC" (Gatfield & Chen, 2006: 78). The United States has been the leader in providing studies globally since the mid-1940s, with its education system being the country's second-largest export market. Increased competition for recruiting and retaining the best students is especially true, therefore, among HEIs in the United States (Chapman, 1981; Kallio, 1995; Padlee, Kamaruddin, & Baharun, 2010). Indeed, "as countries seek to gain [an] advantage of global optimisation of their share of international students, it will become increasingly important to engage in extensive consumer behaviour research" (Gatfield & Chen, 2006: 93).

One study in 1995 concluded that an institution's reputation and ranking make up the most critical criteria for students (Kallio, 1995). Any institution or organization is compared to its peers based on its performance and ability to provide value to

its consumers. Institutions of higher education need to provide their students with superior performance, which in turn encompasses the audience's perception of the institution as well as of the offerings they make. There is a strong correlation indeed between student satisfaction, reputation, and loyalty (Thomas, 2011).

We do not see any mention of sustainability, however, in these earlier studies. The emergence of sustainability and the growing importance of environmental management are more recent phenomena as reflected by what workers want to study (Net Impact, 2012; Gerard, 2014). Respondents in a global survey of students from top-ranked business schools said that they do not want to work for companies with bad environmental practices, that they consider environmental actions to be profitable and even note that environmental protection will improve economic growth and provide new jobs (Net Impact, 2012; Franceschini et al., 2015).

The choice of prospective students is influenced at first by factors that include their religious affiliations, gender, and parents' level of education (Chapman, 1986; Mullen, Goyette, & Soares, 2003). With a limited number of top-ranked schools, however, the focus eventually turns to differentiation. This is where we can see the creation of a list of search criteria for the multiple-criteria complex-decision making of students as well as the opportunity for coming up with decision analysis tools that enable business schools to understand the needs of their applicants better. Students typically want to be with others whose aptitude is similar to their own. Other criteria they consider are the distance from home, location of the HEI, facilities available on campus, tuition cost, average starting salary of graduates, and programs offered along with their availability (Chapman, 1981; Padlee et al., 2010; English, 2012). To attract prospective students, institutions must provide offerings that are competitive and meaningful for future employers especially given that students look for a HEI where their probabilities of success will be the greatest (Arnold, Chakravarty, & Balakrishnan, 1996; Montgomery & Ramus, 2011). Table 1 summarizes these critical factors along with those from other studies.

Criteria	Punj & Staelin, 1978	Chapman, 1981	Kallio, 1995	Christensen et al., 2007	Ivy, 2008	Padlee et al., 2010	Blackburn, 2011
On-Campus Housing					X	X	
International Studies					X		
Computer Labs					X		
Racial Diversity					X		
Residential Requirements					X		
Size of Classes	X				X		
Reputation of Staff	X				X	X	X
Ranking and Reviews	X				X	X	X
Financial Aid	X	X	X		X		
Cost & Tuition	X	X	X		X	X	
Length of Program					X		
Facilities							X
Employment Prospects			X				X
Syllabus							X
Offer Ethics				X			
Offer Sustainability				X			
Residency Status		X	X				
Academic Environment	X	X	X			X	
Social Environment		X	X			X	
Mentor Influence		X				X	
Location	X	X				X	

Table 1: Summary Criteria from Prior Studies

The question of a business degree's value has motivated HEIs to improve their business offerings so these can match more closely with current business needs (Sroufe & Ramos, 2011). To stay competitive, HEIs need to ensure the relevance of their strategies while changing their curricula, globalizing their programs, and

increasing their integration of environmental and social content to meet the needs of employers and applicants. "Putting globally responsible leadership in corporate responsibility at the heart of business school curricula will also present business schools with a rich opportunity to expand" (Cornuel, 2007: 91).

METHODOLOGY AND IMPORTANT CRITERIA

We have had limited success in finding research that quantifies the contemporary dynamics and selection criteria business students use in deciding which school best fits them and where they ultimately enroll. Schools could use the quantification of such criteria and of the order of priorities within them to devise strategic maps that align resource allocation more effectively with market demand.

This present study used a convenience sample based on the author's relationships with other educators at participating institutions, one that involved a cross-section of nine business schools across four states and two countries. The geographic dispersion of the participating institutions stretched from the west to the mid-west and eastern part of the U.S. and included two business schools from the U.K. These institutions, some of which were AACSB-accredited, were a mix of public and private entities and had varying enrollment sizes.

The relevance of various selection criteria was first assessed using a mixed-methods approach. The results were then used, in combination with the literature review and frequency of criteria listed in Table 1, to create a pairwise comparison that was calculated using Priority Bridge, a software program that modifies and builds upon the analytic hierarchy process (AHP) technique (T. L. Saaty, personal communication, June 12, 2014). It showed the order of importance of each criterion and the relationship between them.

The mixed-method design was broken down into two separate, workable projects to help ensure cohesiveness. The qualitative analysis focused on the perception of graduate business students to understand what criteria they were using when they selected the business school they had decided to attend as well as to determine each selection criterion's magnitude of influence. This method emphasized the experiences of the participants and their observations of events combined with their judgment.

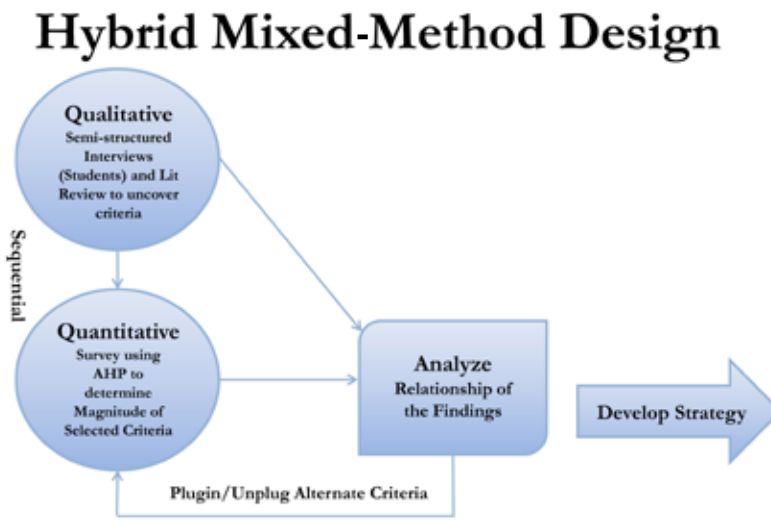

Figure 3: Hybrid Mixed-Methods Design

Figure 3 illustrates the hybrid, sequential mixed-methods design that was used in this study (Creswell & Plano Clark, 2018). Semi-structured qualitative interviews using open-ended questions were conducted to verify the relevant criteria business students used in selecting the HEI that they were currently attending. The criteria derived from this part of the research were then combined with those derived from prior studies as gathered from the literature review.

Respondents were currently enrolled business school students in the United States and the United Kingdom—the only characteristic that was necessary for them to possess the knowledge required for participation in the study. Other characteristics that were not considered for this study's purposes, such as the respondents' age, previous work experience, and other demographic information, can be the subject of future research. The interview protocol (see Appendix A) was pretested with four faculty colleagues—two involved in recruiting students and two graduate assistants—to help improve the instrument's face validity. Criteria collected from participant responses were coded within and across responses while checking for frequency and newness following a grounded theory approach (Creswell, 2009). The interviews were concluded once saturation was reached, i.e., when new criteria were no longer being gathered. This resulted in 27 criteria.

The criteria most often mentioned in the qualitative interviews were then combined with criteria derived from past studies (see Table 1) to create a grouping of current and relevant selection criteria. Table 2 shows this "master list" of 29 criteria as mentioned by respondents in the present qualitative analysis and in previous studies and which now includes sustainability in the curriculum (either through classes or as an entire curriculum integrating environmental and social sustainability), on campus (through green school attributes, solar and other renewables, recycling programs, and green buildings), and in general (integrating environmental, social, and financial practices to meet the needs of a current generation without compromising the ability of future generations to meet theirs). Based on these sustainability-related criteria, we found an overlap between curriculum and general sustainability while the sustainable campus was distinctive on its own. Students refer to "sustainability" as a criterion in choosing a program when it is integrated into course content or the curriculum, thereby challenging conventional thinking as to how we will use environmental, social, and financial business practices to meet the needs of current generations without compromising those in the future.

AACSB Accreditation	Alumni Networking
Average Class Size	Average Graduate Starting Salary
Distance from Home	Facilities on Campus
Faculty Research	Faculty Studies
Future Education Opportunities	Housing Costs
Intern Programs	Job Placement Assistance
Job Potential	Legacy
Location	Mentor's Recommendation
Program Availability	Program Length
Recruiters on Campus	Reputation
Research Capabilities	School Size
School Ranking	Sustainability
Sustainability in Curricula	Sustainable Campus
Total Costs	Tuition
Tuition Assistance	

Table 2: Interview Results on Criteria for Selecting a Business School

The top ten criteria from this list—those mentioned most often in the qualitative interviews (based on frequency of criteria within and across responses) and in the

literature review—were then selected for inclusion in the quantitative comparative analysis study (see Table 3).

Alumni Networking
Job Potential (Career Opportunities)
Total Costs (Cost)
Future Education Opportunities (Education Potential)
Legacy
Mentor's Recommendation
Program Length
Location
School Ranking (Rank)
Sustainability

Table 3: Top Ten Criteria Selected for Quantitative Comparative Analysis

The comparative judgment instrument used in this study questioned the importance of each criterion compared to all other criteria. This was done through AHP, which shed light on the interrelationships between various criteria by allotting a numerical position for each criterion, thereby reducing the complexity of multiple-criteria decisions (Montibeller & Franco, 2010). The questionnaire involved thus had 45 comparative questions that covered every combination of comparison among the ten criteria.

755 currently enrolled business school students completed the comparative judgment survey, which was conducted from September 2018 to February 2019. The comparative analysis method used allowed for ranking students' decision-making processes according to their order of importance. The Priority Bridge software program, which uses a modified version of AHP, was used to automate the analysis and quantify the results.

AHP is a proven multi-criteria decision-making method that can be applied to many types of decisions, from simplified individual choices to labyrinthine, resource-intensive concerns (Saaty & Vargas, 1985; Stein & Ahmad, 2009). It is also an excellent tool for measuring the various degrees of importance in the criteria used by consumers when selecting any product or service. In this present study, the criteria used by students in their choices for a business school were measured and evaluated (see a partial sample in Table 4). Indeed, one of the unique applications

in this use of the modified AHP is its diagnostic capacity to uncover an audience's authentic needs, which can then be used to develop more targeted programs and offerings that fit such needs.

