

出國報告（出國類別：國際會議）

出席「創新與管理國際研討會
(IAM2013W)」

服務機關：國立臺北大學企業管理學系

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派赴國家：日本

出國期間：102 年 1 月 27 日至 102 年 2 月 5 日

報告日期：102 年 2 月 20 日

摘要

本次赴日本北海道之主要目的是參加「創新與管理國際研討會 International Conference on Innovation and Management (IAM2013W)」，並在此研討會以口頭發表論文，論文題目為「The Impact of Green Product Knowledge and Involvement with the Environment on Purchase Intention -The Moderating Effect of Guilt Appeals」。

IAM2013W 於日本北海道舉辦，本次會議主題計有電子商務等十七項管理議題，Society for Innovation in Management (SliM)為這次會議的主辦單位，舉辦日期為2013年1月28日至1月31日，會中發表及收錄的論文皆經過專家學者嚴格的審查。

本次研討會主要透過產學合作的方式、以多元廣泛的角度深入探討創新與管理的重要議題，提供成為海內外學者、業者及研究人員進行資訊交流與發表的平台，以強化創新與管理重要理論基礎、認知與實證研究的發展。

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壹、 目的

本次參加創新與管理國際研討會(International Conference on Innovation and Management (IAM2013W))之目的，在於希望透過此一學術交流平台，發表個人之研究結果，並與來自全世界之學者一同探討創新與管理議題，透過不同領域之與會學者的專業角度，對個人的研究結果，提供客觀的想法與建議。

本研討會由 Society for Innovation in Management (SIIM)主辦，研討會討論領域計有電子商務等十七項管理議題，在本次會議中，口頭發表本人之研究論文「The Impact of Green Product Knowledge and Involvement with the Environment on Purchase Intention -The Moderating Effect of Guilt Appeals」乙篇，與來自世界之與會學者共同探討綠色行銷議題。

透過本次會議，除了認識各學界人士，並針對自身研究領域進行探討及意見交換外，也從中也瞭解其他領域之研究重點，並獲得許多研究資訊及成果，以作為後續研究之參考。

貳、 過程

IAM2013W 研討會議程時間為 2013 年 1 月 28 日至 1 月 31 日，共為期 4 天，會議地點於日本北海道札幌市。本次行程於 2013 年 1 月 27 日由桃園機場出發，並於當天抵達日本札幌市，入住舉辦研討會之飯店，隔日準時至會場辦理報到事宜，並領取相關會議資料並準備研究成果報告。

本研討會共分 18 個場次進行論文發表與交流，研討會主題涵蓋有：

- 電子商務
- 環境與能源
- 金融和商業化的創新
- 醫療保健
- 人力資源管理
- 創新的人力資源管理議題
- 創新服務、創新物流及創新供應鏈管理
- 知識產權與知識管理
- 21 世紀的關鍵技術（奈米、生物、信息和通信技術技術）
- 管理合作
- 行銷
- 管理資訊系統
- 專案管理
- 技術創新、產品或產業創新
- 跨國公司、地區或組織的技術創新
- 產業個案
- 其他相關議題

本次個人研究報告所分配之報告時間為 2013 年 1 月 31 日之 E3 場次，為研討會之最後一天，所以有相當充足的時間於各場次聽取來自世界各地之學者報告其研究成果並與之交流。本次計有來自世界 23 個國家共計 210 篇文章，其中有 11 個國家之 132 篇論文於會議中報告。研討會依不同主題共分 18 個場次進行，每個場次皆有主持人引領研究報告發表以及互動討論。會議中有來自世界各國創新與管理領域的學者，針對不同的領域與主題，提出許多研究的成果，並參與討論。會議期間大會於場次間規劃有茶點休息時間，供各國學者進行自由交流，此點對於國際學者間的合作與情誼發展，的確有非常大的幫助。

E3 場次共計有五篇論文發表，題目分別為「A Study of Applying ARIMA and Multiple Regression Models to Volume of Currency Issued Prediction」、「Strategic Alliances Mechanism

between Developed and Developing Country Based Firms: Australia-Malaysia Model」, 「Partner Selection and Alliance Performance: An Empirical Study for Taiwan's Alliances」、 「Does Surprise Still Work? - The Effect of Surprise and the Moderating Role of Status Consumption」、 「The Impact of Green Product Knowledge and Involvement with the Environment on Purchase Intention-The Moderating Effect of Guilt Appeals」, 發表程序為每篇文章的報告時間為 20 分鐘, 並於最後 5 分鐘供與會者提問。本人所發表之論文「The Impact of Green Product Knowledge and Involvement with the Environment on Purchase Intention-The Moderating Effect of Guilt Appeals」為本場次最後一篇, 於報告中提問踴躍, 與會者一同針對綠色行銷相關領域進行探討, 並從不同領域給予建議, 對於本研究後續發展有相當大的助益。

參、心得及建議

透過此一討論平台，個人在論文發表的過程中，獲得了許多學者精闢的建議，這些學者不管透過了廠商行銷的角度、環保的角度或者顧客的角度，均針對研究內容提出了許多建議，讓研究者可以作為後續研究的基礎。

另外本次研討會於日本舉辦，透過參加本次國際研討會，可以體驗日本嚴謹的行事風格，並對日本國情及文化有進一步的認識；另外與國外學者的交流中，亦可發現不同的思考邏輯與想法，透過與各國專家學者交流，吸收其經驗，了解各國的綠色行銷之發展情況，並了解其他研究領域之發展現況。

感謝學校的補助使得有參與此次研討會之機會，使可以開拓視野，增進學識，故建請在經費允許下，持續鼓勵研究者參加國際研討會，進行學術交流，吸取最新研究資訊，除可提升研究者語言及溝通能力，並將有助於台灣學術之發展，提升台灣學術研究之能見度。

- 肆、 附錄
- 一、 會議議程
- 二、 發表論文全文
- 三、 活動照片

IAM2013W Program

January 28, 2013 (Monday).	
15:00-17:00	Registration (Lobby, 1 st Floor)

January 29, 2013 (Tuesday)			
09:00-17:00 Registration (3rd Floor)			
Room	Rosario (3rd Floor)	Syrah (3rd Floor)	Niagara (3rd Floor)
09:00-10:00	Social Time (Refreshment, 3 rd Floor)		
10:00-12:00	Session A1	Session A2	Session A3
12:00-14:00	Lunch (Restaurant Vigne, 1 st Floor)		
14:00-16:00	Session B1	Session B2	Session B3
16:00-17:00	Social Time (Refreshment, 3 rd Floor)		

