

Preface

In 1998, I participated in the First Demonstrative Project of the Mexican Cleaner Production Center, whose goals included reducing contamination at the source, increasing businesses' economic gains, improving worker safety, optimizing productive processes, and incorporating more efficient technologies. During this project, and later in reviewing the results, I was continually dismayed by the lack of interest and involvement of a majority of the project's six participant entrepreneurs of the electroplating industry.

The project was supported by the United Nations Organization for Industrial Development (UNIDO) in collaboration with one of the most renowned technical higher educational institutions (HEI) in Mexico City, the *Instituto Politécnico Nacional*, and fully financed by the US Agency for International Development (USAID). Consequently, the only requirement for members of small- and medium-sized companies was a willingness to work with national and international electroplating cleaner production (CP) specialists, with whom they would document and implement environmentally and economically sound CP options.

Companies were selected based on their representativeness of the electroplating industry and according to number of employees, production volume, type of process, and financial capacity for investing in change. They were selected by well-known members of the Electroplating Industrial Association's technical committee. Prior to initiating, company leaders participated in a course on the scope, methodology, and expected outcomes of the project.

It seemed like a perfectly well-planned project, with its history of success in other countries, availability of financial and technical resources, and willingness of company leaders to participate. However, during the initial phase aimed at implementing suggested changes, two companies made no changes, and two others made only minor modifications. Only two companies made all suggested changes and even more, and achieved greater savings than expected.

I continually asked myself, "What happened?" "How is it possible that a majority of the companies had such a lack of interest in a project with free consulting and committed company leaders confident that they would financially benefit from CP changes?"

What impeded company leaders from implementing changes to their processes if they knew in return they would not only get their money back and increase savings, but also minimize environmental impacts and improve company processes and worker health and safety? What motivated them to participate in the CP project in the first place? Did company leaders initially act on behalf of their own interest, hoping for personal profit? Or did they act for the sake of others—the environment, workers, and the industrial association—encouraged by an altruistic spirit?

While these questions remain, I currently raise them with a deeper understanding as a result of decades as a professor in Higher Educational Institutions as well as my doctoral research. Furthermore, my research led me to apply the same questions to HEI: What drives decision makers' efforts in HEI? Do similarities exist between the behavior of individuals in higher education and that of company leaders? What factors determine the behavior of decision makers in HEI? Do decision makers foster the concept of sustainability in their activities, particularly when these activities take into account long-term implications for the institution and for social and cultural aspects of society?

In recent decades, higher educational institutions (HEI) have increasingly been forced to create, disseminate, and apply knowledge as a private property instead of a shared social construct or public good. This changing vision has sidetracked governments from their responsibility the principal providers of education, and, to some extent, HEI are more interested in obtaining profits than in resolving long-term problems such as environmental and social issues.

During the second year of my Ph.D. program, I realized the importance of social behavior in catalyzing and guiding decisions to implement change within organizations. During that period, I read a book on environmental policy and technological innovation titled, "Why Do Firms Adopt or Reject New Technologies?" by Carlos Montalvo-Corral. This book helped me begin to understand diverse aspects of individuals' resistance to change and gave me insight into some reasons for the lack, or slowness, of change with regard to environmental protection and implementation of CP approaches in industrialized and industrializing nations. Furthermore, I discovered theoretical frameworks, which could help me, to identify and work with the principal factors guiding human behavior in relation to resistance to change.

In addition, my awareness of the growing importance of education for sustainable development led me to the conclusion that education should be adapted to local contexts in order to attend to global problems. For the past 31 years, my professional life has been linked to environmental protection, both as a university professor and as an industrial consultant. Therefore, I have followed the evolution of the environmental education movement as well as new approaches such as that proposed by UNESCO, 2005, the Decade of Education for Sustainable Development (DESD) initiative.

The DESD initiative, and its recent edition from 2015 by Wals "Shaping the Education of the Future," has stressed the importance of influencing education at all levels to improve human life for present and future generations and to influence the general public to be more responsible for SD. Along with national and international

pressure to bring about change in HEI is helping to involve faculty, administrators, other staff members, students, and alumni as agents of change. It is essential for academic leaders and other decision makers to increasingly support new ways to foster SD in education, research, outreach, and campus management.

It is urgent that the many decision makers of HEI in nations with varied cultural and economic structures become more aware of attitudes, policies, procedures, and practices which must be modified in order to help ensure that HEI truly foster SD. All those involved must work together to ensure that HEI faculty possess the knowledge and tools to educate present and future generations of students, and to ensure that decision makers become responsible in a rapidly changing world which is currently heading in unsustainable directions.

Organization of the Text

Chapter 1 provides an introduction to historical backgrounds, features, and underlying principles of ESD, as well as a definition of sustainable behavior in order to explore the main characteristics of ESD for present and future generations. Furthermore, the research goals are presented in this chapter.

Subsequently, the manuscript is divided into two parts according to the main research topics: personal factors in social psychology and areas of change. Part I is devoted to personality factors in social psychology and Part II to spheres of human intervention.

