

**ENVIRONMENTAL BEHAVIOUR AMONG UNIVERSITY STUDENTS: THE  
APPLICATION OF THEORY OF PLANNED BEHAVIOUR MODEL**

**By**

**ABDULLAH OSMAN**

**Dissertation Submitted to  
Othman Yeop Abdullah Graduate School of Business,  
Universiti Utara Malaysia  
in Partial Fulfillment of the Requirement for the  
Degree of Doctor of Business Administration**



**Kolej Perniagaan**  
(College of Business)  
**Universiti Utara Malaysia**

**PERAKUAN KERJA TESIS / DISERTASI**  
(Certification of thesis / dissertation)

Kami, yang bertandatangan, memperakukan bahawa  
(We, the undersigned, certify that)

**ABDULLAH BIN OSMAN**

calon untuk Ijazah **DOCTOR OF BUSINESS ADMINISTRATION**  
(candidate for the degree of)

telah mengemukakan tesis / disertasi yang bertajuk:  
(has presented his/her thesis / dissertation of the following title):

**ENVIRONMENTAL BEHAVIOUR AMONG UNIVERSITY STUDENTS: THE APPLICATION OF THEORY  
OF PLANNED BEHAVIOUR MODEL**

seperti yang tercatat di muka surat tajuk dan kulit tesis / disertasi.  
(as it appears on the title page and front cover of the thesis / dissertation).

Bahawa tesis/disertasi tersebut boleh diterima dari segi bentuk serta kandungan dan meliputi bidang ilmu dengan memuaskan, sebagaimana yang ditunjukkan oleh calon dalam ujian lisan yang diadakan pada :  
**16 Ogos 2011.**

*That the said thesis/dissertation is acceptable in form and content and displays a satisfactory knowledge of the field of study as demonstrated by the candidate through an oral examination held on:*  
**16 August 2011.**

Pengerusi Viva : **Prof. Dr. Rosli bin Mahmood**  
(Chairman for Viva)

Tandatangan  
(Signature)

Pemeriksa Luar : **Assoc. Prof. Dr. Nik Ramli bin Abdul Rashid**  
(External Examiner)

Tandatangan  
(Signature)

Pemeriksa Dalam : **Dr. Salniza binti Md. Salleh**  
(Internal Examiner)

Tandatangan  
(Signature)

Tarikh: **16 August 2011**  
(Date)



Nama Pelajar : **Abdullah bin Osman**

(Name of Student)

Tajuk Tesis : **Environmental Behaviour among University Students: The Application of Theory of Planned Behaviour Model**

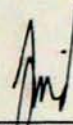
(Title of the Thesis)

Program Pengajian : **Doctor of Business Administration**

(Programme of Study)

Nama Penyelia/Penyelia-penyelia : **Dr. Filzah binti Md. Isa**

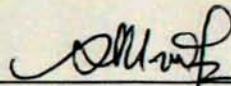
(Name of Supervisor/Supervisors)



Tandatangan  
(Signature)

Nama Penyelia/Penyelia-penyelia : **Dr. Siti Norezam binti Othman**

(Name of Supervisor/Supervisors)



Tandatangan  
(Signature)

## **PERMISSION TO USE**

In presenting this thesis/dissertation in partial fulfilment of the requirements for a postgraduate degree from Universiti Utara Malaysia, I agree that the University Library make a freely available for inspection. I further agree that permission for copying of this thesis/dissertation in any manner, in whole or in part, for scholarly purpose may be granted by my supervisor(s) or, in their absence by the Dean of Othman Yeop Abdullah Graduate School of Business. It is understood that any copying or publication or use of this thesis/dissertation or parts thereof for financial gain shall not be given to me and to Universiti Utara Malaysia for any scholarly use which may be made of any material from my thesis/dissertation.

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

Dean of Othman Yeop Abdullah Graduate School of Business  
Universiti Utara Malaysia  
06010 UUM Sintok  
Kedah Darul Aman

## ABSTRACT

This study was conducted to examine the environmental behaviour specifically recycling behaviour of undergraduate business students in three Public Institutions of Higher Learning, namely; Universiti Malaya, Universiti Putra Malaysia and Universiti Utara Malaysia. Specifically, this study applies the Theory of Planned Behaviour, an approach to understand the relationship of attitude towards recycling, subjective norm, perceived behaviour control, behavioural intention and recycling behaviour. A total of 500 sets of questionnaire had been distributed but only 370 questionnaires (74 percent) could be used for coding, analyzing and hypotheses testing. Data for all the study variables were collected through self-administered survey questionnaires and analyse using SPSS version 20.0. A total of five hypotheses were formulated and the results showed that only four hypotheses are supported. The results indicated that: (1) attitude towards recycling is significantly ( $\beta = .355$ ) related to behavioural intention. (2) Subjective norm is significantly ( $\beta = .216$ ) related to behavioural intention. (3) Perceived behavior control is not related ( $\beta = .061$ ) to behavioural intention. (4) Behavioural intention is significantly ( $\beta = .569$ ) related to recycling behaviour. (5) Behavioural intention partially mediates the relationship between attitude towards recycling, and subjective norm with recycling behaviour. Perceived behaviour control was dropped in hierarchical analysis due to insignificant finding in step 1 of regression analysis. This study also found that the recycling behaviour of undergraduate business students from Universiti Putra Malaysia is better than Universiti Malaya and Universiti Utara Malaysia. Theoretical, practical and policy implications of the study as well as suggestions for future studies were discussed.

**Keywords:** Attitude towards recycling, Subjective norm, Perceived behaviour control, Behavioural intention, Recycling behaviour.