January 30, 2013 (Wednesday)			
09:00-17:00 Registration (3rd Floor)			
Room	Rosario (3rd Floor)	Syrah (3rd Floor)	Niagara (3rd Floor)
09:00-10:00	Social Time (Refreshment, 3 rd Floor)		
10:00-12:00	Session C1	Session C2	Session C3
12:00-14:00	Lunch (Restaurant Vigne, 1 st Floor)		
14:00-16:00	Session D1	Session D2	Session D3
16:00-17:00	Social Time (Refreshment, 3 rd Floor)		

January 31, 2013 (Thursday)			
09:00-17:00 Registration (3rd Floor)			
Room	Rosario (3rd Floor)	Syrah (3rd Floor)	Niagara (3rd Floor)
09:00-10:00	Social Time (Refreshment, 3 rd Floor)		
10:00-12:00	Session E1	Session E2	Session E3
12:00-14:00	Lunch (Restaurant Vigne, 1 st Floor)		
14:00-16:00	Session F1	Session F2	Session F3
16:00-17:00	Social Time (Refreshment, 3 rd Floor)		

PID	Paper Title	Author(s)	Session
P0108	Toward an Intelligent Sea and Air Freight Logistics Information Services Platform: A Coordination Theory Perspective	Kai Wang, Chi-Hwa Chen, Ja-Ching Chou, Paul Lin, Glendy Kuan, Marisa Wang, Cheng-Kiang Farn	C3
P0109	Proposed Framework in Developing an Efficient Electronic Supply Chain	Mukul Jain, Asit Bandyopadhyay	D3
P0113	Profiting from Technical Analysis in Taiwan Equity Markets	Ti-Ling Wang, chao-hui yeh	D2
P0117	Job Satisfaction and Turnover: Literature Review	talal ratyan alanazi, Dhaifallah Obaid Almutairi, Amran Mohd Rasli	B2
P0122	Delivering and Performing Customer Service for Customer Satisfaction in Selected Restaurants in the Philippine Setting	DR. ISAIAS LAGSA BORRES	F1
P0123	A Novel Data Hiding Method Using 3-Axis in 2D	Hui-Shih Leng, Hsien-Wen Tseng	C2
P0125	Information Framework for Integrating Design and Manufacturing	Tien-Hsiung Chu	C2
P0128	Clinical Information System in improving Surgery Patient Care	NAN CHEN HSIEH, JUI FA CHEN, HSIN CHE TSAI	A2
P0129	An Investigation of the Performances of the Regional Center and Traditional Branches: Evidence from Taiwanese Banks	Su-Lien Lu, Kuo-Jung Lee, Yung-Fu Huang	F1
P0131	A Collaborative Research Dialogue between Practitioners and Academics	Yen-Chun Jim Wu, Wen-Hsiung Wu, Chun-Yu Chen	D2
P0133	Effects of Computer-mediated Communication Factors on Cyberbullying Behavior among Middle School Students	Wei-Pang Wu, Hui-Ling Yang	Poster
P0135	Control, Trust, and Uncertainty in Virtual Learning Communities: A Research Model	Ying-Wei Shih	Poster

PID	Paper Title	Author(s)	Session
P0136	Valuation of Franchise Investments in an Option Games Analysis	Kuo-Jung Lee	F1
P0140	Comparing the Decision Tree Approaches for the Models Assessing Costs for Risks and Determining the Optimal Number of Suppliers	Ching-Ter Chang, Zheng-Yun Wayne Zhuang	D3
P0141	The Roles of Reputation on Retention and Cross-buying in Premium Banking Services	Patria Laksamana, David Wong, Russell P.J. Kingshott, Fatimah Muchtar	E2
P0143	A Model of Leadership Development for Deputy Director of Nursing and Public Health Colleges: A Case Study of the Ministry of Public Health, Thailand	Saengchom Tanomsingh, Patcharee Dumrongsuntornchai	B2
P0144	A Study of Gender Difference in Playing Online Games: Using the IQA Approach	Chwen-Yea Lin, Chien-Chung Tu, Kwoting Fang	C3
P0145	Double Embedding Scheme Using 3-Axis in 2D	Hui-Shih Leng, Hsien-Wen Tseng	C2
P0146	Non Parametric Simulations of the Standardized Return as Disturbances	Huang Chia-Hsing, Wang Yi-Hsien, Lin Shu-Shian	A2
P0148	Producing a Feature-based Summary of Opinions on Products using Chinese Sentence Patterns	Shiu-Li Huang, Wen-Chi Cheng	A3
P0149	The Study of R&D Personnel Innovation Behavior - Organizational Innovation Climate as Moderate Variable	Han-Jen Niu, Chin-Yu Hsieh, Hsyao-Yunn Lee, Po-Ying Chen	F3
P0150	The Adolescent Consumers Innovativeness as a Moderate Variable to Analyze Online Buying Behavior in Technology Acceptance Model	Han-Jen Niu, Po-Ying Chen, Yu-Shan Huang, Teng-Yi Liu	E2
P0151	Parental Influence on Adolescent Online Purchase Behavior - A Consumer Socialization Model	Han-Jen Niu, Teng-Yi Liu, Chih-Wei Liao,	E2