	Alumni Network	Career Opportunities	Cost	Education Potential	Legacy	Length	Mentors	Location	Rank	Sustainability	Consistency Ratio
1	8.74	29.63	12.05	7.94	1.52	8.68	5.7	2.91	16.23	6.6	0.2146
2	4.42	19.25	9.27	4.2	1.88	11.56	13.79	12.1	12.82	10.6	0.1872
3	4.04	31.01	17.45	13.42	2.59	9.27	5.02	3.39	4.88	8.43	0.2609
4	22.38	1.27	1.73	6.95	20.48	13.32	8.16	10.76	2.34	12.6	0.316
5	14.22	1.04	8.86	15.99	5.65	11.29	23.41	3.63	1.53	14.4	0.3298
6	10.06	22.77	3.81	2.48	2.48	10.09	13.8	20.69	10	3.81	0.1585
7	7.09	27.31	11.88	7.25	8.22	4.9	5.28	1.69	22.19	4.19	0.3895
8	5.53	10.16	12.05	15.6	2.48	2.88	2.31	32.3	13.83	2.86	0.1102
9	8.35	17.93	8.11	13.2	4.56	5.51	17.16	16.24	6.01	2.94	0.2774
10	5.46	17.58	14.1	1.89	3.15	11.37	2.39	30.67	5.13	8.27	0.1658
11	2.83	8.27	10.77	2.57	4.21	13.12	27.29	27.29	2.03	1.61	0.2717
12	12.58	20.38	23.32	2.99	1.55	9.76	5.8	4.78	16.45	2.39	0.1608
13	7.85	30.28	15.17	3.5	3.35	8.1	3.06	7.89	17.11	3.69	0.1489
14	8.86	28.5	1.68	3.47	3.55	12.42	1.89	18.64	2.99	18.01	0.1604
15	1.14	17.89	1.96	3.29	1.22	7.29	1.39	5.99	17.9	41.92	0.2589
16	2.61	8.32	4.05	28.68	6.07	14.86	2.36	10.97	8.73	13.35	0.1881
17	2.63	12.68	1.05	0.99	1.32	7.7	14.68	20.5	14.75	23.7	0.3524
18	3.88	16.71	2.51	2.11	10.52	18.96	2.68	24.05	3.73	14.85	0.0662
19	2.5	33.57	1.06	20.46	3.39	13.75	1.59	7.45	7.17	9.06	0.2361
20	9.83	24.67	3.27	4.62	3.59	35.13	9.28	3.05	2.93	3.62	0.1073
21	10.08	19.45	4.29	3.13	3.45	23.19	2.82	8.32	4.18	20.28	0.1272
22	9.31	30.87	10.42	8.67	6.44	7.87	5.2	4.43	5.08	11.71	0.2068
23	7.02	21.55	2.99	3.29	3.88	15.73	3.55	2.83	8.96	30.2	0.0898
24	1.85	18.84	20.54	2.67	1.55	27.22	5.04	7.17	9.23	5.29	0.1804
25	4.78	14.56	5.79	1.66	2.26	15.49	2.09	16.43	13.16	23.77	0.1786

	Alumni Network	Career Opportunities	Cost	Education Potential	Legacy	Length	Mentors	Location	Rank	Sustainability	Consistency Ratio
26	12.09	13.25	16.36	1.6	2	7.73	3.65	5.02	2.91	34.59	0.3045
27	2.39	24.84	13.7	3.15	3.46	17.08	3.51	17.37	8.46	4.05	0.0523
28	3.05	19.77	2.17	2.26	17.34	31.91	2.36	8.64	9.96	2.52	0.0748
29	2.7	21.85	2.23	23.81	2.12	15.57	1.9	14.66	3.79	11.37	0.0985
30	1.77	22.75	27.5	1.9	3.07	18.53	3.58	11.23	5.57	4.07	0.1838
31	2.89	25.06	13.09	2.49	3.11	21.31	2.01	11.81	3.22	15.02	0.1166
32	2.63	19.47	23.61	1.45	1.59	16.24	1.45	21.04	8.93	3.6	0.0127
33	4.61	16.23	15.32	1.54	3.976	6.52	6.21	7.31	2.36	35.91	0.2048
34	3.97	15.15	3.55	2.08	9.59	42.29	7.47	7.91	4.83	3.08	0.2411
35	5.71	18.94	19.2	2.38	6.19	17.56	3.07	19.12	4.38	3.43	0.0368
36	3.24	9.67	3.06	5.44	1.28	40.18	7.67	16.34	2.79	10.33	0.3281
37	3.48	14.73	2.89	3.68	7.19	10.4	36.18	6.38	8.69	6.38	0.2232
38	3.51	17	15.29	5.36	2	16.43	1.91	3.35	6.77	28.38	0.0589
39	3.95	18.27	13.15	1.67	4.82	6.57	1.36	1.92	10.72	37.56	0.1775
40	2.74	14.93	1.95	1.96	5.9	32.71	4.92	15.19	13.11	6.59	0.1028
41	5.11	31.2	2.36	3.21	4.7	20.89	10.63	8.56	4.53	8.8	0.1583
42	7.52	20.47	2.23	3.72	2.27	29.49	2.39	10.33	10.09	11.49	0.121
43	3.89	35.11	12.65	3.14	8.66	8.05	4.45	7.18	10.98	5.89	0.1563
44	3.6	21.8	10.26	2.03	2.14	21.08	2.33	23.77	7.42	5.58	0.0624
High	22.38	35.11	23.61	28.68	20.48	40.18	36.18	30.67	22.19	41.92	CR = .0072
Low	1.14	1.04	1.06	0.99	1.22	4.9	1.36	1.69	1.53	1.61	
Weight	5.73	5.73	8.11	5.04	4.52	17.25	5.81	11.82	8.73	11.01	
Std Dev	4.1566	7.8364	7.1186	8.3416	3.9311	9.5444	7.3525	8.0248	5.0616	10.752	
Mean	5.873	19.6586	9.2898	5.7702	4.5629	15.9225	6.6543	11.8477	8.1561	12.1998	

Table 4: Partial Sample Matrix of Respondents' Values

OUTCOMES AND OPPORTUNITIES

The total matrix of pairwise comparisons, which was derived from 755 completed surveys, had a consistency ratio of 0.0072, well below the generally accepted 0.01 threshold. We thus concluded that the data was reliable, useful, and of good quality.

Future Career Opportunity	29.47	Schools Ranking	6.86
Cost	16.03	Alumni Networking	5.72
Future Education	12.17	Length of Program	5.41
Location	8.37	Sustainability	4.49
Mentor Recommendation	7.19	Legacy	4.29

Table 5: Top Ten Selection Criteria Based on Order of Priorities

Table 5 ranks the top ten selection criteria according to their magnitude of importance. All ten add up to 100% of the decision on which business school to attend, with the top three resulting in a combined priority of 57.67%. The top five responses equate to a priority of 73.23%. Such information is important for resource allocation decisions especially for institutions that have limited capital. Indeed, the various priorities of importance in the decision-making process of students reveal some significant differences. According to this sample from nine different schools, for instance, the ability of an institution to provide graduates with future career opportunities is almost twice as important as the cost of attending the school.

Two of the criteria listed here would not have been on any similar list 20 years ago. Only a few graduate business schools at the turn of the century were offering degrees combined with a short program, an important criterion in this present study albeit one overshadowed significantly by future career opportunities. Sustainability, while more common today compared to when a similar study was done at Carnegie Mellon University in 1978, is still not widely thought of either in business or in education.

The relevance of this study for HEIs is in the use of the AHP method, measures of authenticity and legitimation that it allows, and strategies for resource allocation, overcoming inertia and time constraints, and competitive advantage marketing that it supports. The significance of this use of AHP as a diagnostic tool was demonstrated well in this project, adding to its reliability in MCDA. The same type of approach can be used for projects in other schools that are trying to gain a better scope

of consumers' perceptions. Indeed, the niche of a HEI should be attuned closely with the needs of its audience and with all its stakeholders. If prospective students expect that an institution will best prepare them for future job opportunities, that institution's niche needs to reflect as much. Having better insights into the perceptions of consumers will also allow for the improved allocation of resources. Given that the human and economic capital of most organizations, including many institutions of higher education, is limited, such must be expended in the most advantageous ways possible. To this end, we find that sustainability today is not only in the consciousness of applicants but also an opportunity for further development, differentiation, and niche alignment.

Given that program length and sustainability, which are among the priorities that today's prospective students look at, would not have been on any type of list ten years ago also shows that time changes perceptions about what is essential. Thus, while change may be difficult, a failure to overcome inertia will nevertheless increase mortality rates for those institutions that do not follow the evolving needs of students. All the criteria listed here, including but not limited to sustainability, need to have an impact on the marketing strategies of higher education institutions. The better they understand their audience's needs, the more closely attuned their strategy will be, and hence the more likely the institution will survive hard times and be successful.

The insights derived from the results of this study may be summarized as follows:

- Prospective students place the greatest priority in a school's ability to help them get the jobs they want.
- Prospective students want to complete the program as quickly as possible but not at the expense of job opportunities.
- The location of the HEI is of great importance.
- It is now possible that sustainability is an essential program element. It could rise in the order of priorities if it is used for program differentiation or niche alignment.

- Business schools need to conduct this type of research on their actual and/or prospective student populations. Doing so will help them determine the best match and allocation of resources and augment current administrative tools. It can also help identify opportunities for curriculum changes as well as improve alignment with applicants and a global marketplace that value sustainable business practices.

DISCUSSION

While it does cover broad aspects, the purpose of this study is to highlight its findings on sustainability and get management for global sustainability on the radar of university administrators and scholars, particularly as a way to see the interconnected issues that encompass, but are not limited to, the alignment of business programs with the needs of students and the marketplace. We do this by exploring how to determine the criteria students use in their selection process and then quantifying those selection criteria. The value of this study is also evident in its use of a mixed-methods research approach, where students' selection criteria, along with the order of priorities among such, can be both qualified and quantified.

Through a greater understanding of candidates' priorities in choosing between graduate business schools, institutions will be able to design programs that more closely match the needs and wants of potential students. We see this as leading to more positive enrollment and retention metrics. More efficient resource allocation can also help schools to produce offerings that include sustainability as well as improve the results of both potential candidates and students who will finally be exposed to elements of sustainability that include, but are not limited to, the U.N. SDGs.

There is something innately paradoxical about the top four criteria showing a desire from students to be educated in those skills that modern international businesses are currently seeking while business schools, for the most part, continue to produce graduates in the same manner that they have been doing so for the last half-a-century. It has been observed that only a few institutions incorporate these skills, which include sustainability and responsible leadership, into their curricula (Laszlo, Sroufe, & Waddock, 2017). Indeed, a study conducted in 2009 found that

most AACSB-accredited universities did not even include relevant coursework in their programs (Rubin & Dierdorff, 2011). The marketplace is changing, and so are applicants to business schools. Both this study and others show interest in the importance of responsible business management and of students calling for businesses and business schools to integrate sustainability so they can attract and retain talent (U.N. PRME; see Net Impact, 2012; Franceschini et al., 2015).

Graduates who can visualize the bonds between career opportunities, costs, rankings, networks, and environmental and social factors will produce more resilient businesses that are ready for an uncertain future. The results of this study show that students are looking for educational environments that will help them develop the mental attributes required for addressing issues of sustainable business practice as previously outlined by Sroufe, Sivasubramaniam, Ramos, and Saiia (2014). Business school programs can use these results to enhance and sustain student loyalty as well as generate differentiators that are essential for creating a good brand (Gopalan et al., 2008).