## ABSTRAK

Kajian ini dijalankan dengan tujuan untuk mengkaji tingkah laku persekitaran khususnya tingkahlaku mengitar semula di kalangan pelajar jurusan perniagaan di tiga buah Institusi Pengajian Tinggi Awam iaitu Universiti Malaya, Universiti Putra Malaysia dan Universiti Utara Malaysia. Secara spesifik, kajian ini mengaplikasikan *Theory of Planned Behaviour*, iaitu satu pendekatan untuk memahami hubungan sikap terhadap kitar semula, norma subjektif, sifat tanggapan mengawal tingkahlaku, niat untuk bertingkahlaku dan tingkahlaku untuk mengitar semula. Sejumlah 500 set borang soal selidik telah diedarkan namun hanya 370 (74 peratus) borang soal selidik sahaja yang boleh dikumpul untuk pengekodan, analisis dan ujian hipotesis. Data dari pembolehubah kajian ini diperolehi melalui tinjauan pentadbiran sendiri (*self-administered survey*) dan dianalisis menggunakan SPSS versi 20.0. Sejumlah lima hipotesis telah diformulasi dan hasil kajian menunjukkan hanya empat hipotesis disokong. Hasil kajian menunjukkan (1) sikap terhadap kitar semula mempunyai hubungan yang signifikan ( $\beta = .355$ ) ke atas niat untuk bertingkahlaku, (2) norma subjektif mempunyai hubungan yang signifikan ( $\beta = .216$ ) ke atas niat untuk bertingkahlaku, (3) sifat tanggapan mengawal tingkah laku tidak ada hubungan ( $\beta = .061$ ) ke atas niat untuk bertingkahlaku, (4) niat untuk bertingkahlaku mempunyai hubungan yang signifikan ( $\beta = .569$ ) ke atas tingkahlaku untuk mengitar semula, (5) niat untuk bertingkah laku menjadi pengantara separa (*partially mediates*) di antara sikap terhadap kitar semula dan norma subjektif dan tingkahlaku untuk mengitar semula. Sifat tanggapan mengawal tingkahlaku telah digugurkan dalam analisis regresi berbilang berhierarki (*hierarchical multiple regression*) disebabkan hubungan yang tidak signifikan dalam peringkat 1 analisis regresi (*regression analysis*). Hasil kajian ini juga menunjukkan tingkahlaku untuk mengitar semula di kalangan pelajar jurusan perniagaan daripada Universiti Putra Malaysia adalah lebih baik daripada pelajar dari Universiti Malaya dan Universiti Utara Malaysia. Implikasi teoritikal, praktikal dan polisi serta cadangan untuk kajian masa hadapan juga dibincangkan.

**Kata kunci:** Sikap terhadap kitar semula, Norma subjektif, Sifat tanggapan mengawal tingkah laku, Niat untuk bertingkahlaku, Tingkahlaku untuk mengitar semula.



## ACKNOWLEDGEMENTS

In the name of Allah SWT, the Most Gracious and the Most Merciful, I thank you for giving me the strength to complete this thesis. This thesis would not have been completed without the support and assistance of many people. Firstly, my deepest gratitude and thanks to my beloved wife Zaharah Abdul Ghafar for being so understanding and caring to me. Without her encouragement, sacrifices and sincere prayers I could never have achieved the completion of my study. I would like to extend my gratitude and affection to my all my children.

Secondly, to my first and second supervisors, Dr Filzah Md Isa and Dr Siti Norezam Othman, who has been so helpful and supportive since I first got acquainted with them personally. I am greatly indebted for their valuable insights, comments, ideas and suggestions. Both of them are indeed dedicated supervisors who embody a lot of wisdom and integrity in the course of improving and completing this thesis. Thirdly, I would like to thank to my fellow DBA students for their companionship, help and support in completing my study and also being wonderful friends. A note of thanks to UiTM Kedah Branch and Mrs Nasib Kaur for being helpful to proof read my thesis. Finally, I would like to thank the participating universities for their valuable help during data collection. Special thanks are also extended to all the respondents who have given their cooperation in completing the survey.

## TABLE OF CONTENT

	Page
TITLE PAGE	i
CERTIFICATION OF THESIS WORK	ii
PERMISSION TO USE	iv
ABSTRACT	v
ABSTRAK	vi
ACKNOWLEDGEMENT	vii
TABLE OF CONTENT	viii
LIST OF TABLES	xvi
LIST OF FIGURES	xvii

### CHAPTER ONE – INTRODUCTION

1.0	Introduction	1
1.1	Background of the Study	2
1.2	Problem Statement	7
1.3	Research Question	11
1.4	Research Objective	12
1.5	Significance of the Study	13
1.6	Scope and Limitation of Study	15
1.7	Organization of the Thesis	18

### CHAPTER TWO – LITERATURE REVIEW

2.0	Introduction	19
2.1	Background to Environmental Research	19
2.2	The Importance of Recycling	21



2.3	Environmental Development in Malaysia	24
2.3.1	Local Agenda 21	24
2.3.2	Environmental Study/Research in Malaysia	26
2.4	Sustainability in Universities	29
2.4.1	Sustainability and the Importance of Environmental Education	29
2.4.2	Impact Studying on University Students	35
2.4.3	Environmental Behaviour of Undergraduate Business Students	39
2.5	Waste Management and Recycling	42
2.5.1	Solid Waste Management.	42
2.5.2	Recycling Program in Malaysia	44
2.5.3	Recycling Campaign/Activities in Selected Universities	47
2.6	Recycling Behavior	50
2.7	Theory of Planned Behavior	52
2.7.1	Attitude	53
2.7.1.1	The Relationship between Attitude and Actual Behaviour	54
2.7.1.2	The Relationship between Attitude and Behavioural Intention	59
2.7.2	Subjective Norm	60
2.7.2.1	The Relationship between Subjective Norm and Behavioural Intention.	61
2.7.2.2	The Relationship between Subjective Norm and Actual Behaviour	62
2.7.3	Perceived Behavior Control	63
2.7.3.1	The Relationship between Perceived Behaviour Control and Behavioural Intention	65
2.7.3.2	The Relationship between Perceived Behaviour Control and Actual Behaviour	66

2.7.4	Behavioral Intention	67
2.7.4.1	The Relationship between Behavioural Intention and Actual Behaviour	69
2.7.4.2	Mediating Effect of Behavioural Intention	70
2.8	Application Theory of Planned Behavior	71
2.8.1	Theory of Planned Behaviour and Recycling Behaviour	75
2.9	Conclusion	78

### **CHAPTER THREE –METHODOLOGY**

3.0	Introduction	80
3.1	Research Framework	80
3.2	Hypotheses	82
3.3	Research Design	88
3.4	Operational Definition	89
3.5	Measurement of Variables/Instrumentation	90
3.5.1	Dependent Variable	91
3.5.2	Mediating Variable	92
3.5.3	Independent Variable	93
3.6	Validity and Reliability of the Instrument	95
3.7	Data Collection Procedures	96
3.8	Sampling	98
3.9	Techniques of Data Analysis	99
3.9.1	Goodness of Measure	100
3.9.1.1	Factor Analysis	100
3.9.1.2	Reliability Analysis	103
3.9.2	Descriptive Analysis	104