PID	Paper Title	Author(s)	Session
		Chin-Yu Hsieh	
P0152	Economic Design of a Short-run CSP-1 Plan Based on Quality Investment	Chung-Ho Chen	D3
P0153	The Influence of Introduction Strategies for Product Upgrades on Consumer Purchasing Decisions	Ming Te Liu, Pi Chu Wu	C3
P0154	Optimal Ordering Policy under Unbalanced Two-Level Trade Credit in Supply Chain	Yung-Fu Huang, Kuo-Lung Hou	A1
P0156	Determinants of Entrepreneurial Intentions among College Students in the Department of Hospitality and Tourism Management	Hsi-Chi Hsiao, Ya-Ling Tu	Poster
P0158	R&D Innovations and Stock Returns in Strategic Alliances	WeiJu Young	F1
P0160	A Multi-Stage Inventory Model with Multiple Suppliers: A Multi-Objective Method	S.C. Chang, C.T. Chang, C.Y. Li	C1
P0162	Lead User Participation in Brand Community: The Case of Chinese Microsoft MVPs	Hsin-Yun Hu, Pai Cheng Shih, Cheng-Kiang Farn	F2
P0164	Open Innovation Climate and Job Satisfaction: Empirical Study of Cosmetology Businesses in Taiwan	Yen-Cheng Chen, Ching-Sung Lee, Ben-Chang Shia	A3
P0165	Job Performance and Job Satisfaction: Roles of Organizational Commitment and Psychological Contract	Pei-Ling Tsui, Yi-Shyuan Lin, Tung-Han Yu	Poster
P0166	A Study on Evaluating Hotel Spa Atmosphere	Tung-Han Yu, Yen-Cheng Chen, Pei-Ling Tsui, Wei-Wen Wu	Poster
P0167	Using DEMATEL-Based ANP Method to Analyze Critical Infrastructures	James Liou, Yen-Ching Chuang, Chun-Nen Huang	D3
P0168	Clarifying Users' Continuous intention to Get Healthcare Information Online - A Study Based on the Behavior Model of Health Service Utilization	Hsiu-Ju Chen	B1
P0169	Earnings Management and Institutional Ownership around SEOs	Junming Hsu	F1

PID	Paper Title	Author(s)	Session
P0170	Modeling Eco-design Method for Innovative Product Management	Ko Yao Tsung, Kuo Ping Hong, Chen Ming Shih	B3
P0171	Exploration of Innovative Values of RFID Industry	Pei Shu Fan, Cheng Chin Tsao, Chin Yuan Fan, Kou Huang Chen	B3
P0172	Research on Garments Management by RFID	Li Chun Wu, Chung Kuang Wu, Pei Shu Fan, Lan Fang Kao	B3
P0173	Application of an Innovative Transparent Response System on Hospital Incident Reporting Management	Ying-Chun Li, Szuchang Wang, Hung-Chi Huang	A2
P0174	A Study of Evolving Ethnic Issues in the Five Central Asian Republics of the Commonwealth of Independent States	CHOU KENG SHENG	F3
P0175	Debate on the Rise of the Taiwan New Literature Movement	FANG LI CHUAN	F3
P0176	The Development of Knowledge Portal: Case study: Phetchabun Rajabhat University and National University of Laos	Sakchai Tangwannawit, Panana Tangwannawit	B3
P0177	Using a Hybrid Model to Select a Service Provider	Lee Hsin Yi, Lo Huai Wei, Fan Ya Lin, Liou James J.H	B1
P0178	The Discussion of the Flow of Talent on Cultivated Long-Term Care Professionals Capital in Aging Society: The Reflections on the Experiential Development of Japan, Germany and Britain	Ssu Chiu Lan, Chang, Hao-Feng	F3
P0179	The Effects of Guanxi on the Relationship Performance: The Moderating Effects of Organizational Learning Capability	Chin-Fang Yang, Chi-Shiun Lai, Wei-Yuan Guh	C3
P0182	Building the Customer Satisfaction Forecasting Model for Coffee Chain Stores: A View from Service Quality, Customer Value and Brand	Shih-Chien Chien	A3

PID	Paper Title	Author(s)	Session
	Equity		
P0186	Assessment of Risk Perception of Global Climate Change among College Students	Tai Yi Yu	Poster
P0187	The Optimal Production and Inspection Strategy for the Integration of Manufacturers and Retailers	Yan Chun Chen, Ya Hui Lin	A1
P0191	Conflict of Interest of Investment Banks: Evident from Their Stock Recommendation and Trades	Mei-Chen Lin, Jyun-Hao Hsiao	D2
P0193	Investigating the Influence of Internet Self-efficacy (ISE) and Trust in Information Security (TIIS) of Employment Website Users on Their Attitudes Towards Using the Site	Jon Chao Hong, Pei Hsin Lin, Chih Lin Wang	B2
P0194	The Development and Validation of Network Dependency Anxiety for Internet Users	Hui-Jen Yang, Yun-Long Lay, Justin S. Lay, Chiau-Tien Lay	Poster
P0195	Implementation and Evaluation of Lip Image Key	Yun-Long Lay, Hui-Jen Yang, Che-Wei Lin, Justin S. Lay	Poster
P0199	The Design of Physical Games for Learning the Lotus Effect	Wernhuar Tarng, Chih Ming Lin, Chi-Young Lee, Shih-Hsien Tsai, Hsin-Hun Liou	F1
P0202	Applying Self-Determination Theory to Realize the Childbearing Intention of Taiwan University Students	Yao Hsiao Ping	F2
P0203	An Exploration of the Tourism Industry Cooperation Strategy between Taiwan and WTSEZ using the Game Theory	Li-Yang Hsieh, Hsiang-Sheng Lin, Yao-Hsien Lee, Sheu-Chin Kung	C1
P0205	A Study of Applying ARIMA and Multiple Regression Models to Volume of Currency Issued Prediction	Yuehjen Eric Shao	E3
P0207	With and Without IFRS Adoption a Comparison between European Union and the U.S. Life	Liang-Feng Lin, Yu-Jou Chen	A2