The results of this study also point to an increased desire for knowledge about return on investment and career opportunities. Students need skills for creating relationships with multiple networks so they can suggest changes in the marketplace that have the potential to become a reality (Elmes, Jiusto, Whiteman, Hersh, & Guthey, 2012).

Business programs need to change, yet changing curricula is very difficult (Hannan et al., 2006). Research results similar to those in this study can be used to help minimize resistance to change as well as enhance communication about the growing importance of sustainability. Given that students are calling for more sustainability and not less of it from businesses and universities, it is time for HEIs to catch up with these trends—or get out in front of them—through innovative programs that equip students with the skills to meet the grand challenges of our era.

Business schools are strongly advised, then, given that this mixed-methods study shows promise for an improved understanding of stakeholders and of the HEI marketplace, to consider utilizing similar methods. HEIs need to continue improving their market orientation in a more resilient manner so they can improve how they respond to and communicate with stakeholders both inside and outside the institution.

LIMITATIONS AND OPPORTUNITIES FOR FUTURE RESEARCH

The limitations of the qualitative portion of the research stem from open-ended questions and a limited sample. While results were cross-checked to minimize any bias that may have affected the coding of the transcripts, it is difficult to eliminate bias completely in a qualitative study. The small number of schools in the sample was also a limitation, as was their geographical coverage, which focused mainly on institutions in the U.S. and U.K. We assume that criteria for students in different parts of these countries or in other countries entirely will vary.

The study also did not differentiate between the individual characteristics of each institution such as its size, whether it was public or private, whether it had any religious affiliations, or its ranking and reputation. We also did not differentiate between respondents based on age, sex, previous work experience, nationality, or any type of demographic information. Such information was nevertheless collected, however, should any future studies wish to find additional meaning in the differences between subgroup responses.

Future research using this methodology can either replicate previous studies to prove or disprove prior assumptions or glean insights into new and emerging criteria such as the sustainability elements found in the 17 U.N. SDGs. Post-pandemic studies can help reveal how the needs of students change over time and which criteria emerge as more critical in the future. Teaching institutions can also replicate the present research, which may prove to be a useful tool for better allocation of finite resources to meet diverse stakeholders' needs. It can be a challenge as well for accreditation organizations such as the AACSB and student groups such as Net Impact to help in conducting data collection so emerging issues that should be part of the business school curriculum can be identified. Business schools that use these methods in their recruitment processes will be able to uncover new and emerging criteria, measure its magnitude of importance, and design their strategy to meet the changing needs of customers.

CONCLUSIONS

Business school graduates can either add value to or take it away from society. To succeed in the environments that they face, higher education institutions must improve on their ability to provide what customers want and stop doing business as usual within a neoliberal paradigm of economics (Waddock, 2020). Indeed, we have even hinted at the increased probabilities of extinction for some business schools as a motivator for change.

The criteria uncovered in this study show that business schools have an opportunity to develop and design innovative courses along with their curricula and do not have to restrict themselves to a myopic focus on neoliberal economics. New offerings can align with career opportunities that help eliminate poverty and hunger (SDG 1 and 2). These can provide learning about business models that contribute to good health and well-being (SDG 3) as part of high-quality education (SDG 4) from HEIs that are recommended by mentors and others to potential business school applicants. We can also envision programs that teach about and enable gender equality and a reduction in overall inequalities (SDG 5 and 10). The business of business schools—if we may use a Milton Friedman-esque play on words—can be the moulding of graduates that have the skills necessary for developing affordable and clean energy (SDG 7); promoting decent work and economic growth (SDG 8) as well as industry, innovation, and infrastructure (SDG 9); building sustainable cities and whole communities (SDG 11) that practice responsible consumption and production (SDG 12); and establishing peace, justice, and strong institutions (SDG 16). These goals are at the heart of evolving business school rankings, AACSB accreditation requirements, and what some specialized programs as signatories to the U.N. PRME have already been attempting. New opportunities for the management of global sustainability also include working toward the goals for clean water and sanitation (SDG 6), climate action (SDG 13), and life below water (SDG 14) and on land (SDG 15) as well as on partnerships for the SDGs (SDG 17). There are now opportunities to reinvent "business as usual," enable business school graduates to become part of resilient enterprises that contribute to achieving global sustainability, and create socially just ways for all species to thrive forever. It will be an excellent legacy to work for and achieve.

The collection, understanding, and communication of future business school students' essential criteria are vital to any program. Implementing a dynamic tool

using robust data and information to help collect and respond to the changing nature of stakeholders' needs will ensure program longevity (Parvu & Ipate, 2012). Nevertheless, adjusting courses, content, and program offerings will be a fundamental challenge for all schools (Paraschivescu & Radu, 2011). This study's findings highlight the importance of having relevant content experts who understand and can integrate global sustainability into curriculum, rankings, branding efforts, and career matching after graduation.

We have thus contributed both a methodology and a basis for a better understanding of the criteria prospective students use to choose graduate business schools, the most crucial of which are future career opportunities and newly emerging ones, particularly sustainability. This approach can augment our understanding of these criteria and their importance to the decision-making process while enabling informed strategies for enrollment, retention, accreditation, and program relevance. It can provide not only data to help overcome a lack of differentiation and resistance to change but also the ability to address global sustainability issues in the design of courses, programs, and pedagogy. It will be ideal, therefore, for course and program development to meet the changing needs of global sustainability and future business students.

Graduate School:
Code:
Background Information:
A1: What is your name?
A2: Are you registered as an in-state or an out-of-state student?
A3: Are you registered in the full-time, part-time, or executive program?
A4: How long was your previous work experience?
A5: What was your GMAT score?
A6: What was your undergraduate GPA?
A7: Where was your undergraduate degree earned?
A8: What was your undergraduate major?
A9: What is the amount of total annual loans you are taking for school?
A10: What is the total amount in fellowships and grants that you are receiving?

Interview Questions: The following questions are designed to find out what was important to you in choosing a program.
1: Why are you pursuing an MBA?
2: What other institutions did you apply to?
3: What stood out to you about those other institutions?
4: What influenced your decision to attend (Insert Institution Name here) with the major influence first?

Appendix A: Interview Protocol

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Journal of Management for Global Sustainability Volume 8, Issue 2 (2020): 133–156

DOI: 10.13185/JM2020.08206

FEEDBACK-GUIDED ANALYSIS AS AN APPROACH TO MANAGING SUSTAINABILITY IN ASEAN COUNTRIES

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ABSTRACT

Innovation has been at the center of most science policies of the ASEAN countries, driven as they are by a greater concern for the competitive advantages that can come from science and technology. Related to these policies, although often treated separately, are policies on the environment and environmental education. What is missing, however, is a more comprehensive view of how both science and environmental policies influence and are influenced by the culture and well-being of the people in a particular country. This study attempts to fill in the blanks through feedback-guided analysis, particularly by using a cultural adaptation template introduced by Newell and Proust (2017b). It studies four subsystems and seven links, and shows how ASEAN science and environment policies, cultural paradigms, the state of ecosystems, and human health and well-being affect each other directly or indirectly. The cultural adaptation template indicates the need for a systems-thinking approach in managing innovation or the implementation of policy to ensure that well-meaning initiatives may not lead to unintended consequences.

KEYWORDS

cultural adaptation template; feedback-guided analysis;
ASEAN science and environmental policies; ASEAN cultural paradigms; systems-thinking

Submitted 12/5/19 | Accepted 11/13/20 | Published 12/31/20

INTRODUCTION

The science policies of ASEAN countries, driven by a greater concern for the competitive advantages that can come from science and technology, are often associated with innovation (Ambashi, 2018; Damuri, Aswicahyono, & Christian, 2018; Narayanan & Yew-Wah, 2018; Quimba, Albert, & Llanto, 2018; Lim, 2018; Rattanakhamfu & Tangkitvanich, 2018; Vo, Nguyen, & Dinh, 2018; KOICA & KISTEP, 2013). Policies on the environment and environmental education, despite being related to policies on science, are often treated separately (Anbumozhi & Kojima, 2019; Tay & Tijaja, 2017; Mokthsim & Salleh, 2014; Chandran, Gunawardena, & Castro, 2017; Socialist Republic of Viet Nam, 2012, among others). Yet what Lim (2018) says about successful innovation can also be said about what is needed to make both these science and environment policies effective, i.e., it "requires a complex ecosystem of effective institutions, laws, rules, and regulations that are managed by able and effective public officials and strongly supported by the private sector" (p. 213).

Faced with numerous concerns that promote the priorities of segmented offices, the challenge for policymakers and those implementing such policies in ASEAN countries is to understand the big picture, achieve the health and well-being of the population, and improve the state of the ecosystem. This study will attempt to describe this picture and show how a systems-thinking approach in managing innovation or implementing policy may help ensure that unintended negative consequences are avoided. It uses examples from the ten countries that make up ASEAN (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam) given a number of commonalities between their science and environmental policies. Most of the ASEAN countries, moreover, have similar natural resources, weather patterns, and geologic profiles which may lead to similar sustainability concerns.

There has also been some growth of interest in ecological education, an extended form of environmental education which, in practice, has focused on the knowledge of and methodologies for studying environmental problems to develop a citizenry that can make wise choices regarding the impact of anthropological activities. Ecological education involves

> examining and altering fundamental cultural beliefs and practices that are contributing to the degradation of the planet's natural systems … [and]

> connotes an emphasis on the inescapable embeddedness of human beings in natural settings and [on] the responsibilities that arise from this relationship. (Smith & Williams, 1999)

Ecological culture, along with the beliefs and practices embedded in our lifestyles, may thus influence the future of global sustainability. It refers to the way human beings conduct themselves in the natural environment as a result of "knowledge, norms, [and] stereotypes," and recognizes the tension between the needs of society and the need for nature to preserve its systems and stability (Ridei, Rybalko, Kycherenko, Palamarchuk, & Shofolov, 2013). It is "seen as the highest expression of human environmental education and environmental competence" (Ignatov, 2011, as cited in Elena, 2015).

Ecological culture is a complex concept as there are many systems, factors, and links needed to describe its feedback mechanisms. Aspects of feedback-guided analysis (Newell & Proust, 2017a) will help show how feedback systems can help in the present study, which uses the cultural adaptation template introduced by Dyball and Newell (2015) as applied to the "culture-driven evolution of social-ecological systems." Concepts in each subsystem of this template find correspondence in equivalent systems of ASEAN countries.

THE SUBSYSTEMS

The four subsystems that affect each other in this model are the ASEAN Science and Environmental Policies, ASEAN Cultural Paradigms, State of the ASEAN Ecosystem, and the State of Human Health & Well-Being (Figure 1). These are analogous to the States of Community, Cultural Paradigms, Ecosystem, and Human Health & Well-Being in the original cultural adaptation template (Dyball & Newell, 2015; Newell & Proust, 2017b).