Part I explores people's motivations for acting in favor of the common good, as mentioned in the Decade of Education for Sustainable Development initiative: environmental conservation and protection, human rights, social security, gender equity, poverty reduction, health promotion, intercultural understanding and peace, sustainable consumption and production, and rural transformation. Also, it explores theoretical approaches suitable for devising a model for sustainable behavior and ways in which this model may be operationalized, tested, and validated.

Part I includes three chapters. Chapter 2 presents the theoretical framework, information processing approaches, which are part of cognitive theory, and some sociopsychological theories for determining factors of behavioral change. Chapter 3 presents the research method used to answer the research questions. Additionally, a model to determine sustainable behavior is proposed. This chapter also describes the methodology for applying and testing the sustainable-behavior model developed at five higher educational institutions in four countries with greatly different cultures and socioeconomic structures. Chapter 4 shows a statistical description of the specific factors of sustainable behavior; exploratory and confirmatory outcomes of the proposed model are discussed.

Part II explains the principles underlying education for sustainability in the UNESCO mandate of the Decade of Education for Sustainable Development. These principles include those areas of intervention in which people's beliefs may be modified in the long-term without coercion; factors which must be taken into

account in order to achieve self-fulfilled citizens who are critical thinkers, equitable, fair, and responsible with respect to their environment, others, and themselves; and those activities which may be integrated into teaching, research, outreach, and campus managing within HEI in order to develop a way of life which foment education for sustainability. Chapter 5 points out to the differences between human needs and desires, and ways in which citizens may achieve self-fulfillment. Also, education and community management are described as two areas in which human behavior may be changed in the long-term without coercion.

Chapter 6 includes additional findings and comments on the scientific and practical value of the model developed, and a brief political reflection on these results.

Appendices A and B include a complete list of universal values and personal intelligences. Appendix C shows the English version of the questionnaire used at HEI when the original questionnaires (available by request to the author) were applied in Spanish, French, and German. Appendix D briefly explains multivariate statistical techniques used. Finally, the bibliography is presented at the end of each chapter.

Acknowledgments

I would like to end by acknowledging those who made this research possible. In chronological order according to the development of this study: Eduardo Campero allocated economic resources enabling me to carry out my doctoral studies without worrying about financial support; Don Huisingh and Leo Baas challenged, enthused, and invited me to participate in the International Off-Campus Doctoral Program at Erasmus University in Rotterdam. They have continually provided me with support in the planning and development of my doctoral dissertation. Additionally, other staff members at the Social Sciences Faculty—Nigel Roome, Jacqueline Cramer, and my very supportive Dutch advisor Wim Hafkamp—by commenting on my initial and final ideas.

Subsequently, I was pleased to meet and explore ideas with Carlos Montalvo-Corral, who inspired me to focus my research topic on his extensive study of social behavior and the application of environmental innovation. I deeply appreciate his willingness to guide me. I also wish to express gratitude to my local advisor Juan Rivera for his intense support in familiarizing me with the systemic vision and assisting me during the entire process of my doctoral work.

I am grateful for the opportunities I have had to discuss my doubts and progress with my colleague Hans Dieleman who, with his broad professional experience as a social researcher, grasped the importance of this research and offered many clear recommendations regarding the development of this study.

I am sincerely grateful for the invaluable support I obtained through cyberspace from pro-environmental psychologists Victor Corral-Verdugo and Florian Kaiser, without whom it would not have been possible for me to define the scope of my

research. They provided me insight and information and helped me to clarify my vision, purpose, and direction.

I am indebted to Florian Wendelspiess for his generous support to run the *Mplus* software on the entire data set and to Mario Gonzalez-Espinosa for his kind and helpful suggestions of statistical tests at moments when I felt extremely pressured to carry out these tests. Thanks respectively to Manuel A. Gonzalez, Marcos Bustos, and Estelle Morin for opportune information on cognitive psychology, pro-environmental behavior and Maslow's hierarchy of needs.

I am sincerely grateful for Marco Reickmann's, Florian Wendelspiess', and Mariana Castellanos' extraordinary collaboration and invaluable willingness to encourage volunteers at *Leuphana Universität Lüneburg* in Germany, *Université de Genève* in Switzerland, and *Université de Montréal* and *Université de Québec à Montréal* in Canada, to respond by Internet to the questionnaire that has served as a contrast case for this research. Thanks also to Gerd Michelsen, Maik Adomssent, Horst Rode, and Clemens Mader for his institutional support at LUL.

Last but not least, thanks to my own institution *Universidad Autónoma Metropolitana, Azcapotzalco* (UAMA), for financial support during my doctoral studies and leaves of absence during my research at Rotterdam, Netherlands, in early 2009 and at Lüneburg, Germany, in spring 2013. UAMA provided me with the opportunity to conclude my doctoral study and finish this research. I claim full responsibility for its content.

Exploring Sustainable Behavior Structure in Higher
Education

A Socio-Psychology Confirmatory Approach

Juárez-Nájera, M.

2015, XXIII, 136 p. 13 illus., Hardcover

ISBN: 978-3-319-19392-2