PID	Paper Title	Author(s)	Session
	Insurance Industry		
P0208	Team Learning In New Product Project: Transactive Memory View	Jing-Wen Huang, Yong-Hui Li	Poster
P0210	Development of an e-wealth management "Zyberspeedwealth" for Thai Depositors	Vachirasak Chungsathaporn	C3
P0211	Body Control Factors of Presence for Interacting in Virtual Environment with Microsoft Kinect	Huey-Min Sun	D2
P0212	Linking Transformational Leadership and Employees' Service Innovation Behavior: The Mediating Roles of Creative Self-Efficacy and Expected Image Outcomes	Ping-Jen Kao, Jun Yu Zhong, Jean Yi Chen, Hsien Tung Tsai	A1
P0213	A Nest Logit Model of Travel Mode Choice for Planned Special Events	Mei-Shiang Chang, Pei-Rong Lu	A2
P0214	Collaboration on Corporate Social Responsibility in a Three-tier Supply Chain	Che-Fu Hsueh	A3
P0215	The Intellectual Property Rights of Insurance Industry	Calvin S. Weng	C2
P0216	A Note on the Sample Size Requirements for Interval Estimation of the Strength of Association Effect Sizes in Multiple Regression Analysis	Gwowen Shieh, Show-LI Jan	B2
P0217	Variable Scaling Hybrid Differential Evolution for Power System Applications	Ji-Pyng Chiou, Chung-Wei Lo, Chung-Fu Chang	F3
P0218	Does It Work? An Empirical Study of the Effect on Organizational Commitment by Internal Marketing and Job Satisfaction of Nurses in Taiwan	Ting-Chung Huang, Wen-Ching Huang	Poster
P0222	Factors Influence on Supplier and Reseller Future Collaboration- Moderating Effects of Brand Reputation	Hao Hsiang Tsao, Shui Lien Chen, Yuh-Neu Chiang	Poster
P0223	The Effects of Gender and Self-monitoring on Consumers' Decision Making in Choice for Others	Hung-Chou Lin, Sheng-Hsien Lee	F2
P0224	Study on Environmental Consciousness and Energy Saving Behaviors of Taipei Metropolitans	YI-TING CHEN, Chi-Ming Hsieh, Chun-Hung Lee	E1

PID	Paper Title	Author(s)	Session
P0225	Evaluation of Economic Benefits under National Park Recreation Impact Program – A Case of Taroko National Park in Taiwan	CHIEH-TING YANG, Chun-Hung Lee, Chi-Ming Hsieh	E1
P0226	Applying QFD and AD To Seek Lean Service Design--The Case Of Taiwan High Speed Rail	PAO-TIAO CHUANG	A3
P0227	Explaining and Predicting Website Satisfaction: The Webreep Model	Brent Lynn Selby Coker	E2
P0228	Using Artificial Fish Swarm Algorithm to Optimize Service Satisfaction Performance and Characteristic Model for Mainland Tourist in Taiwan	Su-Mei Lin, Zong-Wei Zhu	F2
P0229	Strategic Alliances Mechanism between Developed and Developing Country Based Firms: Australia-Malaysia Model	Ahmad Bashawir Abd. Ghani, Muhammad Subhan	E3
P0230	Innovative Potable Water Treatment Device Using in Flooding Situation: Conceptual Framework	Tadchula Kalantapura	B3
P0232	Simulation Optimization for Execution Level Capacity Planning and Scheduling in Semiconductor Backend Manufacturing	James T Lin, Chien-Ming Chen	A2
P0234	Evaluation of Economic Benefits from Visitor's Quality Improvement Programs for Ecotourism - A Case Study of Meqmegi	Yu-Jui Ho, Chun-Hung Lee	E1
P0235	Solving Optimal Match-up Problem with Heuristics Algorithm: A Simulation-Based Investigation	Tsung-Sheng Chang, Cheng-Yuan Ku, Hsin-Pin Fu	C1
P0236	Does DSS Work for Taiwan's Large Enterprises: Ten Major Concerns for IS Managers	Wei-Hung Hsiao	C1
P0238	The Evaluation and Selection for Key Factors of Bus Service Quality-Exemplified by Joint Buses in the Taipei Area	Chia-Hao, Chang, Chen Jen Shiang	F2
P0239	The Application of Metaheuristics to Solving Location Routing Problem with Time Windows	Meilinda Fitriani Nur Maghfiroh, Anak Agung Ngurah Perwira Redi, Vincent F. Yu	D3

PID	Paper Title	Author(s)	Session
P0241	Coworker Support and Organisational Commitment amongst Thai Cabin Attendants: An Empirical Examination of the Moderating Role of Organisational Culture	Thanawut Limpanitgul, Pattana Boonchoo	B2
P0243	Antecedents of Intention to Use CUSS System: Moderating Effects of Self-Efficacy	Iee-Fung Karen Wu, Shui-Lien Lily Chen, Shuan-Hua Liu	Poster
P0244	Technology Dependence and Alliance Relationship within Semiconductor Companies	Chun-Chieh Wang, Mu-Hsuan Huang, Dar-Zen Chen	C2
P0245	Evaluation of Economic Benefits from Quality Improvement Programs in Historical & Cultural Site - A Case of Taiwan	Chun Hung Lee, Chi-Ming Hsieh	E1
P0247	A Study on Relationship Marketing Progress and Relationship Outcomes in Hairdressing Industry	Mei-Ying Lee, Chun-Yu Chen	E1
P0250	Improving the Performance of Classifying Review Manipulation in E-commerce	Long-Sheng Chen, Ching-Yun Hsueh, Chun-Chin Hsu	B1
P0251	Research of Stroke Health Innovative Management Services - Base on Information System Success Model	Chien-Lung Hsu	A1
P0252	Understanding IS Consulting Service from the Perspective of Service Science	Jessica HF Chen	B1
P0256	The Effect of Animated Spokes-Character Type upon On-line Advertisements -The Moderating Role of Product Type	Ya Hui Hsu, Wenchang Fang, Hsiu Ya Kuo	E2
P0257	Understanding the Determinants of Telehealth Systems Adoption: A Combined Model of TPB and TAM	Cheng Min Chao	Poster
P0258	Option Pricing and Hedging with Nonlinear Volatility Functions	I-Yuan Chuang, Hsiun-Yi Tzeng	C3
P0259	The Empirical Survey of Domestic Travel Behaviors in Yilan County	Sou-Chein Wu	E2
P0260	Does Managerial Overconfidence Drive the Increasing Debt Ratios over Corporate Life	Chu-San Edward Wang, Chuan-Ying	A2