Figure 1 consists of four subsystems and seven links. The four subsystems are the

- ASEAN Cultural Paradigms—the shared worldviews of ASEAN countries (both as individuals and as a collective),
- ASEAN Science and Environmental Policies—the set of rules governing the promotion of science and environmental activities,

- State of Human Health & Well-Being—the general state of health and well-being of the ASEAN population, and
- State of the ASEAN Ecosystem—includes lands and seas as well as human activities and hazardous events.

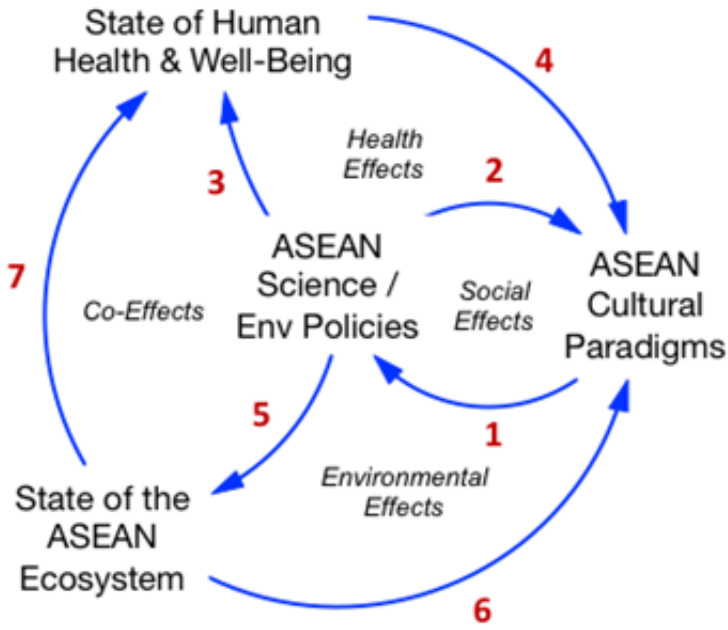

Figure 1: Variation of the Cultural Adaptation Template as Applied to the ASEAN Paradigm (adapted from Newell & Proust [2017b] and Dyball & Newell [2015])

The seven links are the influences of

1) ASEAN cultures and worldviews on ASEAN science and environmental policies,
2) ASEAN science and environmental policies on ASEAN cultures and worldviews,
3) ASEAN science and environmental policies on the state of health and well-being of ASEAN populations,
4) the state of health and well-being of ASEAN populations on ASEAN cultures and worldviews,

5) ASEAN science and environmental policies on the state of the ASEAN ecosystem,

6) the state of the ASEAN ecosystem on ASEAN cultures and worldviews, and

7) the state of the ASEAN ecosystem on the state of health and well-being of ASEAN populations.

ASEAN Science and Environmental Policies

The ASEAN Science and Environmental Policies subsystem refers to the ASEAN's and its member countries' policies on science, the environment, and environmental education. These are the regulations that guide the formal institutions within ASEAN. Each country's policies, however, will have a stronger influence within its own borders as ASEAN is a loosely organized network that has no real support for the implementation (or sanctions for the non-implementation) of any individual member's policies.

While most of the policies of member countries are, in general, aligned with the ASEAN, there may be differences in implementation, such as with policies related to contested areas currently being occupied by China. This study, however, will focus on science policies that are heavily biased toward science, technology, and innovation (STI) given that the general direction of most ASEAN countries is to try and be more competitive economically (Bryne & Parwell, 1996, as cited in Rigg, 2003). Such initiatives have been criticized for using a top-down approach, requiring more effective implementation, and lacking in support funding (Damuri et al., 2018; Narayanan & Yew-Wah, 2018).

ASEAN Cultural Paradigms

The subsystem of ASEAN Cultural Paradigms, which can affect practices in resource use and waste management, refers to shared worldviews of ASEAN countries such as knowledge, mental models, beliefs, values, traditions, practices, and priorities, including those involving their relationship with nature. The GLOBE study (House, Hanges, Javidan, Dorfman, & Gupta, 2004) found that Asian cultures are of two types, namely, the South Asian, which are characterized by strong family ties and deep concern for their communities, and the Confucian Asian, which are

observed to be result-driven and tend to put more value on the group working together rather than on individual goals. Both cultures also reflect the importance of family obligations.

Some values observed in Asian families, such as wealth or materialism (Liao & Wang, 2017) and commitment to family (House et al., 2004), may be practiced differently in rural and urban populations due to varying contexts. Migration across these areas is also prevalent (Kelly, 2011) due mostly to the perceived potential for greater prosperity in cities or lesser quality of life in rural provinces. While such migration highlights and meets short-term family needs or improved business productivity, it could affect environmental sustainability over the long-term. ASEAN countries (except for Singapore) tend to have a mixture of both urban and rural populations (see Table 1) which could shift in the next years as cities grow and require more land conversion, e.g., from agricultural land to industrial, commercial, and residential properties. This may also bring about a shift in the cultural paradigms that differentiate rural and urban populations.

		% Rural Population (2018)	% Urban Population (2018)
1	Brunei Darussalam	22.371	77.629
2	Cambodia	76.612	23.388
3	Indonesia	44.675	55.325
4	Lao PDR	64.996	35.004
5	Malaysia	23.964	76.036
6	Myanmar	69.421	30.579
7	Philippines	53.093	46.907
8	Singapore	0	100
9	Thailand	50.051	49.949
10	Viet Nam	64.081	35.919

Table 1: Percentage of Rural and Urban Populations in the ASEAN (World Bank, n.d.)

The State of the ASEAN Ecosystem

The State of the ASEAN Ecosystem is the subsystem that describes the environment, which includes both the ASEAN's rich biodiversity as well as its exposure to hazards brought about by climate change, extreme weather, geohazards from the Pacific Ring of Fire, and anthropological activities such as swidden

agriculture, geopolitical tensions, and development from land reclamation, among others. Southeast Asian countries are also among the most frequently hit by tropical cyclones, tropical depressions, and earthquakes (Tan & Fang, 2018; USGS, 2016).

The need to take resources from and dump waste into the natural environment for the sake of convenience and competitive advantage often clashes with the need to preserve it for future generations. Indeed, the actions of ASEAN countries in tapping their rich biodiversity for ecotourism and other economic activities have threatened various animal and plant species (Table 2) due to increases in market demand and other indirect factors like land conversion and climate change.

		Number of Threatened Species		
		Birds	Fishes	(Higher) Plant
1	Brunei Darussalam	31	14	127
2	Cambodia	31	48	37
3	Indonesia	160	166	458
4	Lao PDR	29	55	56
5	Malaysia	63	87	727
6	Myanmar	56	53	61
7	Philippines	93	91	254
8	Singapore	22	29	62
9	Thailand	62	106	159
10	Viet Nam	52	83	231

Table 2: Number of Threatened ASEAN Bird, Fish, and Higher Plant Species as of 2018 (World Bank, n.d.)

The effects of changing lifestyles due to urbanization in Asia are also very evident given high rates of mismanaged plastic waste (Table 3), with ASEAN countries contributing almost 28% of the worldwide total (almost the same as China's contribution).

		Million metric tons/year	%age of mismanaged plastic waste
1	China	8.89	27.7
2	Indonesia*	3.22	10.1
3	Philippines*	1.88	5.9
4	Vietnam*	1.83	5.8

		Million metric tons/year	%age of mismanaged plastic waste
5	Sri Lanka	1.59	5.0
6	Thailand*	1.03	3.2
7	Egypt	0.97	3.0
8	Malaysia*	0.94	2.9
9	Nigeria	0.85	2.7
10	Bangladesh	0.79	2.5
	*ASEAN component	8.90	27.9

Table 3: Top Ten Countries with Mismanaged Plastic Waste (Jambeck et al., 2015)

The State of Human Health & Well-Being

While the description of the State of Human Health & Well-Being subsystem includes the usual variables that are correlated with value fulfillment, such as physiological, psychological, happiness, and security factors, it also includes serious concerns.

Poverty remains to be a major challenge given that access to resources is necessary for achieving health and well-being. There is still a big poverty gap in many ASEAN countries; indeed, not all of them have found the right formula for inclusive development and prosperity. Most ASEAN countries still have populations that are living in poverty (except for Brunei and Singapore), undernourished (except for Singapore), and with underweight children below five years old (Table 4). These last two factors—undernourishment and the prevalence of underweight children below five years old—indicate a lack of proper physiological, psychological, and mental development that translates into a poor state of health and well-being, especially for the long-term.

The state of health and well-being is also threatened by conditions of the ecosystem such as air and water quality and the presence of vector-borne diseases (Table 5).

		Poverty headcount ratio at national poverty lines (% of population)		Prevalence of undernourishment (% of population)		Prevalence of underweight, weight for age (% of children under 5)	
1	Brunei Darussalam	none		3.2	2017	9.6	2009
2	Cambodia	17.7	2012	16.4	2017	23.9	2014
3	Indonesia	9.8	2018	8.3	2017	19.9	2013
4	Lao PDR	23.4	2012	16.5	2017	26.5	2011
5	Malaysia	0.4	2015	2.5	2017	18.9	2016
6	Myanmar	32.1	2015	10.6	2017	13.7	2016
7	Philippines	21.6	2015	13.3	2017	21.5	2015
8	Singapore	none		none	2017	3.3	2000
9	Thailand	8.6	2016	7.8	2017	6.7	2016
10	Viet Nam	9.8	2016	9.3	2017	14.1	2015

Table 4: ASEAN Poverty Headcount, Undernourishment, and Underweight Children Under 5 (as a percentage of the population [World Bank, n.d.])

		Deaths caused by non-communicable diseases (% of total, 2016)	Deaths caused by communicable diseases due to maternal and prenatal nutrition conditions (% of total, 2016)	Population exposed to PM2.5 air pollution levels exceeding WHO guideline value (% of total, 2017)
1	Brunei Darussalam	84.8	7.8	0
2	Cambodia	64.4	25.6	100
3	Indonesia	73.3	20.7	95.6
4	Lao PDR	59.6	31.4	100
5	Malaysia	73.6	17.5	90.5
6	Myanmar	67.8	23.6	100
7	Philippines	67.3	25.2	96.4
8	Singapore	73.6	22.7	100
9	Thailand	74.0	15.8	100
10	Viet Nam	77.2	11.5	100

Table 5: Death and Diseases (as a percentage of the population [World Bank, n.d.])

THE LINKS

Each of the seven links (indicated by arrows in Figure 1) signifies different processes and describes how one subsystem influences another. The first link (L1) describes how the cultures and worldviews of ASEAN countries influence the way their science and environmental policies are developed. As mentioned earlier, these mental models, beliefs, values, traditions, practices, and priorities influence policymaking as those who make policy are also familiar with these worldviews. ASEAN countries, for example, prioritize wealth linked to economic security and competitiveness. How, then, does this affect the choices of institutions or peoples when there are decisions to be made between long-term environmental sustainability and short-term needs that highlight concerns for family or improved business results? Greater awareness, therefore, from the ecological education of populations will eventually make it possible for people to develop lifestyles that promote social and environmental good and internalize such into their value systems.

