

**GREEN TECHNOLOGY USAGE AMONG
STUDENT AT MULTIMEDIA COLLEGE
(NORTHERN) REGION**

NURHIDAYAH BINTI HAJI MAT ZAINI

**UNIVERSITI UTARA MALAYSIA
2012**

**GREEN TECHNOLOGY USAGE AMONG
STUDENT AT MULTIMEDIA COLLEGE
(NORTHERN) REGION**

**A thesis submitted to the College of Business in
partial fulfilment of the requirement for the
degree Master of Science Management
Universiti Utara Malaysia**

By

Nurhidayah Binti Haji Mat Zaini

PERMISSION TO USE

In presenting this project paper in partial of requirement for a postgraduate degree from the Universiti Utara Malaysia(UUM), the author agrees that the University Library may make it freely available for inspection. The author further agree that permission for copying of this thesis in any manner in whole or in part, for scholarly purposes may be granted by my supervisor on in their absence by the Dean of the Graduate School. It is understood that any copying or publication or use of this thesis or parts thereof for financial gain shall not be allowed without any written permission. It is also understood that due recognition shall be given to me and to Universiti Utara Malaysia (UUM) for any scholarly use which may be made of any material from thesis.

Requests for permission to copy or to make other use of materials in this thesis, in whole or in part should be addressed for:

**Assistant Vice-Chancellor
College of Business
Universiti Utara Malaysia
06010 Sintok
Kedah Darul Aman**

ABSTRAK

Terdapat beberapa isu yang sering diperkatakan di dalam persidangan yang menarik perhatian ramai orang pada masa kini. Salah satu daripada isu yang sering dibangkitkan adalah tentang teknologi hijau. Kajian ini hanya difokuskan kepada pelaksanaan teknologi hijau. Secara khususnya, terdapat empat (4) faktor kritikal yang mempengaruhi kejayaan pelaksanaan teknologi hijau iaitu sikap, keberkasan kos, cara hidup dan kesedaran persekitaran. Sebanyak 210 responden telah dipilih untuk menjawab soalan kaji selidik tentang isu penggunaan teknologi hijau. Analisa data menggunakan *Statistical Package for Social Sciences* (SPSS) versi 17.0. Berdasarkan analisis hubungan yang dibuat, kajian ini menunjukkan perhubungan yang positif di antara penggunaan teknologi hijau dengan sikap ($r = 0.579$), keberkasan kos ($r = 0.571$), gaya hidup ($r = 0.605$) dan kesedaran persekitaran ($r = 0.734$) mendorong kepada penggunaan teknologi hijau di kalangan pelajar. Hasil dapatan kajian Ujian-T adalah terdapat perbezaan yang signifikan antara kehadiran ke kursus teknologi hijau dengan kesedaran persekitaran. Secara umumnya, berdasarkan kajian ini masyarakat harus sedar akan kepentingan dan kesan teknologi hijau terhadap mereka secara keseluruhannya demi memelihara bumi kita.

ABSTRACT

There are several issues keep in talking and always be an issues in any conference today that come to attention than others. One of these issues is Green Technology. For the purpose of this research, it only will be focus of on the usage of green technology. This research explores the factors than related the green technology usage. More specifically, there are four causes that lead to the green technology usage which are attitude, cost effectiveness, lifestyle and environmental concern. There is a sample of 210 was chosen as the respondents and questionnaires regarding their intention on this was asked. The data analyzed using Statistical Package for Social Sciences (SPSS) version 17.0. The finding from Pearson Correlation Test showed that there is a significant relationship between green technology usage and attitude ($r = 0.579$), cost effectiveness ($r = 0.571$), lifestyle ($r = 0.605$) and environmental concern ($r = 0.734$). T- test analysis shows that there is difference between attendance on green technology courses and environmental concern. In general, it can be concluded that society should be aware of the importance and impact of green technology in order to preserve our earth.

ACKNOWLEDGEMENT

All praises to Allah, the Almighty, I am able to complete this project paper within the required time.

My sincere thanks and gratitude are extended to my supervisor Dr. Amlus Bin Ibrahim for providing me with a guideline regarding all aspect in this research field, and also for the guidance, suggestion, and lessons. His encouragement, understanding, criticism were helpful and important in completing this project. I would like to thanks to my family and friends for give full support for me in process to complete this project.