PID	Paper Title	Author(s)	Session
	Cycle? Evidence from Taiwanese Public Firms	Hsu, Wang-Ting Huang	
P0261	A Study on Features of Social Network Sites - Facebook as the Example	Yu-Chin Liu, Che-Shiuan Chen	Poster
P0265	Enhanced DES Cryptosystem For Local Area Network	Te Kwei Wang	F3
P0266	The Evaluation of Logistics Service Quality on Store-to-Store Delivery Service for Online Auction	Yu-kai Huang, Cheng-Chi Chung	E2
P0268	The Influence of Media Richness and Values on Purchase Intention on Facebook Fan Pages	Wen-Kuo Chen, Mann-Hsuan Chien, Yu-Sung Huang, Chien-Wen Chen	A1
P0269	Hybridization of SVR with Chaotic ant Swarm Optimization and Seasonal Mechanism in Electric Load Forecasting	Wei-Chiang Hong, Yucheng Dong	Poster
P0270	Constructing Knowledge Maps and Knowledge Documents of Department Affairs in Universities by Focus Group Interviews	Kuang-Hui Chiu, Yao-Chung Yu	C1
P0271	Applying Linguistic Multi-Person Multi-Attribute Game for Product Development Strategy Decision	Chen-Tung Chen, Wei -Zhan Hung	Poster
P0274	Value Co-Creation with Customers at High-Tech Industry B2B Market	Chang Hyun Park, Heesang Lee	B3
P0276	Embedding Innovation DNA and Harnessing Ambidexterity	Rajaram Venkataraman	C2
P0277	How to Utilize Biomimicry for Product innovation	Min-ki Lee, Hea-Geun Song	Poster
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The Impact of Green Product Knowledge and Involvement with the Environment on Purchase Intention - The Moderating Effect of Guilt Appeals

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Abstract

As environmental awareness grows gradually, sustainable development has become an important global issue. The people conscious, implementation of the government policy, enterprise coordinating one after another, and creating the opportunities simultaneously all give flourish nutrients to green products. Advertisers also have relied on emotional appeals to try to change and shape attitudes toward consumers and to convince them into buying products. This paper discusses the optimal way for information presented in an advertisement for green marketing and prompting customers to purchase them.

The main factor of this study includes customer's knowledge of green product and environmental involvement. With the rise of green consumption patterns, it has become a crucial topic to arouse people's self-consciousness. Therefore, we use guilt appeals as one of emotional factors affect the purchase intention. Guilt appeals are used as a moderator at the same time to explore the impact on green product purchase intention whether guilt appeals will affect different product knowledge level and the involvement with the environment in the different case.

We use convenience questionnaire survey to collect samples. The results indicate that: (1) The knowledge of consumers for green products is a positive determinant of the willingness to buy green products. (2) The involvement with the environment is a positive determinant of green product purchase intention. (3) Guilt appeals is a positive determinant of green product purchase intention. (4) With the moderating effect of guilt appeals, there are not significant differences between the involvement with the environment and purchase intention. (5) With the moderating effect of guilt appeals, there are not significant differences between green product knowledge and purchase intention.

Keywords: Green marketing, green product purchase intention, product knowledge, guilt appeals, involvement with the environment

1. Introduction

Taiwan started industrialization since 1950. However, it has been paying a high ecological price for its rapid growth of the economy in terms of worsening pollution and environmental deterioration. Consequently, environmental awareness is gradually gaining ground in the late 1970s; German government promoted the Blue Angel eco-label, and it is the beginning of global green consumption. Each country is found to adopt the pattern of increasing green consumer concern gradually, and put the concept of sustainable growth into effect. Social responsibility is not only a burdensome but a fantastic opportunity for green consumption because the increase in environmental consciousness has had a profound effect on consumer behavior, with the green product market expanding at a remarkable rate. After 1990, green marketing enter the market (Shrivastava, 1994). When the enterprise pay more attention to customers, the more interest they focus on green advertisement (Banerjee, Gulas, & Iyer, 1995; Kangun, Carlson, & Grove, 1991).

As green marketing has been blooming, we have to focus on how to present the advertisement related to green issues well, and to understand and produce green products that meet customer's need (D'Souza, Clare, Taghian, Lamb, & Peretiatko, 2007). According to that, we eager to ascertain the key factors that influence customers on buying green products. D'Souza and Taghian (2005), show that customers who are different involvement with the environment will have different attitudes toward green advertising performance. Theory of Planned Behavior (TPB), performed by Ajzen, emphasizes that the attitude toward behavior is one of factors that affect behavior intention. Jimenez (2007) suggests that guilt appeals would influence the effect which green advertisement shows; it means guilt appeals will change consumers' attitude. Smith and Park (1992) point out when consumers are lack of product knowledge, the effect of product correlation for the extension product purchase intention is significant, hence, the research assumes that purchase intention will be affected by level of product knowledge. Above all, this study will integrate the concepts of green marketing, green product knowledge, and involvement with the environment to manage the impact between guilt appeals or not.

In view of the research background and motivation, the objective of this article is to ascertain the antecedent factors of green product purchase intention: The knowledge of consumers for green products and involvement with the environment, use guilt appeals vs. non-guilt appeals as a moderator to obtain insight from green consumption intention. The results of this research will provide guidelines for green marketers planning to sale green products. Not only the enterprises and government will benefit from it, but also environmental organizations who want to arouse the awareness for sustainability and care about the environment last.

The research is structured as follows: we first review the literature pertaining to the conceptual theories of variables, includes knowledge of consumers for green products, the

involvement with the environment, green consumption concepts and guilt appeals on green products purchase intention, and this leads to the development of propositions for the study. Second, the development of the conceptual research model, framework and methodology are described. Third, we will examine the hypotheses and obtain the results. Finally, the research objectives to be considered for future research understanding in the context of green buying behavior are proposed.

2. Literature Review

2.1 Green marketing

American Marketing Association (AMA) defines green marketing as the study of the positive and negative aspects of marketing activities on pollution, energy depletion and non-energy resource depletion (Henion & Kinnear, 1976). Peattie (1992) proposed green marketing as a holistic management process that aims recognizing, understanding and ultimately satisfying the needs of customers and also the overall society, in a profitable and sustainable way. Later, Polonsky (1994) defined it as green or environmental marketing consists of all activities designed to generate and facilitate any exchanges intended to satisfy human needs or wants, such that the satisfaction of these needs and wants occurs, with minimal detrimental impact on the natural environment. According to the Green marketing is focus on the ultimate aim of satisfying customer need as a keystone of classical marketing but with the addition of “minimal detrimental impact” or “in a sustainable manner” to make it green. Kotler (1994) suggested that green marketing focus on a company try hard to produce ecological protection products, recyclable and biodegradable package, to advance in pollution prevention, and use resources more efficient.