The second link (L2), on the other hand, shows how insights from science and environmental policies and their implementation affect worldviews. As mentioned in the opening statement, policies reinforce the need to be innovative, which could encourage people to go into activities that support innovation and push them to achieve prosperity.

The third link (L3) is about how the implementation of science and environmental policies and related human actions can lead to improved human health and well-being. Most ASEAN countries have policies that push for economic security and competitiveness that have led to improved GDP as well as value fulfillment for the middle and upper classes in terms of wealth and security. Yet these same policies can contribute to the gap between the haves and the have-nots in countries where there is inequitable distribution. Policies that favor economic growth, for example, tend to allow companies to keep wages low, maintain poor working environments, and violate human rights (Rigg, 2003).

The fourth link (L4) looks into how the state of human health and well-being in the ASEAN affects worldviews and cultures. A good state of health and well-being, on the one hand, affords people a chance to think about how to contribute to an ecological culture without worrying about fighting for survival against poverty, disease, or both. On the other hand, those in a poor state of health and well-being

tend to reinforce the prioritization of wealth and health in their value system, albeit more as a reaction to their situation. This can be a reinforcing loop that will have negative effects on the environment, particularly in the absence of factors like ecological education which can show how the environment also factors into human health and well-being. Increasing urbanization in Southeast Asia and the perception that life is better in the city, for instance, have led to the phenomenon of migration, including rural to urban migration (Kelly, 2011).

The fifth link (L5) is about how the implementation of science and environmental policies and related human actions can affect the ASEAN ecosystem. Here there is some tension between the implementation of STI policies that favor economic growth vis-á-vis environmental policies that preserve states of biodiversity, improve air and water quality, and help in climate change mitigation. Bryne and Parwell (1996, as cited in Rigg, 2003) observed that in this region, "perhaps more than anywhere else in the developing world, the contradictions between environment and development, economic growth and environmental conservation, are visible." A case in point was made by Hart-Landsberg and Burkett (1998, as cited in Rigg, 2003), who observed that "the 'central contradiction' in export-led growth is revealed in Thailand's environmental destruction." According to Rigg (2003), the effects of policies that push for innovation, economic competitiveness, and consumer-led economic growth also tend to lead to a "culture of consumerism, individualism, greed, and acquisitiveness replacing local traits that stress community action, consensus, [and] moderation." The transboundary nature of environmental concerns, moreover, should also be considered in the development of ASEAN environmental policies. The "ASEAN Way," which refers to member states respecting each other's sovereignty through the principle of non-interference, is not without criticism as it has resulted in a lack of sanctions for non-compliance (Aggarwal & Chow, 2010, as cited in Pramudianto, 2018); indeed, Koh and Robinson (2002, as cited in Pramudianto, 2018) stated that this is observed "at the cost of the environment." Nevertheless, there have been some agreements translated into country policies that highlight the importance of sustainable development (Pramudianto, 2018).

The sixth link (L6), which is about how the state of the ASEAN ecosystem affects worldviews and cultures, probably requires more time for experiential learning. A level of awareness that can actually move populations to shift their practices and priorities is needed, particularly with the help of mediators like a well-thought-out

ecological education program and information and communication strategies that explicitly articulate the connection between culture, lifestyle, and the state of the ecosystem. ASEAN populations have at different points in time experienced extreme weather events, the mismanagement of plastic waste in Asian rivers that ended up in the seas of the region (Schmidt, Krauth, & Wagner, 2017), the loss of biodiversity that affected fishing and farming (IUCN, 2018), and deteriorating air quality due to haze and vehicle emissions, among others. Through proper learning and reflection, these experiences can influence culture and mindsets in favor of the environment.

The final link (L7) looks into how changes in the ASEAN ecosystem affect human health and well-being. The beauty of the ASEAN environment in and of itself can promote human health and well-being, and yet appreciation for it is often at the mercy of players who want to exploit its resources without any long-term view in mind. In the case of Indonesia, for example, Damuri, Aswicahyono, and Christian (2018) wrote that the country's "economic growth has been driven primarily by natural resources and trade rather than by science and innovation."

A proper study of these links and subsystems can thus show that feedback mechanisms may actually lead to undesirable consequences. Science policies that promote STI, for example, particularly the commercialization of new technologies such as for locally-manufactured automobiles, would reinforce national pride (L2) which could, in turn, push the development and implementation of said policies even further (L1). The two links would thus constitute a reinforcing loop.

Policies also influence the state of human health and well-being as well as the state of the ecosystem, e.g., a policy could provide livelihood and improve the quality of people's lives (L3) but while also encouraging production processes that not only depend heavily on resources like metal, fossil fuel, water, and other materials from the environment but also produce carbon emissions and other pollutants (L5). This would lead to negative effects on the ecosystem, such as poor air quality and the urban heat island effect, which would, in turn, compromise the well-being of the population (L7). L5 and L7, at least in this case, would thus have opposite effects on health and well-being.

The way people perceive the state of their health and well-being may depend as well on their own experience and exposure to the situation. Some, for example, may tend to overlook the negative health effects produced by their livelihoods if the

latter meet their basic economic needs. Those who get sick, on the other hand, such as from exposure to pollution, may eventually value health more. Either way, they reinforce the cultural paradigms of health and wealth, albeit according to different priorities (L4). People may learn, therefore, to include the ecosystem in their cultural paradigm if they can connect it with the situations they experience (L6). This, in turn, could put pressure on the implementation of environmental policies even as those for STI are continued (L1).

APPLICATIONS OF THE CULTURAL ADAPTATION TEMPLATE

One application of this template is in the promotion of innovation in automotive-related industries. The traditional Asian value of wealth, which can be translated into prosperity, has driven science policies to focus on means for attaining prosperity (L1), such as the push for innovation that can be commercialized. Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam have all invested in research and development as well as in commercial initiatives to varying degrees, ranging from tax incentives in Indonesia to government-linked businesses in Malaysia, public funding for innovation in Thailand, and skills development in the Philippines and Viet Nam (Anbumozhi & Intal, 2015; ADB & Ministry of Finance Republic of Indonesia, 2020; Wad & Govindaraju, 2011; UNCTAD, 2015; Truong & Nguyen, 2011). Such incentives in turn reinforce the traditional values of wealth and prosperity (L2).

The growth of the automotive industry, particularly in Malaysia, Thailand, and Indonesia, has led to employment and economic growth (L3), which in turn have reinforced the aforementioned traditional values (L4). This industry, however, changes the state of the ecosystem by its very nature, e.g., through the extraction of natural resources (metal, petroleum, rubber); emissions from the processing of these resources and increased vehicular traffic; and increases in water usage and carbon footprints (L5). Such changes in the state of the ecosystem could influence cultures and worldviews, albeit over a longer time frame, when people eventually see the destruction of natural resources that are part of the pride and heritage of their countries (L6). There are short-term effects as well, such as on peoples' health and well-being as indicated by the less than satisfactory air quality in most ASEAN cities and the rise of respiratory diseases (L7). The population's awareness of these

health repercussions can therefore increase the value it places on health as part of society's cultural paradigm (L4).

We thus observe two competing effects coming from the impacts of ASEAN policies and the state of the ASEAN ecosystem on the state of human health and well-being. Other competing effects come from the various influences ASEAN policies, the state of health and well-being, and the state of the ASEAN ecosystem have on the ASEAN cultural paradigm.

Depending on which impacts affect the population the most, the state of the cultural paradigm can affect science and environmental policies once again (L1). This is confirmed by various laws and administrative regulations that address traffic, pollution, and disaster resiliency. Such an altered state of events may also get the government to push for policies that support environment-friendly technology. In the case of Thailand and Indonesia, for example, the government exempted low-cost, fuel-efficient cars from luxury taxes, leading to the development of Thailand's Eco Car program and Indonesia's Low Cost Green Car (LCGC) policy (Maikaew, 2018; Suzuki, 2016).

These combined changes in the state of the ecosystem (increased traffic and air pollution) along with science policies that push for commercial innovation could lead to a particular state of health and well-being (i.e., discomfort from traffic and pollution along with having increased income) as seen in the L7 and L3 links. This could, in turn, prioritize the value of convenience (L4), a new aspect of modern culture that could lead to policy support for creative solutions (L1) such as the approval and regulation, especially in congested cities, of food delivery apps based on sharing economy platforms (e.g., GrabFood, Food Panda). These apps, however, inevitably use more food packaging (vs. dine-in orders) made of single-use plastics (Li, Mirosa, & Bremer, 2020). The policies that allow these delivery systems to operate thus end up influencing the ecosystem as well (L5).

Another application at the heart of which is the state of human health and well-being is in the new states and events caused by the COVID-19 pandemic. The idea of order and control is deemed to be important in most ASEAN societies, and probably to a greater degree compared to non-Asians as it stems from an Asian collectivist mindset (Sastry & Ross, 1998; House et al., 2004). It was thus acceptable for Asian governments to impose lockdowns without big social events and widespread protests

like those experienced in Europe and the United States (Cheung, 2020; Hutton, 2020) (L1). In cases like the Philippines, which eased restrictions earlier than most other ASEAN countries and without sufficient precautionary measures, government policies stemmed a confluence of economic concerns, power beliefs, and perceptions that bureaucracy works in silos (L1). Nevertheless, the policies on lockdowns and strict implementation of regulations developed a sense of caution among many in the population (L2) and were deemed to be important for keeping the state of health and well-being under reasonable control (L3). Yet while more people learned to value health as they experienced the negative impacts of the pandemic, they placed it on the same level as economic gains when their livelihoods were put at risk (Bonquin, 2020) (L4).

Lockdown policies have also reinforced the need for delivery apps and online shopping venues (McKinsey & Company, 2020), effectively increasing the amount of single-use packaging circulating in the ecosystem (L5). With the amount of waste that needs to be managed, it would be interesting to see the long-term effects this would have on the state of human health and well-being (L7), especially given that Southeast Asia already has problems with its mismanaged plastic waste to begin with. Indeed, while this new state of the ecosystem has made more people aware of the packaging waste they accumulate from deliveries, they still expect governments to do more regarding the problem (UNEP & FIA, 2020) (L6).

THE ROLE OF ECOLOGICAL EDUCATION

This paradigm shows that science and environmental policies, no matter how well-intentioned and well-implemented they may be, can have unintended consequences due to feedback mechanisms that flow through different subsystems. If the end goal of policy is the well-being and prosperity of a country and its population, it is important to look at initiatives that consider cultural paradigms alongside the ecosystem.

One of the sources of great concern particularly in the ASEAN region is the destruction of environmental systems as manifested in global warming, extreme weather patterns and events, climate change, the depletion of marine and forest resources, diminishing access to clean water resources, and decreased air quality, among many others. Potential solutions to these problems require an understanding

of both systems and the feedback that happens among different subsystems. It is important to frame this understanding using the nested domain concept of sustainability, i.e., that economy and society operate within the context of the natural environment, depending on it for resources while also having an impact on it (Giddings, Hopwood, & O'Brien, 2002; Future-Fit Foundation, 2016; Fairfield, 2018).