3.9.3	Correlation Analysis	104
3.9.4	Multiple Regression Analysis	106
3.9.5	Hierarchical Regression Analysis	107
3.10	Conclusion	109

## **CHAPTER FOUR – RESEARCH FINDINGS**

4.0	Introduction	110
4.1	Response Rate	110
4.2	Respondents Demographic Profile	111
4.3	Goodness of Measures	113
4.3.1	Factor Analysis	113
4.3.1.1	Factor Analysis on Independent Variables	114
4.3.1.2	Factor Analysis on Dependent Variable	116
4.3.1.3	Factor Analysis on Mediating Variable	117
4.3.2	Reliability Analysis	118
4.3.3	Descriptive Analysis	119
4.3.4	Correlation Analysis	122
4.3.5	Multiple Regression Analysis	124
4.3.5.1	Discussion on Full Regression Model	125
4.3.5.2	Relationship between Independent Variables and Mediating Variable	125
4.3.5.3	Relationship between Independent Variables and Dependent Variable	128
4.3.5.4	Relationship between Mediating Variables and Dependent Variable	131
4.3.5.5	Test of Mediation	132

4.3.5.6	The Mediating Effect of Behavioural Intention on the Relationship between Attitude towards Recycling, Subjective Norm, Perceived Behaviour Control and Recycling Behaviour	133
4.4	Summary of Findings	136

## **CHAPTER FIVE – DISCUSSION AND CONCLUSION**

5.0	Introduction	140
5.1	Recapitulation of Study	140
5.2	Discussion of Findings	143
5.2.1	The Recycling Behaviour of Undergraduates Business Student of Public Institutes of Higher Learning	143
5.2.2	The Relationship between Attitude towards Recycling and Behavioural Intention	146
5.2.3	The Relationship between Attitude towards Recycling and Recycling Behaviour	147
5.2.4	The Relationship between Subjective Norm and Behavioural Intention	149
5.2.5	The Relationship between Subjective Norm and Recycling Behaviour	150
5.2.6	The Relationship between Perceived Behaviour Control and Behavioural Intention	152
5.2.7	The Relationship between Perceived Behaviour Control and Recycling Behaviour	153
5.2.8	The Relationship between Behavioural Intention and Recycling Behaviour	154
5.2.9	The Mediating Role of Behavioral Intention	155



5.3	Research Implication	157
5.3.1	Research Contribution	157
5.3.2	Implication of the Study	159
5.3.2.1	Implication to the Government	159
5.3.2.2	Implication to Business Industry	162
5.3.2.3	Implication to the University Management	162
5.3.2.4	Academic Implication	164
5.4	Limitation of the Study	165
5.5	Recommendation for Future Research	166
5.6	Conclusion	167
<b>REFERENCES</b>		168
<b>APPENDICES</b>		
APPENDIX A	Talloires Declaration	186
APPENDIX B	Data Cleaning	189
APPENDIX C	Questionnaires	195
APPENDIX D	Summary of Profiles	205
APPENDIX E	Results of the Factor Analysis on Independent Variables	207
APPENDIX F	Results of the Factor Analysis on Dependent Variable	210
APPENDIX G	Results of the Factor Analysis on Mediating Variable	213
APPENDIX H	Results of Reliability Analysis	216
APPENDIX I	Results of Descriptive Analysis	221
APPENDIX J	Results of Correlation Analysis	225
APPENDIX K	Results of Regression Analysis of Independent Variables towards Mediating Variable	227
APPENDIX L	Results of Regression Analysis of Independent Variables towards Dependent Variable	229

APPENDIX M	Results of Regression Analysis of Mediating Variable Towards Dependent Variable	242
APPENDIX N	Results of Hierarchical Regression Analysis	244
APPENDIX O	The Recycling Behaviour of undergraduate Business students of three IPTA's	246

## LIST OF TABLES

Table 2.1	Estimated Population and Waste in Malaysia	43
Table 2.2	Effects of Correspondence on the Attitude – Behavior Relations	56
Table 3.1	Research Hypotheses	87
Table 3.2	Total of Measurement	90
Table 3.3	Measurement for Recycling Behavior	91
Table 3.4	Measurement for Behavioral Intention	93
Table 3.5	Measurement for Attitude towards Recycling	93
Table 3.6	Measurement for Subjective Norm	94
Table 3.7	Measurement for Perceived Behavior Control	95
Table 3.8	The Breakdown of Sample	98
Table 4.1	Summary of Respondents Demographic Profile	112
Table 4.2	Rotated Factors and Factors Loading for Independent Variables	115
Table 4.3	Rotated Factors and Factors Loading for Dependent Variables	116
Table 4.4	Rotated Factors and Factors Loading for Mediating Variables	117
Table 4.5	Reliability Coefficient Alpha for the Study Variables	118
Table 4.6	Descriptive Statistics for Each Item	121
Table 4.7	Descriptive Statistics for Principal Constructs	122
Table 4.8	Pearson Correlations of Study Variables	123
Table 4.9	Correlation of Research Hypotheses	124
Table 4.10	Relationship between Independent Variables and Mediating Variable	126
Table 4.11	Hypotheses Testing for Independent Variables towards Mediating Variable	128

Table 4.12	Relationship between Independent Variables and Dependent Variable	129
Table 4.13	Hypotheses Testing for Independent Variables towards Dependent Variable	130
Table 4.14	Relationship between Mediating Variable and Dependent Variables	131
Table 4.15	Hypotheses Testing for Mediating Variables towards Dependent Variable	132
Table 4.16	The Mediating Effect of Behavioural Intention on the Relationship between Attitude, Subjective norm, Perceived Behavioural Control and Recycling Behaviour	136
Table 4.17	Hypotheses Testing Results from Hierarchal Using Behavioural Intention as a Mediator in the Relationship between Attitude towards Recycling, Subjective Norm, Perceived Behavioural Control and Recycling Behaviour	136
Table 4.18	Summary of Hypotheses Testing Results from Multiple Regression Analysis	139
Table 5.1	Summary of Hypotheses Testing	141