2.2 Demographic factors

When reviewing scientific studies and empirical research into demographic profile of a green consumer, Getzner et al. (2004) notice that the majority of studies were focused on discernment of those demographic characteristics that have an impact on green consumer's behavior or on formation of his eco-friendly attitude; it means there is a significant correlation between demographic variables and green consumption behavior (Ottman, 1991; Roper Organization, 1990; Vining & Ebreo, 1990; Mohai & Twight, 1987). Ottman (1999) identifies that women, high-income, and highly educated are accepted higher degree of environmental-oriented marketing; Peattie (1992) asserts that women and adults with children are more sensitive to environmental issues. It is often considered that the average age of a green consumer is lower than that of a typical consumer, i.e. younger people are more likely to be sensitive to environmental issues (D'Souza, Taghian, Lamb, & Peretaitko, 2007). However, some researches show the opposite results either (do Paco, Raposo, & Filho, 2009).

2.3 Green Product

The aim of green products is to select the least impact upon the natural environment over their entire lifecycle from cradle to the grave (Wagner, 1997; Chater, 1992). There is no widespread agreement on what exactly makes a product green. Some general guidelines include that a green product:

I . Elkington (1989) propose the standards as follows:

- does not present a health hazard to people or animals;
- is relatively efficient in its use of resources during manufacture, use, and disposal;
- does not contribute to excessive waste in its use or packaging;
- does not rely on unnecessary use of or cruelty to animals;
- does not incorporate materials derived from endangered species or threatened environments.

II . Ottman (1999) indicates that the concept of green products is relative because there must have a loss of energy and resources. Consequently, green products are those that have less of impact on the environment or are less detrimental to human health than traditional equivalents. Green products might, typically, be formed or part-formed from recycled components, be manufactured in a more energy-conservative way, or be supplied to the market with less packaging.

2.4 Product Knowledge

Smith (1988) defines product knowledge as a perception consumers have towards products, including previous experience of using the product. Rao and Monore (1989) also point that people with high product knowledge will barely use stereotypes to judge things; they usually use intrinsic cues to measure product quality, and people with low product knowledge is accustomed to extrinsic cues- generally it means price or brand, to assess products. Above that, consumers develop various product knowledge structure based on various degree of familiarity toward a product, and the degree of product knowledge also affects consumers' purchase intention (Park & Lessig, 1981).

2.5 Involvement with the Environment

It is a familiar concept of involvement in marketing research, and is generally defined as a personal perception towards a person or an event (Zaichkowsky, 1985 ; Park & Young, 1986; Wright, 1973; Petty & Cacioppo, 1983), and it is part of individual difference variables. On the basis of the concept, involvement with the environment can be regarded as the relevance of the environment-related messages and individuals. Shrum, McCarty and Lowrey (1995) indicate that the degree of concerning with the environment will affect purchase behavior to customers.

Elaboration Likelihood Model (ELM) is proposed by Petty and Cacioppo (1983). They consider that most persuasive researches could be classified into two persuasive routes: central route and peripheral route. Individuals in the central route are with motivation and

ability use rational decision to manage messages because of sufficient knowledge. On the contrary, individuals who are without motivation or ability will be easily affected by external factors; they use peripheral cues (i.e. emotional appeals in the ad) to make decisions.

High involvement customers are with strong motivation to collect more information, and consumers who have adopted peripheral route have based on their data sources on peripheral cues. The co-called peripheral cue means the information that is not a product feature or function related directly. Therefore, we can use different appeals to convince customers' attitude in different segmentation.

2.6 Guilt Appeals

According to the precious researches, guilt is a feeling that individuals judge their behavior violated the ethical standards based on existing knowledge (Freedman, Wallington & Bless, 1967). After experiencing guilt, people may be willing to do some compensate in order to reduce the feeling they can endure (Ghingold, 1981; Izard, 1977; Wolman, 1973). Aaker (1986) notices that consumers' willingness to buy and attitudes would be influenced by guilt. Later, Lascu (1991) proposes consumer guilty as an emotion that consumer awareness violate ethical standards and feel anxiety. This emotion could be found by buying goods, service, experience, or without buying products which are specified by moral or social ethics. Therefore, marketers can use guilt appeals to revise and compensate their behavior violated. Negative appeals are used to create an emotional imbalance which can be rectified by engaging in the featured behavior. Bennett found that guilt appeals are generally more likely to results in positive responses to advertisements and empathy.

2.7 Green Product Purchase Intention

Fishbein and Ajzen (1975) confirm that purchase intention is a crucial guide often used to predict consumer behavior. In general, we define purchase intention as an emotional reaction after evaluating the product, and it is the possibility that customers want to buy the product (Grewal, Monroe, & Krishnan, 1998). In addition, Schiffman and Kanuk (1994) point out there is a positive relationship between purchase intention and probability of purchase. Chang (2007) emphasizes that customers are more interested in buying green products than non-green products, but in practice, there are only 4% of the 40% customers who have willingness put into action (United Nations Environment Programme, 2005). In addition to the less proportion of green products on the market, we want to investigate the effect on purchase intention by using different product knowledge, involvement with the environment, and guilt/ non-guilt appeals.

3. Methodology

3.1 Research Hypothesis

After reviewing literature, our research does some inferences to explore the antecedents of willingness to buy green products. Thus, we suggest the following hypothesis:

H1: The higher degree of involvement with the environment that the consumers have, the more positive willingness they have to buy green products.

H2: The higher green product knowledge consumers possess, the more positive willingness they have to buy green products.

H3: Advertisement guilt appeals relate positively to consumption willingness of green products.

People with higher degree of product knowledge are likely to use central route to think when watching an advertisement. However, people with lower degree of product knowledge likely to use peripheral route to think due to lower product information - processing ability for ads. La Barbera, Weingard and Yorkston (1998) indicate that if the type of message processing and advertise appeals are consistent, there will be the best advertising effect. Therefore, our study inferences that when the customers have less green product knowledge, giving guilt appeals will lead them to make purchase decisions. However, when the customers have much more green product knowledge, giving guilt appeals will lead them to have negative effects. Therefore, there is more positive willingness without giving guilt appeals.

H4: Customers' green product knowledge and guilt appeals have interactions.

H4a : When customers have less green product knowledge, there will be more positive willingness to buy green products if emphasizing guilt appeals instead of non-guilt appeals.

H4b : When customers have much more green product knowledge, there will be more positive willingness to buy green products if emphasizing non-guilt appeals instead of guilt appeals.