The applications in the previous section highlight the role of ecological education and culture in ensuring that policymakers, executive officers, influencers, and consumers make informed and sustainable choices. While it may seem more natural to think that immediate, short-term needs are primary, a good ecological education, which has to begin at a young age, might help a generation be more willing to lead lifestyles that consider the common social and environmental good, including the long-term sustainability of the environment. Part of this ecological education is the development of a critical perspective that mediates one's experience of the declining states of the ecosystem (L6) and of human health and well-being (L4) toward a more sustainable worldview. Such a paradigm shift could affect how science and environmental policies are made (L1), with well-thought-out policies reinforcing sustainable worldviews (L2) in turn. Indeed, when policies are developed with the proper ecological and systems mindset, there will be a greater chance that the interplay of factors and possible scenarios will be taken into consideration in ways that will make their impact on the states of human health and well-being (L3) and of the ecosystem (L5) turn out to be positive. This can lead to an improved state of human health and well-being (L7) as well given that ecological education improves the state of the ecosystem despite natural hazards that can harm it.

While individuals have to play their part in ensuring that stakeholders develop mindsets and habits that consider the ecosystem, institutions also have a responsibility to promote ecological education. Educational institutions, for instance, need to keep students, faculty, and other stakeholders attuned to the changing context of our world, a world that has sometimes been described as volatile, uncertain, complex, and ambiguous (VUCA; see Johansen, 2012; Lawrence, 2013). Efforts need to be made to help them see the connections between material needs and consumer goods, energy and materials taken from the environment, and waste materials returned thereto. Such a sustainability mindset, moreover, needs to be translated even further into peoples' decision-making, lifestyles, and cultures. It is not about a "series of urgent and partial responses to the immediate problems

of pollution, environmental decay and the depletion of natural resources"; rather, "there needs to be a distinctive way of looking at things, a way of thinking, policies, an educational programme, a lifestyle and a spirituality" (Francis, 2015: no. 111).

Businesses and organizations also need to manage their own cultures to reduce resource consumption and waste production. Many organizational and operational models have been proposed to guide such efforts, e.g., creation of sustainable value (Hart & Milstein, 2003), creation of shared value (Porter & Kramer, 2011), becoming a sustainability winner (Lubin & Esty, 2010), and joining the circular economy (Murphy & Rosenfield, 2016). While these models are not perfect frameworks, they contain suggestions on how to create sustainable corporate strategies.

CONCLUSION

The use of the cultural adaptation template (Newell & Proust, 2017b; Dyball & Newell, 2015) in feedback-guided analysis is a novel approach to analyzing issues and developing strategic interventions. As a method of systems thinking, it makes possible a better understanding of the feedback mechanisms that could ultimately improve population health and well-being. As such, while it will not necessarily solve problems immediately due to several factors like inefficient implementation systems, this approach can help policymakers find better ways to coordinate initiatives and, more importantly, consult with stakeholders for better insights into the influence one subsystem has with another.

Ecological education can mediate the development of a more sustainable worldview, i.e., a worldview and mindset that considers environmental, social, and economic factors all at the same time. This is a "leverage point," a strategic intervention that can "produce large changes" (Proust et al., 2012: 2136); indeed, such a shift toward ecological culture can affect the three other subsystems through various links. Moreover, while such an intervention preferably begins at an early age so that a generation will have the same or similar worldviews, it can nevertheless be prepared for all generations or for anyone who has experienced the negative impacts of climate change, mismanaged waste, the depletion of resources, corruption, violations of human rights, a lack of respect for Creation—the list goes on.

This template for feedback-guided analysis is a good mental model not just for any policymaker or business organization but also for any individual who consumes resources and produces waste. It ultimately highlights the need for an ecological culture and lifestyle that challenges both individuals and institutions. This kind of mental model can help in the development of effective science and environmental policies as it visualizes that "complex ecosystem of effective institutions, laws, rules, and regulations that are managed by able and effective public officials and strongly supported by the private sector" (Lim, 2018: 213).

This kind of mental model for feedback-guided analysis thus represents possibilities for the development of an ecological culture, one that promotes a sustainable lifestyle informed by long-term possibilities and complex consequences. Indeed, it is a template for promoting a culture that cares for others and our common home.

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Journal of Management for Global Sustainability Volume 8, Issue 2 (2020): 157–166

DOI: 10.13185/JM2020.08207

EL NEGOCIO DEL NEGOCIO … AHORA

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Hace seis décadas, un editorial temprano del nuevo *MIT Industrial Management Review,* llamado después *MIT Sloan Management Review,* se enfocó en el escándalo desconcertante, hasta espantoso, de aquellos tiempos que consistía en un conjunto de acciones comerciales conocido como "el escándalo de fijación de precios de GE" (MIT Industrial Management Review, 1961). Fue un conjunto de acciones coordinadas e ilegales tan enorme y extendido que ejecutivos de alto nivel en empresas participantes fueron condenados y encarcelados por su participación en el acto. Como lo describe Jennifer Taub en *Big Dirty Money: The Shocking Injustice and Unseen Cost of White Collar Crime* (2020), fue un evento raro y tan inusual en la escena empresarial estadounidense de aquella época y hasta ahora.

Es cierto que fue raro e inusual, cuando uno piensa en lo que parece que NO haber ocurrido en un escándalo mucho más grave (Krugman, 2006; Hall, 2015) que empezó una década después, en el que investigadores y luego ejecutivos de alto nivel de Exxon—ahora ExxonMobil—desarrollaron, escondieron y negaron una investigación clara y definitiva que mostraba que seguir quemando combustibles fósiles haría justo lo que estaba haciendo: poner nuestra existencia y la de otras especies en peligro inminente de extinción.

Aquella revista del editorial de 1961 fue una publicación únicamente por estudiantes de posgrado, tomando como modelo las revistas de escuelas de derecho, y fue editada por "los mejores y más brillantes alumnos". Los editores concluyeron su ensayo cambiando la cita famosa del presidente Calvin Coolidge—"el negocio de América es el negocio"—a "el negocio del negocio es América." Algo impresionante para un grupo de estudiantes de negocio, pero ahora, seis décadas más tarde, y después de un aumento de 100 partes por millón (ppm), de 316 ppm a 416 ppm (Keeling et al, 2001), se puede parafrasear aún esa cita, cambiándola a "el negocio del negocio es el mundo," o mejor, "el negocio del negocio es el bienestar del

mundo", hasta "el negocio del negocio son las futuras generaciones, e incluso el mismo planeta."

De la prevención a la mitigación a la resiliencia a la supervivencia, todas en medio siglo, hemos sido advertidos durante los últimos seis, cinco, cuatro, luego tres y después, dos décadas, y ahora en 2020, que los "próximos diez años" serían decisivos en prevenir la subida de CO_2 y otros gases de efecto invernadero en la atmósfera, y en acabar con los numerosos daños sistémicos a nuestro sistema ecológico global. Se nos ha dicho repetidamente que habrá que detener los daños y luego revertirlos si queremos mitigar el cambio climático y resultados del calentamiento global cada vez más desastrosos que ya estamos experimentando. Cada advertencia de diez años ha demostrado ser correcta: cada vez que no hemos actuado, primero con moderación y calma, y luego con decisión y audacia, los daños han aumentado y la tarea se ha vuelto más difícil, más cara y con menos probabilidad de éxito. Ahora, muchos de los más informados y objetivos entre nosotros advierten que tenemos otros diez años para evitar una situación verdaderamente catastrófica para todas las especies, la nuestra incluida, y que la próxima advertencia de diez años después de esta última podría ser inútil. Se habrá acabado el juego para entonces (McKibben, 2019). Los pasos que tenemos que tomar ahora deben ser urgentes y audaces.

La novelista Lydia Millet escribió en *The New York Times* del 27 de noviembre 2020 que "solo los grandes pasos salvarán la Tierra" (Millet, 2020). Describe claramente el nivel y alcance de los compromisos que necesitamos hacer ahora, así como el precio que se paga si no los cumplimos *ahora*:

> En universidades, escuelas secundarias, hasta primarias, en todo el país y el mundo, los jóvenes están luchando para guiarnos.
>
> Podemos dirigir una voluntad social más amplia, pero se requiere el esfuerzo de la voluntad política para realizarla: las fuerzas del ejecutivo, la dedicación de dinero público y privado para proyectos climáticamente racionales, el uso de leyes existentes y la cooperación de los países.
>
> En la ausencia de un cambio de paradigma tan unificador, se empeorarán las tormentas mortales e incendios forestales, quitándoles a nuestros descendientes la seguridad del hogar. El aumento de los mares transformará nuestros litorales antes de que podamos adaptar, destruyendo nuestras grandes ciudades. Las migraciones forzadas resultarán en luchas civiles y autocracia. Las olas de extinción destruirán los ecosistemas que nos brindan agua limpia, bosques y pesquerías. Y que nos robarán la belleza y las posibilidades de un planeta vivo para siempre.

Es tan evidente ahora como lo ha sido durante décadas, que todos nosotros—individuos, grupos, naciones, *y* negocios—necesitamos tomar las acciones audaces y valientes que, desde hace mucho tiempo, hemos sido animados a tomar.

No hay escasez de cosas importantes que podamos hacer. De hecho, muchas ya están en marcha, más o menos. No son tan poderosamente impulsados y extensos como deberían ser, pero al menos, están en marcha. Nos han mostrado James Arbib y Tony Seba (2002), por ejemplo, que ya tenemos toda la tecnología necesaria para hacer las transformaciones de sistema de producción y consumo de energía necesarias que acabarán con el cambio climático y calentamiento global. Paul Hawken y sus colegas (Hawken, 2017) han descrito 100 proyectos disponibles y viables que constituyen un "plan integral para revertir el calentamiento global". Como escribe Hunter Lovins y sus colegas en su libro más reciente, tenemos la capacidad de "construir una economía regenerativa a través de una poderosa combinación de espíritu empresarial, tecnología y política de innovación" (Lovins, Wallis, Wijkman & Fullerton, 2018). De verdad se han propuesto muchos proyectos valiosos y viables por parte de muchos individuos y organizaciones comprometidos, y seguramente habrá más en el futuro.

La probabilidad de que se hagan realidad estas iniciativas existentes, junto con muchas nuevas, aumentará dramáticamente a medida que las escuelas de negocio de todo el mundo sigan rápidamente su dirección, pasando de ser parte del problema de la insostenibilidad global a ser parte de la solución. Se reconoce cada vez, que la enseñanza de las prácticas, las herramientas, los valores, la ética y, sobre todo, la mentalidad de "negocios como siempre", y también la investigación que contribuye a lo mismo, apoya, acepta y ayuda a las prácticas de las empresas y otras organizaciones productivas que, en el peor de los casos, han puesto en riesgo la existencia de nuestra propia especie y la de otras. Y en el mejor de los casos, han garantizado un largo camino de trabajo duro para sacarnos a todos del embrollo ecológico, social y cultural en el que nos hemos encontrado.