## LIST OF FIGURES

Figure 2.1	Typical Curb-Side Collection System	46
Figure 2.2	Theory of Planned Behaviour	53
Figure 3.1	Research Framework	81
Figure 4.1	The relationship between Independent Variables and Mediating Variable	126
Figure 4.2	The relationship between Independent Variables and Dependent Variable	129
Figure 4.3	The relationship between Mediating Variables and Dependent Variable	131
Figure 4.4	Behavioral Intention mediate the relationship between Attitude towards Recycling, Subjective Norm, Perceived Behavior Control and Recycling Behavior	134

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.0 Introduction**

Wasteful consumption is the root cause of much of environmental quality degradation through pollution and over-exploitation of resources (Hassan, 1998) and this is the result of the accumulative action of individuals (The National Environment Education and Training Foundation (NEETF)/Roper Report, (1999). One of major environmental problems faced by most municipalities in Malaysia is solid waste (World Bank, 1992) and the amount of waste generated continues to increase in response to rapid increased in population and accelerated urbanisation and industrialisation processes. These activities are increasingly causing more damage and are due to the human actions which cause irreversible harm on the environmental condition (Oskamp, 2002). It has been almost 40 years since the first Earth Day and the birth of the environmental movement, but despite widespread support for the environmental cause and increased awareness of the problems (Schultz, 2001), human behaviour has hardly changed even with the information about the consequences of human actions, such as climate change, pollution, or diminishing natural resources (Gardener & Stern, 1996; Wolfe, 2001). In other words, the root causes of environmental problems are related to human activities (Aini, Fakhru'l-Razi, Laily & Jariah, 2003). Therefore, it requires a fundamental change in human activities, which is a shift from reckless to responsible consumption of resources (Gardener & Stern, 1996).

The contents of  
the thesis is for  
internal user  
only

## REFERENCES

- Abdul-Talib, S., & Ismail, F. (2004). Waste minimisation and the environment. *Jurutera*, 24 – 28.
- Aceti, J. (2002), *Recycling: Why People Participate; Why They Don't*, Massachusetts Department of Environmental Protection, Boston, MA.
- Agamuthu, P. (2001). *Solid waste: Principle and management*. Institute of Biological Science. University of Malaya, Kuala Lumpur, University of Malaya Press.
- Aini Mat Said., Fakhru'l Razi Ahmadun., Daud Mohammad., & Wahid Mohd Hamdan. (2000). Transnational forest fire fighting, The Malaysian experience, *Disaster Prevention and Management*, 9 (4), 282 – 287.
- Aini Mat Said., Fakhru'l Razi Ahmadun., Laily Paim. & Jariah Masud. (2003). Environmental concern, knowledge and practices gap among Malaysian teachers, *International Journal of Sustainability in Higher Education*, 4 (4). 305 – 313.
- Ajzen, I. (1985). From Intentions to Actions: A Theory of Planned Behaviour. In J. Kuhl & J. Beckman (Eds.), *Action-Control: From cognition to Behaviour*. Hedelberg: Springer.
- Ajzen, I. (1988). *Attitudes, Personality and Behaviour*, Milton Keynes: Open University Press.
- Ajzen, I. (1991). The Theory of Planned Behaviour, *Organizational Behaviour and Human Decision Processes*, 50, 179 – 211.
- Ajzen, I. (2006). *Constructing a TPB questionnaire: Conceptual and methodological considerations*. Retrieved from <http://www.people.umass.edu/aizen/pdf/tpb.measurement.pdf>.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*, Englewood Cliffs, NJ: Prentice-Hall.
- Ajzen, I., & Fishbein, M. (2002). Perceived behaviour control, self-efficacy, locus of control and theory of planned behaviour. *Journal of Applied Social Psychology*, 32, 665 – 683.
- Ajzen, I., & Fishbein, M. (2008). Attitudinal and normative variables as predictors of specific behaviours. In Fazio, R. & Petty, R. (Eds.). *Attitudes: Their structure, function and consequences* (117 – 128). New York, NY: Psychology Press.
- Ajzen, I., & Fishbein, M. (1977). Attitude-behaviour relation: A theoretical analysis and review of empirical research. *Psychological Bulletin*, 84, 888 – 918.
- Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behaviour: attitudes, intentions, and perceived behavioural control, *Journal of Experimental Social Psychology*, 22, 453 – 474.
- Al'Quran: *The Ultimate Guide Al'Quran*. Retrieved from <http://www.alquranic.com/>.
- Allison, B.J., Voss, R.S., & Dryer, S. (2001). Success: The role of organizational citizenship behaviour. *Journal of Education for Business*, 32 (2), 213 – 218.
- Anderson, W.T. Jr., & Cunningham, W.H. (1972). The Socially Conscious Consumer, *Journal of Marketing*, 36, 23 – 31.
- Anderson, A.A. (1998). "Cultivating the Garden of Eden, environmental entreprenuring", *Journal of Organizational Change*, 11 (2), 49 – 64.
- Aoki, M. (2005). An Analysis of determinants of consumer recycling behaviour. *Asia Pacific Advance in Consumer Research*, 6, 322 – 325.