I would like to give special thanks to students at Multimedia College (Northern) who are respondents on this research that give me positive feedback and very supportive towards this research and for all who give an effort to participate in this project.

Thank you.

Nurhidayah Binti Haji Mat Zaini

College of Business

Universiti Utara Malaysia

TABLE OF CONTENTS

CONTENTS	PAGE
PERMISSION TO USE	iii
ABSTRACT	iv
ABSTRAK	v
ACKNOWLEDGEMENT	vi
TABLE OF CONTENTS	vii - x
LIST OF TABLES	xi - xii
LIST OF FIGURES	xiii
CHAPTER 1: INTRODUCTION	
1.0 Introduction	1
1.1 An overview of Green Technology	1 - 2
1.2 Problem Statement	3
1.2.1 Attitude	3
1.2.2 Cost effectiveness	3
1.2.3 Lifestyle	3
1.2.4 Environmental concern	3
1.3 Research Question	4
1.4 Research Objective	4
1.5 Significance of research	5
1.6 Organization of the Remaining Chapters	5

1.7	Summary	5
 CHAPTER 2: LITERATURE REVIEW		
2.0	Introduction	6
2.1	Research Background	6
2.2	Green Technology	6 - 8
2.3	Attitude	8 - 11
2.4	Cost Effectiveness	11 - 12
2.5	Lifestyle	12 - 14
2.6	Environmental Concern	14 - 17
2.7	Theoretical Framework	17 - 18
2.8	List of Research Hypotheses	18 - 20
2.9	Summary	20
 CHAPTER 3: RESEARCH METHODOLOGY		
3.0	Introduction	21
3.1	Research Design	21 - 22
3.2	Measurement of Variables	22 - 24
3.3	Population and Sample Design	25 – 27
3.4	Data Collection Procedures	27
	3.4.1 Primary Data	28
3.5	Data Analysis Technique	28
3.6	Pilot Test	28 – 29
3.7	Reliability Analysis	29 – 30

3.8	Statistical Tools: Descriptive Statistics	30
3.9	Hypothesis Testing	30 – 31
3.9.1	Person Correlation Coefficient	31 – 32
3.10	Summary	32

CHAPTER 4: DATA ANALYSIS AND FINDINGS

4.0	Introduction	33
4.1	Sample Characteristics	33
4.2	Descriptive Statistics of Data Collection	34
4.2.1	Gender of Respondents	35
4.2.2	Attendance on Green Technology courses	35
4.3	Mean and Standard Deviation	36
4.3.1	Attitude	37
4.3.2	Cost Effectiveness	38
4.3.3	Lifestyle	39
4.3.4	Environment concern	40
4.3.5	Green technology usage	41
4.4	Reliability Analysis	42 - 43
4.5	Descriptive Statistics	43 - 44
4.6	T-Test	45 - 46
4.7	Restatement of Hypothesis	46 - 48

4.8	Test of Hypothesis	48 - 50
4.11	Summary	51

CHAPTER 5: DISCUSSION, RECOMMENDATION & CONCLUSION

5.0	Introduction	52
5.1	Discussion	52 - 55
5.2	Implication of the research	56 – 57
5.3	Limitation of the research	57
5.3	Recommendations	58

REFERENCES

APPENDIX A - QUESTIONNAIRE

APPENDIX B – RELIABILITY ANALYSIS

LIST OF TABLES

Table 3.1: Summary of the questionnaire	24
Table 3.2: Table for Determining Sample Size from a Given Population	26-27
Table 3.3: Reliability Statistic for the Pilot Test	30
Table 4.1: Response Rate	34
Table 4.2: Gender of Respondents	35
Table 4.3: Attendance on Green Technology courses	35
Table 4.4: Descriptive Statistics	36
Table 4.5: Means and Standard Deviation of items measuring the attitude	37
Table 4.6: Means and Standard Deviation of Items measuring the Cost Effectiveness	38
Table 4.7: Means and Standard Deviation of Items measuring Lifestyle	39
Table 4.8: Means and Standard Deviation of Items measuring the Environment Concern	40
Table 4.9: Means and Standard Deviation of Items measuring the Green Technology Usage	41
Table 4.10: Reliability Statistic for all variables	42
Table 4.11: Reliability Statistic for each variable	43
Table 4.12: Descriptive Statistics	44
Table 4.13: Independent sample T-Test between Attendance Green Technology Courses and each variable	45-47
Table 4.14: Correlations between Attitude and Green Technology Usage	48