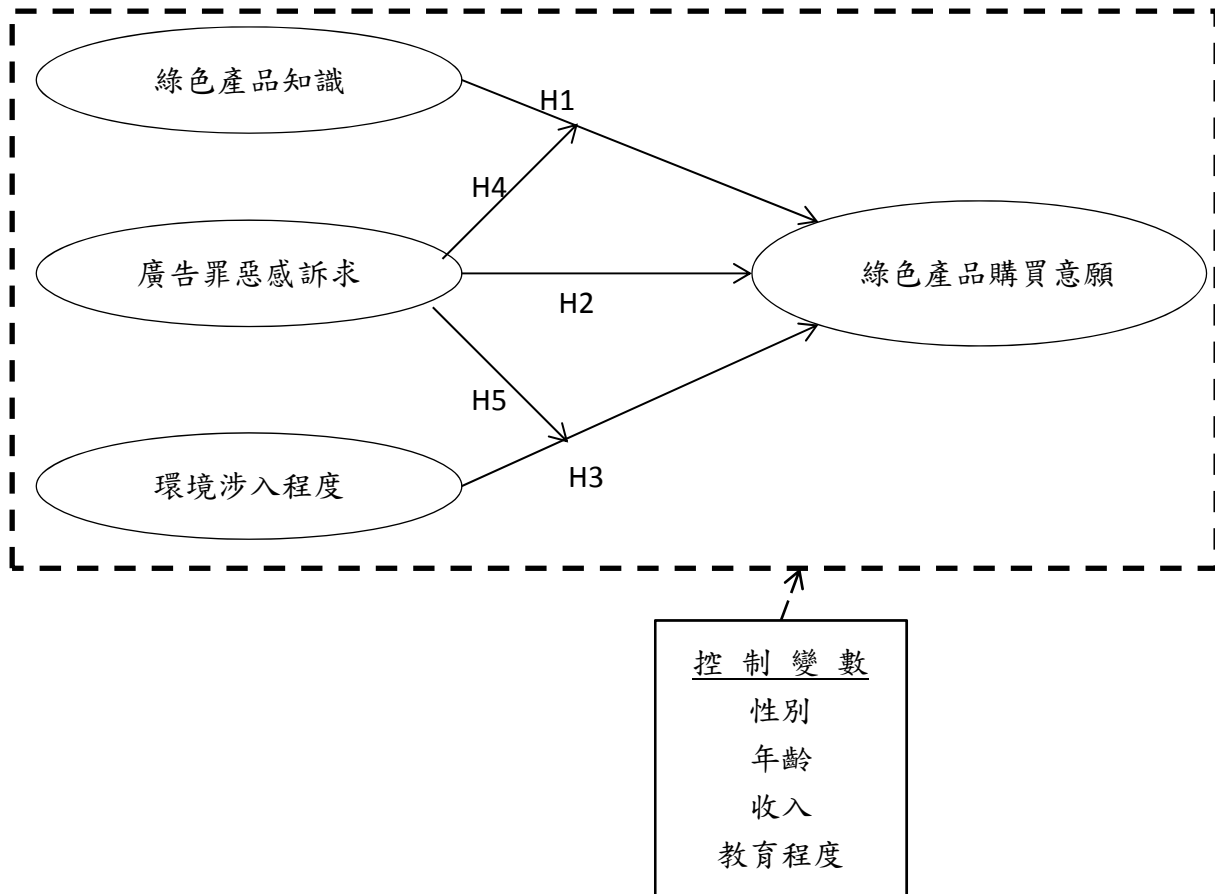
Krugman (1965) suggests that people with lower degree of involvement don't associate advertisement content, and vice versa. Petty and Cacioppo (1981) indicates that people with higher degree of involvement have certain environment knowledge, so they think rationally about the messages they receive while select products, then they make purchase decisions. D'Souza and Taghian (2005) insist that the media often make exaggerated ads, so that people with higher degree of involvement the environment do not believe green ads anymore. Thus, we have the following hypothesis:

H5 : The involvement with the environment and guilt appeals has interactions.

H5a : When customers have higher degree of involvement with the environment, there will be more positive willingness to buy green products if emphasizing non-guilt appeals instead of guilt appeals.

H5b : When customers have lower degree of involvement with the environment,, there will be more positive willingness to buy green products if emphasizing guilt appeals instead of non-guilt appeals.

According to the hypotheses, the research frameworks are as follows:



3.2 Questionnaire Development

By referencing from the past researches, we modified the questionnaire to the appropriate situation and generalized the following definitions and questions:

Dimension	Question (seven-point Likert-type)	Source
Involvement with the environment	<p>I 、High and low involvement</p> <p>(1) My action impact on the environment. (i.e. : purchase over-packing goods, and sort garbage)</p> <p>(2) I am willing to make some sacrifices to protect the environment.</p> <p>(3) Environmental condition will affect my life.</p> <p>(4) I am concerned about the environment.</p> <p>II 、The New Environmental Paradigm</p> <p>(1) We are approaching the limit of the number of people the earth can support.</p> <p>(2) The balance of nature is very delicate and easily upset.</p> <p>(3) When humans interfere with nature it often produces disastrous consequences.</p> <p>(4) To maintain a healthy economy we will have to develop a “steady state” economy where industrial growth is controlled.</p> <p>(5) Humans must live in harmony with nature in</p>	Schuhwerk and Lefkoff-Hagius (1995); Van Liere and Dunlap (1978)

Dimension	Question (seven-point Likert-type)	Source
	<p>order to survive.</p> <p>(6) The earth is like a spaceship with only limited room and resources.</p> <p>(7) There are limits to growth beyond which our industrialized society cannot expand.</p> <p>(8) (8) Mankind is severely abusing the environment.</p>	
Green product knowledge	<p>(1) I have certain degree of knowledge of the environmentally friendly laundry detergent.</p> <p>(2) I will take the initiative to learn about knowledge of environmentally friendly laundry detergent.</p> <p>(3) I can provide a proposal to others on environmentally friendly detergent.</p> <p>(4) I have an experience on using the environmentally friendly detergent.</p> <p>(5) (5) I can compare the different features of the environmentally friendly detergent.</p>	Alba and Hutchinson (1987)
Guilt appeals	<p>(1) I feel guilty after watching the advertisement.</p>	Cotte et al. (2005)
Purchase intention	<p>After watching the advertisement :</p> <p>(1) If I were going to buy the product, I would consider buying environmentally friendly detergent.</p> <p>(2) If I happened to see the environmentally friendly detergent, I would buy it.</p> <p>(3) I would recommend my family and friends to buy the environmentally friendly detergent.</p> <p>(4) I will buy the environmentally friendly detergent continually.</p> <p>(5) I have the willingness to buy the environmentally friendly detergent in a month.</p> <p>(6) I like the green product in the advertisement.</p> <p>(7) I agree to buy the green product in the advertisement.</p>	Dodds, Monroe, and Grawal (1991); Stafford (1998)