- Arbuthnot, J. (1977). The roles of attitudinal and personality variables in the prediction of environmental behaviour and knowledge, *Environment and Behaviour*, 9, 217 – 232.
- Arbuthnot, K.D. (2009), Education for sustainable development beyond attitude change, *International Journal of Sustainability in Higher Education*, 10 (2), 152 – 163.
- Armitage, C. J. (2008). Cognitive and affective predictors of academic achievement in school children. *British Journal of Psychology*. 99, 57 – 74.
- Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta analytic review, *British Journal of Social Psychology*, 40, 471 – 499.
- Armitage, C.J., & Christian, J. (2003). From attitudes to behaviour: basic and applied research on the Theory of Planned Behaviour, *Current Psychology: Developmental, Learning, Personality, Social*, 22, 43 – 57.
- Austin, J., Hatfield, D. B., Grindle, A. C., & Bailey, J. S. (1993). Increasing recycling in office environments: The effects of specific, informative cues. *Journal of Applied Behavior Analysis*, 26, 247 - 253.
- Azilah Kassim. (2004). *Business environmental and social responsibility: Factor influencing the hotel sector in Penang, Malaysia*. Unpublished Doctorate Dissertation, University of East Anglia, UK. .
- Bagozzi, R.P., Yi, Y., & Baumgartner, J. (1990). The level of effort required for behaviour as a moderator of the attitude-behaviour relation, *European Journal of Social Psychology*, 20, 505 – 518.
- Bagozzi, R.P., Baumgartner, J., & Yi, Y. (1989). An investigation into the role of intentions as mediators of the attitude – behaviour relationship, *Journal of Economic Psychology*, 10, 35 - 62.
- Baker, J. P., & Ozaki, R. (2008). Pro-environmental products: Marketing influence on consumer purchase decision. *Journal of Consumer Marketing*, 25 (5), 281 – 293.
- Balderjahan, I. (1988), Personality variable and Environment Attitudes as Predictors of Ecologically Responsible Consumption Pattern, *Journal of Business Research*, 17, 51 – 56.
- Banks, J. (2009). Human rights, diversity, and citizenship education. *The Educational Forum*, 73(2), 100-111.
- Barr, S. (2007). Factors influencing environmental attitudes and behaviors: A U.K. case study of household waste management. *Environment and Behavior*, 39, 435 - 473.
- Baron, R.M & Kenny, D.A. (1986). The moderator-mediator variables distinction in social psychological research: conceptual, strategic and statistical consideration, *Journal of Personality and Social Psychology*, 51 (6), 1173 – 1182.
- Beck, L., & Ajzen, I. (1991). Predicting dishonest actions using the theory of planned behaviour. *Journal of Research in Personality*, 25, 285 – 301.
- Benton, R. (1994), Environmental knowledge and attitude of undergraduate business student compared to non-business student, *Business Society*, 33, 191 – 212.
- Berman, J., & Ritchie, L. (2006). Competencies of undergraduate business student. *Journal of Education for Business*, Mac/April, 205 – 209.

- Bernstein, L., Bosch, P., Canziani, O., Chen, Z., Christ, R., ..... Davidson, O. (2007). *Climate change 2007: Synthesis report*. Valencia, Spain: The Intergovernmental Panel on Climate Change. Retrieved from <http://www.bvsde.paho.org/bvsacd/cd68/synthesum.pdf>
- Berry, W. D., & Feldman, S. (1985). *Multiple Regressions in Practice*. Beverly Hills, C. A.: Sage Publications.
- Bezzina, F.H., & Dimech, S. (2011). Investigating the determinants of recycling behaviour in Malta. *Management of Environmental Quality: An International Journal*, 22 (4), 463 – 485.
- Biswas, A., Jane, W., Pullig, D., & Daughtridge, C. (2000). The recycling: An empirical examination of consumer waste and recycling shopping behaviour. *Journal of Public Policy and Marketing*, 19, 93 – 105.
- Bok, D. (2006). *Our underachieving colleges: A candid look at how much students learn and why they should be learning more*. Princeton: Princeton University Press.
- Boldero, J. (1995). The prediction of household recycling of newspaper; the role of attitudes, intentions and situational factors. *Journal of Applied Social Psychology*, 25, 440 – 462.
- Borden, R.T., & Schettino, J. (1979), Determinants of Environmentally Responsible Behaviour, *Journal of Environmental Education*, 10, 35 – 39.
- Bosnjak, M., Obermeier, D., & Tuten, T.L. (2006), Predicting and explaining the propensity to bid in online auction: A comparison of two action-theoretical models, *Journal of Consumer Behaviour*, 5, 102 – 116.
- Boziones, G., & Benett, E. (1999). The Theory of Planned Behaviour as predictors of exercise. *Journal of Health Psychology*, 44 (4), 517 – 529.
- Bratt, C. (1999). The impact of norms and assumed consequences on recycling behaviour. *Journal Environmental Behaviour*, 31, 630 – 656.
- Brian, R. (2008). *Predicting engagement in a conservation easement agreement*. (Unpublished Doctorate Dissertation), University of Florida, UMI No. 3347109.
- Buchnan, H.F. (2005). Ethical decision making in the public accounting profession. An extension of Ajzen's Theory of Planned Behaviour, *Journal of Business Ethics*, 61, 105 – 181.
- Burnkrant, R., & Page, T. (1982), An Examination of the convergent, discriminant, and predictive validity of the Fishbein Behavioural Intention Model, *Journal of Marketing Research*, 19, 550 – 561.
- Carducci, B.J., Deeds, W.C., Jones, J.W., Moretti, D.M., Reed, J.G., ..... Wheat, J.E. (1987). Preparing undergraduate psychology student for career in business. *Teaching in Psychology*, 4 (1), 97 – 105.
- Caroll, A. (1979). A three dimension model of corporate performance. *Academy of Management Review*, 4, 25 – 52.
- Cialdini, R.B., Reno, R.R., & Kallgren, C.A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, 58, 1015 – 1026.
- Cavana, R.Y., Delahaye, B.L., & Sekaran, U. (2001). *Applied business research: qualitative and quantitative design*. Australia. John Wiley & Sons, Inc.
- Chan, R.Y.K. (2001). Determinants of Chinese Consumers' Green Purchase Behaviour, *Psychology & Marketing*, 18, 389 – 413.