Table 4.15: Correlations between Cost Effectiveness and Green Technology Usage	49
Table 4.16: Correlations Lifestyle and Green Technology Usage	50
Table 4.17: Correlations Environment Concern and Green Technology Usage	50
Table 5.1: Summary of result of hypothesis testing	55

LIST OF FIGURE

Figure 2.1	Theoretical Framework	18
------------	-----------------------	----

CHAPTER 1

INTRODUCTION

1.0 Introduction

This chapter explained the introduction and other major aspects of this research. It includes the introduction of the research, research question, research objective, significance of the research, problem statement, assumption and the limitation of the study.

1.1 An overview of Green Technology

"Green Technology" is an initiative evolving various kinds of methodologies and materials enhancement, from techniques for generating energy to non-toxic cleaning products. The main goal to achieve in this rapidly growing field includes sustainability of the economic development. With many scientific studies pertaining to the green technology pointing to global warming and climate changes caused by greenhouse gases, there is an ever increasing societal push for environmental friendly mechanisms to help reduce the impact resulting from fossil fuel consumption, landfill and industrial sector wastages. (Kamaruddin Abu Bakar, 2011).

Other than that, green technology is a broad term for more environmentally friendly solutions. Green technology for that matter can be used as environmental healing technology that reduces environmental damages created by the products and technologies for peoples' conveniences. It is believed that green technology

The contents of
the thesis is for
internal user
only

REFERENCES

- Ajzen, I., & Fishbein, M. (1991). Understanding attitudes and predicting social behavior. Englewood Cliffs, NJ: Prentice Hall
- Armitage, C. J., & Conner, M. (1999). Distinguishing perceptions of control from self-efficacy: Predicting consumption of a low-fat diet using the theory of planned behavior. *Journal of Applied Social Psychology*, 29(1), 72-90.
- Cavana et. al., (2001). Applied business research: qualitative and quantitative methods. Melbourne: John Wiley & Sons.
- Chennamaneni, A. (2006). Determinants of Knowledge Sharing Behavior: Developing and Testing an Integrated Theoretical Model. Unpublished doctoral dissertation, University of Texas, Arlington.
- Chochran, W. G. (1977) Sampling techniques, 3 ed. New York: John Wiley & Sons.
- Dunlap, R. E. and Van Liere, K. D. (1978). The new environment paradigm: a proposed measuring instrument and preliminary result. *Journal of environmental education*, Vol. 9 (p.10-19)
- Gill, James D., Lawrence A. Crosby, James R. Taylor and Taylor, (1981). Ecological concern, attitude and social norms in voting behavior, *Public opinion quarter*, 50 (p. 537-554)
- Hart, S. L. (1997). *Beyond greening: Strategies for a sustainable world*. Harvard Business Review, 66-76.
- Hart, S. L., & Milstein, M. B. (2003). *Creating sustainable value*. *Academy of Management Executive*, 17(2), 56-67.
- Huang, A. (2009). *A Model for Environmentally Sustainable Information Systems Development*. *Journal of Computer Information Systems*, 49(4), 114-121.
- Hutchison, J.E. (2008). Greener nanoscience: *a proactive approach to advancing applications and reducing implications of nanotechnology*. *American Chemical Society Nano*, 2(3), 395- 402.