La buena noticia es que en todo el mundo se están llevando a cabo iniciativas para transformar la educación empresarial de manera rápida, y en asociación con empresas y otras instituciones. En el número anterior de esta revista, se informó cómo la red de escuelas de negocios jesuitas está tomando medidas para reemplazar la narrativa neoliberal en el corazón de nuestra presente tragedia económica, social,

medioambiental, cultural y espiritual, por una nueva mentalidad económica, social, ecológica y espiritual (Garanzini, 2020). Haciendo más que llamar a los demás a tomar acciones, los equipos en cada uno de los enfoques y disciplinas de las 11 escuelas de negocios están creando y desarrollando programas de cursos, planes de estudios y manuales que ofrecen posibilidades a corto plazo para transformar la educación empresarial no solo en las instituciones jesuitas y católicas, sino también en otras. En una futura edición especial que sale en junio del 2021, la *Journal of Jesuit Business Education* tratará las metas, los procesos y el progreso de este proyecto de "Nuevo Paradigma" (New Paradigm por su nombre en inglés). A lo largo de tres grandes secciones, se escribirá sobre la necesidad de repensar la educación empresarial y se describirán los procesos del cambio curricular que se sigue junto con su pedagogía y contenido.

Esta iniciativa en particular es solo una de las muchas iniciativas en todo el mundo que buscan objetivos parecidos, que es transformar la educación empresarial en asociación con el sector de negocios y otros líderes, con la intención de cambiar las prácticas empresariales muy muy pronto. En los próximos años, ya no será correcto decir, metafóricamente, provocadoramente, y quizás hasta humorísticamente, que "las escuelas de negocios son el trabajo del diablo" porque harán "el trabajo de los ángeles."

Tal como lo notaron muchos científicos, líderes y políticos bien informados, comprometidos y objetivos, lograr los cambios necesarios para "salvar la Tierra", y, en consecuencia, "salvarnos a nosotros mismos" es, por supuesto, el mayor desafío al que nuestra especie se haya enfrentado. Y transformar la práctica empresarial y su papel en la sociedad mundial será uno de los mayores retos dentro de ese mayor desafío. Es muy probable que la mentalidad de "negocios como siempre" haya sido el mayor colaborador a este lío en el que todos estamos, y el sector de negocios necesita toda la ayuda que pueda tener para ser el principal participante necesario para la sostenibilidad, florecimiento y regeneración global.

Se está empezando la transformación, y las escuelas de negocios están saliendo como los líderes clave en el descubrimiento de cómo podemos abordar las tres necesidades transformadoras más importantes e inmediatas del gran desafío global, a saber, (1) superar las realidades del cambio climático y el calentamiento global, (2) determinar cómo podemos convertirnos en personas que viven en este planeta sin

destruirlo y ser ese tipo de persona, (3) aprender cómo podemos producir, distribuir y consumir los bienes y servicios que necesitamos de manera que se cure nuestro mundo enfermo, y realizar verdaderamente esos modos de producir, distribuir y consumir. Inspirándose en la metáfora del trim de Buckminster "Bucky" Fuller, que se refiere a los pasos pequeños que llevan a un gran cambio, las escuelas de negocios están empezando a ser más que el trim del gran timón del transatlántico que es la economía, sociedad, cultura y ecología global. Ya se están convirtiendo en el timón mismo al comenzar a cambiar nuestro rumbo condenado y al guiarnos a una dirección que podría ser la única que nos atrevemos a seguir.

Durante ocho años—casi una década—los artículos y editoriales en esta revista han sido cada vez más insistentes en la necesidad de que la educación en las escuelas de negocios y todo el sector empresarial se alejen de las mentalidades y prácticas del "negocio como siempre" que han puesto a nuestra especie y las de otras en camino a la extinción. Nos están llamando a escuchar las palabras de muchas personas, desde Greta Thunberg al Papa Francisco, quienes nos dicen que cuidemos a nuestro hogar común y que pasemos de la palabra a la acción *ahora*. Por lo tanto, los cinco artículos en esta edición de la revista, como en muchas ediciones anteriores, son parte de las exploraciones y cambios deseados que son necesarios para que podamos dirigir ese gran transatlántico al curso que necesitamos descubrir y seguir. Las escuelas de negocios se están convirtiendo en más que el trim. Se han convertido en el gran timón de nuestro futuro global y, al ser así, están tomando los pasos siguientes seis décadas después del llamamiento que hicieron los editores y estudiantes de posgrado en 1961, inspirándonos a todos a hacer realidad la posibilidad de que "el negocio de los negocios son las generaciones futuras y el planeta mismo."

En el artículo "Los beneficios de la Laguna de Bay: La perspectiva de los pequeños pescadores", Rosalina Palanca-Tan de la Universidad Ateneo de Manila estudia el papel que desempeña la Laguna de Bay, situada cerca de Metro Manila, en la vida económica de los hogares de pescadores en las comunidades a orillas del lago. El artículo explora las realidades de ganarse la vida en el nivel más básico (los hogares de pescadores alrededor del lago se dedican principalmente a la pesca abierta a pequeña escala y al cultivo en jaulas de peces), así como los impactos de los acuerdos del sistema empresarial y los cambios ecológicos en las personas y familias que procuran ganarse la vida de manera digna con su trabajo. La autora describe cómo unos pocos residentes fuera del lago y empresas e individuos propietarios de corrales sacan más

provecho de los beneficios económicos de las actividades pesqueras que los propios pescadores locales. Asimismo, ofrece formas de superar la injusticia económica que revela su investigación a través de la institución de un sistema en el que las enormes rentas de los recursos de la acuicultura se acumulan para los hogares pobres de pescadores en las comunidades a orilla del lago.

El estudio descubre también que las actividades pesqueras y los medios de vida de los hogares a orilla del lago se ven muy afectados por la contaminación y otras condiciones ambientales en el ecosistema del lago.

En el artículo "La creación de un marco para comprender las motivaciones personales de los líderes de sostenibilidad," Jennifer Licad Horn, antes de la Universidad de Surrey, ahora con la Universidad Ateneo de Manila, y Walter Wehrmeyer de la Universidad de Surrey, confrontan el desafío de crear un liderazgo para la sostenibilidad, lo cual es necesario para ayudarnos a ser gente que vive en este planeta sin destruirlo y que contribuye en la transformación de nuestros sistemas de producción. Observan que los programas de educación y liderazgo para la sostenibilidad, más que solo compartir nuevos conocimientos y habilidades, tienen que ayudar a creer o fortalecer una motivación subyacente para que la gente tome acciones. Su artículo explora las motivaciones iniciales y duraderas que animan a los líderes que estudiaron para dedicarse a la sostenibilidad como profesión o vocación junto con perspectivas que vienen de varios sectores (empresas, gobiernos, organizaciones no gubernamentales o la sociedad civil) y un contexto mundial de un país en desarrollo como Filipinas.

El análisis temático de los autores de las entrevistas con 16 líderes de sostenibilidad reveló valores y experiencias de vida significativas que impulsaron la motivación, comentarios que sostenían la motivación y la importancia de la autorreflexión, la autoconciencia y los factores psicológicos positivos en empezar y sostener el trabajo o causa de los líderes. Los autores recomiendan que los programas de educación y liderazgo de sostenibilidad utilicen el aprendizaje experimental para desarrollar la conciencia, la conexión y la empatía con el mundo alrededor. Recomiendan también que creen espacios para reflexionar sobre las experiencias y los conocimientos de los líderes, integren formas de cultivar la esperanza y otros factores psicológicos positivos como la confianza, el optimismo y la resiliencia, y ayuden a los líderes a generar el apoyo social en ambientes habilitantes.

En su artículo "El papel de la cultura nacional en la relación entre las prácticas de sostenibilidad y el desempeño de sostenibilidad," Cristina Sancha, Annachiara Longoni y Cristina Giménez de ESADE-Universidad Ramon Llull exploran un factor importante en el desarrollo de los tipos de organizaciones productivas que cubrirán nuestras necesidades mientras protegen el planeta.

Las autoras definen las prácticas de sostenibilidad como aquellas prácticas y acciones que permiten que una empresa logre los procesos de negocio que resultan en mejores resultados de sostenibilidad. Algunos ejemplos de estas prácticas incluyen la creación de políticas orientadas hacia la protección de empleados y el uso de sistemas de gestión ambiental. Además, este enfoque "para todos" ha sido cuestionado con frecuencia, aunque la globalización a menudo resulta en la estandarización de políticas y prácticas. En este contexto, Sancha, Longoni y Giménez abordan esta pregunta: "¿Cuál es el impacto de la cultura nacional en la relación entre las prácticas y desempeño de la sostenibilidad en varios entornos culturales?" Por lo tanto, utilizan una muestra internacional de nueve países diferentes para explorar el papel contingente de la cultura nacional en la relación entre las prácticas de sostenibilidad y el desempeño de sostenibilidad.

Las autoras describen cómo los datos muestran que la evitación de la incertidumbre y las dimensiones de masculinidad/feminidad son variables de contingencia relevantes que deben ser consideradas al analizar la relación entre las prácticas de sostenibilidad y el desempeño de sostenibilidad. En el ámbito de la evitación de la incertidumbre, los datos sugieren que la implementación de prácticas de sostenibilidad tendrá un mayor impacto en sociedades donde las personas están dispuestas a implementar sistemas y procedimientos que aseguran la sostenibilidad de la sociedad y el medio ambiente (reduciendo o quitando las incertidumbres que podrían tener un impacto negativo sobre los mismos). Por lo tanto, en sociedades con un alto nivel de evitación de la incertidumbre, la cultura nacional se ajustará más a los valores de sostenibilidad de una empresa y los empleados se comprometerán a la implementación de prácticas de sostenibilidad, mejorando así su impacto.

En relación con la dimensión de masculinidad/feminidad, los datos sugieren que la implementación de prácticas sociales contrapesa el nivel bajo en general de la atención a los débiles y a la calidad de vida que se ve en sociedades caracterizadas por altos niveles de masculinidad.

En el artículo "Cuantificando el orden de prioridades en la elección de escuela de negocios por parte de los estudiantes: ¿Cuenta la sostenibilidad?", Robert P. Sroufe de la Universidad de Duquesne y David B. Brauer de la Universidad de West Virginia muestran que hay ventajas en considerar un programa de estudios que incluyen la sostenibilidad a la hora de desarrollar programas en las escuelas de negocios. Su estudio de métodos mixtos destaca factores que se recomiendan encarecidamente a los líderes de tales instituciones a la hora de crear y mantener escuelas de negocios viables en el futuro. Además, dado que los estudios en este ámbito se han descuidado notablemente, este artículo proporciona una base sobre la que se puede hacer más investigaciones y ofrece un enfoque que producirá resultados concretos.