- Chan, R.Y.K. (1998). Mass communication and pro-environmental behaviour: waste recycling in HongKong. *Journal of Environmental Management*, 52 (4), 317-25.
- Chen, T. B., & Chai, L. T. (2010). Attitude towards the environmental and green products: customers' perspective. *Management Science and Engineering*, 4 (2), 27 – 39.
- Chen, Y.J., Wu, T.H., & Chen, Y.L. (2009). The recycling business for sustainability in Taiwan. *European Business Review*, 21 (5), 403 – 417.
- Cheung, S., Chan, D. & Wong, Z. (1999), "Re-examining the theory of planned behaviour in understanding waste paper recycling", *Environmental Behaviour*, 31 (5), 587 – 612.
- Chong, T. L., Matsufuji, Y., & Nasir, H. (2005). Implementation of the semi-aerobic landfill system (Fukuoka Method) in developing countries: A Malaysia cost analysis. *Journal Waste Management*, 25, 702-711.
- Christensen, P., Thrane, M., Jorgensen, T.H., & Lehmann, M. (2009). Sustainable development: Assessing the gap between preaching and teaching at Aalborg University, *International Journal of Sustainability in Higher Education*, 10, 4 – 20.
- Clark, C.F., Kotchen, M.J., & Moore, M.R. (2003). Internal and external influences on pro-environmental behaviour. Participation in a green electricity program, *Journal of Environmental Psychology*, 23, 237 – 246.
- Common, M. (1998). "Economics and the natural environment", *Journal of Economic Studies*, 25 (1), 57 - 73.
- Cooper, D.R., & Schindler, P.S. (2006). *Business Research Method (9<sup>th</sup> ed.)*. McGraw Hill International Edition.
- Cordano, M. (1998). *Environmental attitudes and environmental management behaviour: An application of the theory of planned behaviour*. (Unpublished Doctorate Dissertation). University of Pittsburgh, UMI No. 9919270.
- Cordano, M., Welcomer, S., Scherer, R., Pradenap, L., & Parada, V. (2010). Understanding cultural differences in the antecedents of pro-environmental behaviour: A comparative analyze of business student in United States and Chile. *Journal of Environmental Education*, 41 (4), 224 – 238.
- Corral-Verdugo, V. (1996). A Structural model of reuse and recycling in Mexico. *Journal of Environmental and Behaviour*, 28 (5), 665 – 696.
- Creswell, J. W. (2006). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*, 3<sup>rd</sup> edition. Upper Saddle River, NJ: Pearson/Merrill Prentice Hall.
- Dahab, J.D., Gentry, W.J., & Su, W. (1994). The role of individual differences and social expectation in encouraging recycling behaviour. In Ravi Achrol and Andrew Mitchell (Eds). *AMA Educators' Conference: Enhancing knowledge development in Marketing*, 337 – 34, Chicage, IL: American marketing Association.
- Davio, R. L. (2001). *Influences and motivation on curbside recycling participation*. (Unpublished Doctorate Dissertation). The University of Texas, UMI No. 3008310.
- Davies, J., Foxall, G.R., & Pallister, J. (2002). Beyond the intention – behaviour mythology: An integrated model of recycling. *Journal of Market Theory*, 2 (1), 29-113.

- Davis, G., O'Callaghan, F., & Knox, K. (2009). Sustainable attitude and behaviour amongst a sample of non-academic staff: A case study from an information services department, Griffin University, Brisbane, *International Journal Sustainability of Higher Education*, 10 (2), 136 – 151.
- de Brujin, G., Kroeze, W., Oenema, A., & Brug, J. (2008). Saturated fat consumption and the Theory of Planned Behaviour: Exploring additive and interactive effects of habit strength. *Appetite*, 51, 318 – 323.
- De Groot, J., & Steg, L. (2007). General beliefs and the Theory of Planned Behaviour: The role of environmental concern in the Theory of Planned Behaviour. *Journal of Applied Social Psychology*, 37, 1817 – 1836.
- Deci, E. L., & Ryan, R. M. (2000). The what and why of goal pursuit. Human needs and self determination of behaviour. *Psychological Inquiry*, 11, 227 – 268.
- Department of Environment Bulletin (DOE) (2006). *IMPAK: A quarterly DOE update on Environment, Development and Sustainability*, Issues 3. Retrieved from [http://www.kpkt.gov.my/jpspn/fileupload/laporan/GEJR06042\\_summary.pdf](http://www.kpkt.gov.my/jpspn/fileupload/laporan/GEJR06042_summary.pdf)
- Department of Environment Bulletin (DOE). Retrieved from <http://www.doe.gov.my/>
- Derksen, L., & Gartell, J. (1993). The social context of recycling. *American Sociological Review*, 58 (3), 443 – 452.
- Devellis, B.C., Blalock, S.J., & Sandler, R.S. (1990). Predicting participation in cancer screening: The role of perceived behavior control. *Journal of Applied Social Psychology*, 20, 639 – 660.
- De Young, R. (1989). Exploring the difference between recyclers and non-recyclers: The role of information. *Journal Environmental System*, 18, 341 – 351.
- Dispoto, R.G. (1977). Inter relationships among measures of environmental activity, emotionality and knowledge. *Educational and Psychological Measurement*. 37(4), 451 – 459.
- Dunlap, R.E., & Van Liere, K.D. (1984). "Commitment to the Dominant Social Paradigm and Concern for Environmental Quality." *Social Science Quarterly*, 65, 1013-1028.
- Eagly, A., & Chaiken, S. (1993). *The psychology of attitudes*. Fort Worth: TX: Harcourt, Brace, Jovanovich.
- Ebil Yusof. (1999). *The effects of the Malaysian department of wildlife and national park's environmental education program on the environmental knowledge and attitudes of 13-17 year old students*. (Unpublished Doctorate Dissertation). West Virginia University, UMI No. 3002665
- Ebreo, A., & Vining, J. (2001). How similar are recycling and waste reduction? Future orientation and reason for reducing waste as predictors of self reported behaviour. *Environment and Behaviour*, 33, 442 – 448.
- Elizabeth, J., & Chelvi, K.T. (2003, October 20). Recycling make slow progress. *The Star*, p.17.
- Emanuel, R., & Adam, J.N. (2011). College student perceptions of campus sustainability. *International Journal of Sustainability in Higher Education*, 12 (1), 79 – 92.
- Ericksen, J. (2006). *Reversing the attitude and behaviour relationship: Changes in recycling attitude through exposure to a structural recycling program*, (Unpublished Doctorate Dissertation), Utah State University, UMI No. 1440459.