- Intelix (2010). *Environmental Management System*. Retrieved 10 March 2012, from http://www.intelix.com/Environmental_Management-150-1product.aspx
- Jenkin, T., & McShane, L. (2009). *Green Information Technologies and Systems in Organizations: The State of Practice*. Paper presented at the 2009 Academy of Management Annual Meeting, 7-11 August, Chicago.
- Jenkin, T., Webster, J., & McShane, L. (2009). *An Agenda for "Green" Information Technology and Systems Research*. Paper presented at the 2009 Academy of Management Annual Meeting, 7-11 August, Chicago.
- John, D. (2009). Greentech: The Largest Economic Opportunity of the 21st Century. Speaking at Venue Beat's in San Mateo California, ERIC WESOPF.
- Kamaruddin Abu Bakar et. all (2011). Green technology readiness in Malaysia: *sustainability for business development*. 2nd International Conference on business and economics research, p. 1120 – 1129
- Keegan, G. (2009). Writing a research investigation report, glossary. Retrieved March 2012 from <http://www.gerardkeegan.co.uk/glossary.htm>
- Kinnear, Thomas C., James C. Taylor, and Sahrudin A. Ahmed (1973), "Ecologically Concerned Consumers: Who Are They?" *Journal of Marketing*, 38 (April), 20-24.
- Maloney, M. P., Ward, M. P. & Braught, G. N. (1975). A revised scale for the measurement of ecological attitude and knowledge. *American Psychologist*, Vol. 30, July (p.p 787-90)
- Levy, Y., & Ellis, T.J, (2006). *A Systems Approach to Conduct an Effective Literature Review in Support of Information Systems Research*. *Informing Science Journal*, 9(9), 181-212.
- Mathur, L., & Mathur, I. (2000). *An analysis of the wealth effects of green marketing strategies*. *Journal of Business Research*, 50, 193-200.
- Mun, C.C (2009). A study on consumer's green purchasing attention. Retrieved March 2012 from <http://www.emerald.com>
- Norusis, M. J. (1999). *SPSS 9.0 Guide to data analysis*. Englewood Cliffs: Prentice Hall,

- Oh, T.H., Pang, S.Y., & Shing, C.C. (2010). Energy policy and alternative energy in Malaysia: *issues and challenges for sustainable growth*. Renewable and Sustainable Energy Reviews. 14, 1241-1252.
- Rose, J., & Scheepers, R. (2001). *Structuration Theory and Information Systems Development – Frameworks for Practice*. 9th European Conference on Information Systems, 27-29 June, Bled, Slovenia.
- Sacchero, S. D., & Molla, A. (2009). *Environmental Considerations in ICT Infrastructure Decision Making*. 20th Australasian Conference on Information Systems, 2-4 December, Melbourne, Australia.
- Sanjuan A. I., Sanchez, M., Gil, J. M., Gracia, A., & Soler, F. (2003). Brakes to organic market enlargement in Spain: consumers and retailers attitude and willingness to pay. International Journal of Consumer Studies, 27
- Sayeed, L., & Gill, S. (2008). *An Exploratory Study on Environmental Sustainability and IT Use*. Proceedings of the Fourteenth Americas Conference on Information Systems, 14-17 August, Toronto, Canada.
- Schein, E. H. (1989). *The role of the CEO in the management of change: the case of IT management in the 1990s*. Working Paper (89-075), Sloan School of Management, Massachusetts Institute of Technology, Cambridge, MA.
- Schmidt, K. (2007). *Green nanotechnology: it's easier than you think*. Technical Report: Project on emerging nanotechnologies. National Science Foundation.
- Sekaran, U. & Bougie R. (2010). Research methods for business: a skill building approach, p. 295 – 296
- Simula, H., Lehtimäki, T., & Salo, J. (2009). *Managing greenness in technology marketing*. Journal of Systems and Information Technology, 11(4), 331-346.
- Toffel, M. W., & Horvath, A. (2004). *Environmental implications of wireless technologies: News delivery and business meetings*. Environmental Science & Technology, 38(11), 2961-2970.
- Trochim, W.M.K (2006). Descriptive statistics. Retrieved March 2012 from <http://www.socialresearchmethods.net/>

- Volker, U.F. (2010, November 3). *Malaysia taking right step in green technology*. Retrieved from <http://www.Bernama.com>
- Watson, R. T., Boudreau, M.-C., & Chen, A. J. (2010). *Information Systems and Environmentally Sustainable Development: Energy Informatics and New Directions for the IS Community*. MIS Quarterly, 34(1), 23-38.
- York, P. T., Watson, R. T., Boudreau, M.-C., & Chen, A. (2009). Green IS: Using information systems to encourage green behaviour. Paper presented at the 2009 Academy of Management Annual Meeting, 7-11 August, Chicago.
- Zainura, Z.N. (2010). *Embracing new economy with community-based innovation*. 2nd International University social responsibility: conference & exhibition.
- Zikmund, W. (2000). Business Research Methods, 6th ed. The Dryden Press, Harcourt College Publisher
- Zutshi, A., & Sohal, A. (2004). *Environmental management system adoption by Australasian organisations: part 1: reasons, benefits and impediments*. Technovation, 24(4), 335-357.