3.3 Pre-Test

We did the pre-test to determine adequate questions. At the beginning, 16 questions were selected to measure involvement with the environment; 5 questions were opted to product knowledge; 2 questions were chosen to guilt appeals; 7 questions were selected to purchase intention. In principal components analysis, we found that 4 reverse questions have lower factor loadings so we cancel them and keep 12 questions. Another, one of guilt appeals questions” I will feel responsible to the advertisement.” is not precise enough to measure the guilt feelings, so we expurgate the question.

4. Results

4.1 Reliability Analysis

There were 187 samples considered valid. Generally, reliability and validity are the two most common measurements of questionnaire quality. A reliability of 0.7 or higher is

considered acceptable, and every factor's internal consistency should greater than 0.6. Table 4.1 shows that all value of dimensions is above the standard.

	Alpha if Item Deleted	Cronbach's Alpha		Alpha if Item Deleted	Cronbach's Alpha
EI1	0.730	0.739	GPK1	0.842	0.879
EI2	0.720		GPK2	0.852	
EI3	0.721		GPK3	0.839	
EI4	0.727		GPK4	0.885	
EI5	0.726		GPK5	0.847	
EI6	0.721	0.905	PI1	0.902	0.905
EI9	0.725		PI2	0.887	
EI11	0.750		PI3	0.889	
EI12	0.716		PI4	0.877	
EI13	0.730		PI5	0.908	
EI15	0.724		PI6	0.891	
EI16	0.712		PI7	0.878	

4.2 Pearson Correlation Analysis

This research has adopted the Pearson correlation method to examine the correlations between all variables. If the ratio is above 0.8, it means very high correlation, 0.6~0.8 is high correlation, 0.4~0.6 is medium correlation; 0.2~0.4 is low correlation, and below 0.2 means very low correlation. The following is the detailed breakdown of the correlation:

Table 4.2 Pearson Correlation Analysis

	PI	EI	GPK	GA	GA_EI	GA_GPK	Gender	Age	Education	Purchasing power
PI	1.000									
EI	.423	1.000								
GPK	.432	.308	1.000							
GA	.253	.228	.101	1.000						
GA_EI	.035	.207	.001	.241	1.000					
GA_GPK	-.044	.001	-.066	-.010	.410	1.000				
Gender	.098	.110	.040	.122	-.006	-.223	1.000			
Age	.009	.160	.122	-.071	.227	.186	-.183	1.000		
Education	.022	-.042	-.063	.018	-.032	-.015	-.207	.145	1.000	
Purchasing power	.034	.214	.186	-.026	.127	.140	-.047	.655	.002	1.000

4.3 Regression Analysis

SPSS was used as the statistical software in this research. We want to examine the individual effect of the independent variables (involvement with the environment, guilt appeals, and green product knowledge) and the moderating variable (guilt appeals). The greater value of adjusted R-square, the more explanation the hypotheses have. The figure is 0.288, and it shows much explanation. Finally, we see the result of the regression value.

Table 4.3 Regression Analysis Results

Hypothesis	Standard error	Beta distribution	Significant value
H1 (EI)	0.111	0.316	p<0.00001 ***

Hypothesis	Standard error	Beta distribution	Significant value
H2 (GPK)	0.049	0.359	p<0.00001 ***
H3 (GA)	0.038	0.143	0.034 *
H4 (GA_EI)	0.056	0.033	0.647
H5 (GA_GPK)	0.068	-0.066	0.372
Gender	0.124	0.044	0.510
Age	0.120	0.023	0.808
Education	0.102	0.036	0.583
Purchasing power	0.078	-0.040	0.642
p value<0.05: * ; P value<0.01: **; p value<0.001: ***			

5. Management implications and Discussion

The positive relation found in our research between green product knowledge and purchase intention is a complement to similar positive relation found by other researches. We also found that there is a positive relation between involvement with the environment and purchase intention, and the positive correlation support previous results by Roberts and Bacon (1997).

The different finding in the study is that guilt appeals of advertisement have the direct effect on purchase intention without considering consumers' knowledge level on green product and involvement with the environment. It is very interesting because we thought people with higher knowledge may dislike the feeling on ads with negative appeals (Eagly et al., 1978), they use their knowledge to decide the purchase actions. Therefore, when we use guilt appeals, they might be treated it as a hyperbole. For consumers who have low green product knowledge, they use peripheral route to make purchase decision. As outlined above, there is no interaction between them. The same view could be discussed to the relation between involvement with the environment and green product purchase intention. We can deduce rationally that the direct power is much larger than moderating power. Besides, it might be affected by the guilt level in ads. In the study, we use words to express guilt, and it may be regard as the middle or low level guilt appeals to the customers, hence, they do not feel the sense of reluctant but only the call to remind them in the ad.

The management suggestions are as follows:

- I. As the time goes by, there is a significant improvement on environmental knowledge, but with little dissemination on turning the knowledge into action. It's recommended to develop campaigns (e.g. TV, school campaigns, and web ads) to propose the importance of concerning the environment and teach consumers to be green consumers.
- II. Marketers can use negative emotional appeals to arouse consumers' intention to buy green products because they would use the actions to compensate inconsistent behavior (e.g. social standards). However, be careful to use them in an appropriate way.

This research has some limitations and future research as below:

- I. We picked up environmental-friendly detergent on behalf of green product and didn't explain the reason why we chose it. In the future research, reasons could be attached.

Moreover, we would use different categories of green products to explore whether there would exist different effects on the dissimilar goods.

- II. We used convenience sampling to the survey. Although we have considered some control variables (age, purchasing power, gender, and education) in the study but some of them didn't have enough samples, therefore, it was easily affected by outliers.

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