- Ewert, A., & Baker, D. (2001). Standing for where you sit: An exploratory analysis of the relationship between academic major and environmental belief. *Environment and Behaviour*, 33, 687 – 707.
- Ewing, G. (2001). Altruistic, egoistic, and normative effects on curbside recycling. *Environment and Behavior*, 33(6), 733-764.
- Filzah Md Isa. (2007). *Change Management initiatives and change success direct selling industry: the moderating effect of attitude towards change*. (Unpublished Doctorate Dissertation). Universiti Sains Malaysia, Kuala Lumpur.
- Fishbein, M., & Ajzen, I. (1975). *Belief, Intention, and Behaviour: An Introduction to Theory and Research*, Addison-Wesley, Reading, MA.
- Follows, S. B., & Jobber, D. (2000). Environmentally responsible purchase behaviour: A test of a consumer model. *European Journal of Marketing*, 34, 723 – 746.
- Forester, W. S. (1988). Solid waste: there's a lot more coming. *Environmental Protection Agency Journal*, 14, 11-12.
- Forti, M., Hansen, S.B., Kirbey, J.T., Agamuthu, P., & Christensen, T.H. (2004). Environmental assessment of household waste disposal in Kuala Lumpur, Malaysia. *Journal of Science*, 23, 115 – 123.
- Fredericks, A. J., & Dossett, D. L. (1983). Attitude-behaviour relations: A comparison of the Fishbein-Ajzen and the Bentler-Speckart models. *Journal of Personality and Social Psychology*, 45, 501 – 512.
- Friedman, T.L. (2008). *Hot, flat and crowded: Why we need a green revolution – and how it can renew America*. New York: Farrar, Straus and Giroux.
- Fukukawa, K., Shafer, W.E., & Meina Lee, G. (2007). Value and attitudes toward social & environmental accountability: A study of MBA students. *Journal of Business Ethics*, 71, 381 – 394.
- Garces, C., Lafuente, A., Pedraja, M., & Rivera, P. (2002). Urban waste recycling behaviour: Antecedents of participation in a selection collection program. *Journal Environmental Management*, 30, 378 – 390.
- Gardner, G., & Stern, P. (1996). *Environmental problems and human behaviour*. Needham Heights, MA: A Simon & Schuster Company.
- Garling, T., & Fujii, S. (2001). Structural equation modeling of determinants of planning intentions. *Scandinavian Journal of Psychology*, 15, 115 – 123.
- George, J.F. (2004). The theory of planned behaviour and Internet purchasing. *Internet Research*, 14, 198 – 212.
- George, T., Hilary, T., Samuel, A. V. (1993). In: *Integrated Solid Waste Management: Engineering Principles and Management Issues*. (International Edition 1993). Singapore: McGraw-Hill Inc.
- Godin, G., Valois, P., & Lepage, L. (1995). The pattern of perceived behaviour control upon exercising behaviour: An application of Theory of Planned Behaviour. *Journal of Behavioural Medicine*, 16, 81 – 102.
- Godin, G., & Kok, G. (1996). The theory of planned behaviour: A review of its applications to health-related behaviours. *American Journal of Health Promotion*, 11, 87 - 98.
- Gollwitzer, P. M. (1993). Goal achievement: The role of intentions. In W. Stroebe & M. Hewstone (Eds.), *European Review of Social Psychology*, 4, 141–185.

- Gore, A. (2006). *An inconvenient truth*. New York: Rodale, Inc.
- Guagnano, G. A., Stern, P. C. & Dietz, T. (1995). Influences on attitude behaviour relationships: A natural experiment with curb side recycling. *Environment and Behaviour*, 27, 699 – 718.
- Guerin, D., Crete, J., & Mercier, J. (2001). A multilevel analysis of the determinants of recycling behaviour in the European countries. *Journal of Social Science Research*, 30, 195 – 218.
- Hair, J.F., Anderson, D.E., Tatham, R.L., & Black, W.C. (2006). *Multivariate analysis. 6<sup>th</sup> Edition*. Upper Saddle River. NJ. Prentice Hall.
- Harland, P., Staats, K., & Wilke, H. (1999). Explaining pro-environmental intention and behaviour by personal norms and the theory of planned behaviour. *Journal of Applied Social Psychology*, 29 (12), 2505 – 2528.
- Hayward, K. (1990). *Responsible Environmental Behaviour*. (Unpublished Master Thesis), Wilfrid Laurier University, ISBN No. 0-315-58912-0.
- Heitmann, M., Lehmann, D. R., & Herrmann, A. (2007). Choice goal attainment and decision and consumption satisfaction. *Journal of Marketing Research*, 44(2), 234 - 250.
- Helferty, A., & Clarke, A. (2009). Student-led campus climate change initiatives in Canada. *International Journal of Sustainability Higher Education*, 10 (3), 287 – 300.
- Hill, D.M. (2008). *Contextual (setting/situational) control of pro/anti environmental behaviour*. (Unpublished Doctorate Dissertation). University of Arizona, UMI No. 3337299.
- Hines, J. M., Hungerford, H. R., & Tomera, A. N. (1986/1987). Analysis and synthesis of research on responsible environmental behaviour: a meta-analysis. *Journal of Environmental Education*, 18, 1 – 8.
- Holmer, P. M., & Kahle, L. R. (1988). A structural equation test of the value-attitude-behaviour hierarchy. *Journal of Personality and Social Psychology*, 54, 638 – 646.
- Holt, D. (2003). The role and impact of the business school curriculum in shaping environmental education at Middlesex University. *International Journal of Sustainability in Higher Education*, 4, 324 – 343.
- Holt, D., Homewood, S., & Kirby, D. (1999). Greening a business school-the case of Middlesex University. *Journal of European Business Education*, 9, 111-126.
- Hopper J. R., & Nielsen, J. M. (1991). Recycling as altruistic behaviour: Normative and behavioural strategies to expand participation in a community strargies to expand participation in a community recycling program. *Environment and Behaviour*, 23, 195 – 220.
- Hornik, J., Cherian, J., Michelle, M., & Narayana, C. (1995). Determinants of recycling behaviour: A synthesis of research results. *Journal of Socio-Economic*. 4, 105 – 127.
- Hosmer, L.T. (1999). Somebody out there doesn't like us: A study of the position and respect of business ethics at school of business administration. *Journal of Business Ethics*, 22, 91 - 106.