Las escuelas de negocios han adoptado una estrategia de "sigue al líder", manteniendo durante demasiado tiempo el estatus quo y la mentalidad de "negocios como siempre". Si bien se hace caso a la estética, como salas de negociación de acciones equipadas con la cinta de cotizaciones bursátiles y terminales de Bloomberg, espacios de creadores para emprendedores, y mas recientemente, salas para grabar juegos de roles, estos no son los servicios que atraerán a los nuevos y mejores estudiantes. Tales innovaciones estéticas seguirán produciendo líderes sin imaginación mientras que las escuelas de negocios dan valor a ideas que pertenecen al siglo 20. Los autores abogan por la necesidad de escuchar al cliente y crear programas innovadores que resultan en empleos bien remunerados al mismo tiempo que integran los objetivos de sostenibilidad global dentro del programa de las escuelas de negocios. Creen que los conocimientos de estudios de métodos mixtos como este pueden ayudar a aclarar lo que quieren los clientes, así como destacar las metodologías que podrían ayudar a las escuelas de negocios a seguir siendo relevantes, brindando nuevas oportunidades para su evolución.

En el artículo "El análisis guiado por la retroalimentación como enfoque para gestionar la sostenibilidad en los países de la ASEAN" por Maria Assunta C. Cuyegkeng y Kendra Gotangco Gonzales, ambas de la Universidad Ateneo de Manila, se presenta a los lectores de JMGS una plantilla para un análisis guiado por la retroalimentación de un sistema (Newell & Proust, 2017). Se usa la plantilla para estudiar cuatro subsistemas (políticas científicas y ambientales, paradigmas culturales, estados de ecosistemas y estados de salud y bienestar humanos) y cómo se afectan entre sí, mostrado por siete enlaces que conecta uno al otro.

Las autoras identifican la educación ecológica como una intervención estratégica que puede desarrollar una cultura que promueva una visión del mundo y estilo de vida sostenibles para individuos e instituciones. El desarrollo de esa cultura puede, a su vez, tener un impacto en las políticas, los ecosistemas y la salud y bienestar humanos de la ASEAN. Por lo tanto, el modelo mental que se presenta en al artículo ofrece una manera posible de desarrollar una cultura que cuida a los demás y nuestro hogar común.

Al leer los artículos, parece que la plantilla para el análisis guiado por la retroalimentación se podría aplicar a los otros artículos también puesto que todos recomiendan un estudio más profundo de los paradigmas que impulsan nuestras prácticas, a nivel personal (en las motivaciones de los líderes de sostenibilidad o la elección de una escuela de negocios), a nivel social (en la influencia de la cultura nacional en las prácticas empresariales), o a nivel gubernamental (en la renta de recursos de acuicultura para los hogares pobres de pescadores). También indican que sería necesaria alguna forma de intervención, ya sea educativa, de concienciación o sistémica, en esos niveles. Tal perspectiva sería consistente con el tema de transformar no solo la educación empresarial y los negocios, sino también todo nuestro enfoque de la sostenibilidad global.

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Journal of Management for Global Sustainability Volume 8, Issue 2 (2020): 167–171

DOI: 10.13185/JM2020.08208

RESÚMENES

Los beneficios de la Laguna de Bay: La perspectiva de los pequeños pescadores

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La pesca se considera el más importante entre los muchos usos de la Laguna de Bay, el lago más grande de Filipinas y el segundo más grande del sudeste asiático. Utilizando datos primarios recopilados a través de discusiones de grupos focales, entrevistas con informantes clave y una encuesta de hogares junto con datos secundarios sobre estimaciones de ingresos y costos para la acuicultura y la pesca de captura, este documento analiza el papel del lago en la vida económica de dos comunidades pesqueras ubicadas a lo largo de la costa. El estudio, que analiza de manera microscópica los problemas, viéndolos desde la perspectiva de los hogares de pequeños pescadores en lugar de desde la perspectiva de los formuladores de políticas y las organizaciones no gubernamentales, encuentra que los hogares en estas comunidades a orillas del lago se dedican principalmente a la pesca al aire libre, que ha sido amenazada últimamente por la mala calidad del agua y la consiguiente proliferación de jacintos de agua. Solo los pocos residentes acomodados de estas comunidades a orillas del lago pueden construir y operar jaulas para peces a pequeña escala, mientras que las empresas y los individuos no residentes poseen y operan corrales para peces a gran escala. Además, si bien la pesca abierta contribuye más al valor de la producción pesquera y al empleo que la acuicultura, esta última genera más renta de recursos que se acumula para los pocos capitalistas de la acuicultura que vienen de fuera de estas comunidades. En este estudio se presentan algunas sugerencias para redistribuir las enormes rentas de los recursos pesqueros a los hogares de pequeños pescadores en estas comunidades a orillas del lago. También se discute la necesidad de abordar el problema de la calidad del agua del lago y los usos competitivos, con miras a la sostenibilidad y el alivio de la pobreza.

Palabras clave: acuicultura/cría de peces; pesca abierta/pesca de captura; pobreza; renta de recursos; contaminación del agua

La creación de un marco para comprender las motivaciones personales de los líderes de sostenibilidad

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Este estudio explora las motivaciones iniciales y sostenibles que animan a los líderes a perseguir la sostenibilidad como profesión o vocación. Se hicieron entrevistas exploratorias con 16 líderes de sostenibilidad en Filipinas que trabajan en sectores que van desde empresas corporativas hasta empresas sociales, ONG y el mundo académico. Los resultados del análisis temático revelan experiencias de vida significativas que impulsan la motivación inicial, cómo la retroalimentación sostiene la motivación y la importancia del conocimiento de sí mismo y los factores psicológicos positivos para comenzar y mantener su trabajo o apoyo activo. Se desarrolla entonces un marco para comprender las motivaciones, basándose en temas extraídos de las entrevistas, la teoría de valores, creencias y normas elaborada por Stern y teorías de liderazgo auténtico y transformacional. Se dan recomendaciones sobre cómo se puede instigar y mantener la motivación, es decir, cultivando la esperanza y otros factores psicológicos positivos, integrando el aprendizaje experiencial para desarrollar la conciencia, la conexión y la empatía, y creando apoyo social y entornos propicios. También se recomienda realizar más investigaciones para desarrollar un instrumento que mide la motivación del liderazgo en sostenibilidad, uno que pueda informar a los facilitadores de educación sobre sostenibilidad sobre la eficacia de sus programas para inspirar a los participantes a actuar.

Palabras clave: sostenibilidad; liderazgo; motivación; esperanza

El papel de la cultura nacional en la relación entre las prácticas de sostenibilidad y el desempeño de sostenibilidad

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Este artículo tiene como objetivo examinar el papel de la cultura nacional en la relación entre las prácticas de sostenibilidad (prácticas sociales y ambientales) y el desempeño de sostenibilidad (desempeño social y ambiental). Si bien los estudios anteriores se han centrado en la influencia de la cultura nacional en la toma de decisiones y los comportamientos éticos de los administradores, se ha descuidado bastante el papel de la cultura nacional en la eficacia de las prácticas de sostenibilidad. Nuestro estudio aborda esta brecha al resaltar la relevancia de la cultura nacional como un elemento contextual en la implementación de prácticas de sostenibilidad en diferentes países. Basándonos en un análisis de regresión multinivel que utilizó datos de 484 empresas en nueve países (China, Alemania, Hungría, India, Italia, Japón, Malasia, Eslovenia y Suecia), encontramos que el impacto de las prácticas sociales en el desempeño social se acentúa en países caracterizados por una alta evitación de incertidumbre y una alta masculinidad. Sin embargo, el impacto de las prácticas ambientales en el desempeño ambiental no se ve afectado por la cultura nacional.

Palabras clave: Prácticas de sostenibilidad; desempeño ambiental; desempeño social; dimensiones culturales de Hofstede; regresión multinevel

Cuantificando el orden de prioridades en la elección de escuela de negocios por parte de los estudiantes: ¿Cuenta la sostenibilidad?

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Las escuelas de negocios gastan recursos para atraer a mejores solicitantes a sus instituciones. Sin embargo, nuestro entendimiento de los criterios de los estudiantes en cuanto a su elección de una escuela de negocios y sus programas, paradójicamente, no es muy claro o es anticuado. Faltan investigaciones sobre lo que valoran los estudiantes de negocios, resultando en oportunidades perdidas para involucrar a los estudiantes existentes a fin de traducir sus intereses y aspiraciones en perspectivas para el diseño, la entrega y la inscripción del programa. Un criterio importante pero a menudo olvidado, por ejemplo, es el deseo de los estudiantes de aprender la sostenibilidad. Por lo tanto, si bien la mayoría de los estudios tienen como objetivo descubrir y cuantificar los criterios de selección en la elección de las escuelas de negocios por parte de los estudiantes, este documento se basa en el aspecto de la sostenibilidad. Proponemos una metodología de análisis de decisiones multicriterio (MCDA, por sus siglas en inglés) que abarca una serie de criterios esenciales, incluida la sostenibilidad, para que las escuelas los consideren en los esfuerzos futuros de revisión y desarrollo del programa. El enfoque propuesto permite a las escuelas ser exactas con sus gastos de recursos en áreas que son críticas para los solicitantes, incluidas aquellas relacionadas con la sostenibilidad, así como atraer a un mayor número de estudiantes más calificados. Las percepciones de este estudio muestran que con el enfoque adecuado para comprender a los candidatos a escuelas de negocios, es posible cuantificar el orden de prioridades que los estudiantes consideran al elegir una escuela de negocios.

Palabras clave: criterio de solicitantes; escuelas de negocios; sostenibilidad global; instituciones de formación superior; métodos mixtos; decisiones multicriterio

El análisis guiado por la retroalimentación como enfoque para gestionar la sostenibilidad en los países de la ASEAN

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La innovación ha estado en el centro de la mayoría de las políticas científicas de los países de la ASEAN (siglas en inglés de la Asociación de Naciones del Sudeste Asiático), impulsadas por una mayor preocupación por las ventajas competitivas que pueden derivarse de la ciencia y la tecnología. Estás políticas están relacionadas con las políticas sobre el medio ambiente y la educación ambiental, aunque estas últimas a menudo se tratan por separado. Sin embargo, falta una visión más completa de cómo la ciencia y las políticas ambientales influyen y son influenciadas por la cultura y el bienestar de las personas en un país particular.

Este estudio intenta rellenar los huecos a través de un análisis guiado por la retroalimentación, particularmente mediante el uso de una plantilla de adaptación cultural presentada por Newell y Proust (2017b). Estudia cuatro subsistemas y siete vínculos, y muestra cómo las políticas científicas y ambientales de la ASEAN, los paradigmas culturales, el estado de los ecosistemas y la salud y el bienestar humanos se afectan entre sí de manera directa o indirecta. La plantilla de adaptación cultural indica la necesidad de un enfoque de pensamiento sistémico en la gestión de la innovación o la implementación de políticas para garantizar que las iniciativas bien intencionadas no tengan consecuencias no deseadas.

Palabras clave: plantilla de adaptación cultural; análisis guiado por la retroalimentación; políticas científicas y ambientales de la ASEAN; paradigmas culturales de la ASEAN; pensamiento sistemático

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Journal of Management for Global Sustainability

Volume 8, Issue 2, 2020