- Hsu, M.S. (2003). *An analysis of the correlation between attitude, behaviour and knowledge components of environmental literacy in undergraduate university student*. (Unpublished Doctorate Dissertation). The Ohio State University, UMI No. 3093660.
- Hungerford, H. R., & Volk, T. L. (1990). Changing learner behaviour through environmental education. *The Journal of Environmental Education*, 21(3), 8 – 21.
- Hwang, Y. H., Kim, S. I., & Jeng, J. M. (2000). Examining the causal relationships among selected antecedents of responsible environmental behaviour. *Journal of Environmental Education*, 31, 19 – 25.
- International Association of Universities. (2006). “*IAU Conference: Education for a Sustainable Future. Conference General Report*”. Retrived from [http://www.unesco.org/iau/sd/sd\\_confprague.html](http://www.unesco.org/iau/sd/sd_confprague.html).
- Jensen, B. B., & Schnack, K. (1999). Action competence approach in environmental education. *Environmental Education Research*, 3(2), 113 – 122.
- Joshi, P.M. (2003). *Reasoned action versus planned behaviour in bus use*. (Unpublished Doctorate Dissertation). Ohio State University, UMI No. 3088861.
- Kahler, S. (2003). The ripple effect: How one door room can affect a university degree use? *International Journal of Sustainability in Higher Education*, 4 (3), 230 – 238.
- Kaiser, F., Syibell, W., & Urs, F (1999) Environmental Attitude and ecological Behaviour, *Journal of Environmental Psychology*, 19, 1 – 9.
- Kaiser, F., & Gutscher, H. (2003). The Proposition of a general version of the theory of planned behaviour: Predicting ecological behaviour. *Journal of Applied Social Psychology*, 33(3), 586 – 603.
- Kalantari, K., Shabanali, H. F., Asadi, A., & Mohammadi, M. (2007). Investigating Factors Affecting Environmental Behaviour of Urban Residents: A Case Study in Tehran City- Iran. American. *Journal of Environmental Sciences*. 3, 19 – 25.
- Kassarjian, H.H. (1971). Incorporating ecology into marketing strategy: The case of air pollution. *Journal of Marketing*, 35, 61 – 65.
- Kerr, C. (2001). *The uses of the university* (3rd ed.). Cambridge, MA: Harvard University Press.
- Kibert, N.C (2000). *An analysis of the correlation between attitude, behaviour and knowledge components of environmental literacy in undergraduate university student*. (Unpublished Master Thesis). University of Florida.
- Kliucininkas, L. (2001). “Assessment of sustainability: studies at universities and colleges in Lithuania”, *International Journal of Sustainability in Higher Education*, 2 (3), 250 – 256.
- Kokkinaki, F. (1999). Predicting product purchase and usage: The role of perceived control, past behaviour and product involvement. *Advances in Consumer Research*, 26, 576 – 583.
- Kollmus, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behaviour? *Environmental Education Research*, 8 (3), 239 - 260.
- Kotchen, M. J., & Reiling, S. D. (2000). Environmental attitudes, motivations and contingent valuation of non-use values: A case of study involving endangered species. *Ecological Economics*, 32, 93 – 107.

- Korhonen, K., & Lappalainen, A. (2004). Examining the environmental awareness of children and adolescents in the Ranumafana Region, Madagascar. *Environmental Education Research, 10*, 195 – 216.
- Kovac, V. B., & Rise, J. (2010). Predicting the intention to quit smoking in a Norwegian sample: An extended Theory of Planned Behaviour in light of Construal Level Theory. *Nordic Psychology, Vol. 63* (3), 68 – 83.
- Kraft, P., Rise, J., Sutton, S., & Roysamb, E. (2005). Perceived difficulty in the theory of Planned behaviour: Perceived behaviour control of affective attitude? *British Journal of Social Psychology, 44*, 479 – 496.
- Kurland, N.B. (2011). Evolution of a campus sustainability network: A case study in organization change. *International of Sustainability in Higher Education, 12* (4), 395 – 429.
- Kurz, T., Linden, M., & Sheehy, N. (2007). Attitudinal and community influences on participation in new curbside recycling initiatives in Northern Ireland. *Environment and Behavior, 39*, 367-391.
- Kwan, M.Y.W., Bray, S.R., & Ginis, K.A.M. (2009). Predicting physical activity of first year university students: An application of the Theory of Planned Behaviour. *International of Sustainability in Higher Education, 58* (1), 45 – 52.
- Kyoto Protocol to the United Nations Framework Convention on Climate Change. (1997). Retrieved from <http://unfccc.int/resource/docs/convkp/kpeng.pdf>
- Kyridis, A., Mavrikaki, E., Tsakiridou, H., Daikpoulus, J., & Zigouri, H. (2005). An analysis of attitude of pedagogical student toward environmental education in Greece. *International Journal of Sustainability in Higher Education, 6* (1), 54 – 64.
- Latimer, A.D., & Ginis, K.M.A (2005). The importance of subjective norm for people who care what others think of them. *Psychology & Health, 20* (1), 53 – 62.
- Leal Filho, W. (2000), Integrating environment education and environmental management. *International Journal of Sustainability in Higher Education, 8* (2), 80 - 82.
- Lehman, P. K., & Gellar, E. S. (2004). Behavioural analysis and environmental protection: Accomplishment and potential for more. *Behavioural and Social Issue, 13* (1), 13 – 32.
- Levav, J., & Fitzimons, G.J. (2006). When question change behaviour: The role of ease of representation. *Association for Psychology Science, 17*, 207 – 213.
- Lindenberg, S., & Steg. R. (2007). Normative, gain and hedonic goal frames guiding environmental behaviour. *Journal of Social Issues, 63*, 117 – 137.
- Ling-Yee, L. (1997). Effects of collectivist orientation and ecological attitude on actual environmental commitment: The moderating role of consumer demographics and product involvement. *Journal of International Consumer Marketing, 9* (4), 31 – 53.
- Litt, M. D., & Turk, D. C. (1985). Source of stress and dissatisfaction in experienced high school teachers. *Journal of Educational Research, 78*, 178 – 185.
- Loon, Y. W. (2004). *Measuring environmental literacy among faculty science's students*. (Unpublished master's Thesis). Universiti Putra Malaysia.
- Lysonski, S., & Gaidis, W. (1991). A cross cultural comparison of the ethics of business student. *Journal of Business Ethics, 10*, 141 – 150.



- MacKinnon, D. P., Warsi, G., & Dwyer, J. H. (1995). *A simulation study of mediated effect measures*. *Multivariate Behavioural Research*, 30(1), 41 - 62.
- Mageswary Karpudewan., Zurida Ismail., & Norita Mohamed. (2009). The integration of green chemistry experiment with sustainable development concept in pre-service teacher's curriculum: experience from Malaysia, *International Journal of Sustainability in Higher Education*, 10 (2), 118 – 135.
- Mahmood, N.Z. (2000). *Solid waste management in Malaysia: A comparison study*. 26<sup>th</sup> WEDC Conference, Dhaka. 186 – 188.
- Malhorta, N., & Birks, D. (2000). *Marketing Research: An applied approach* (3<sup>rd</sup> ed). Sydney: Prentice Hall.
- Maloney, M.P., & Ward, M.P. (1973). Ecology: let's hear from the people. An objective scale for the measurement of ecological attitudes and knowledge. *American Psychologist*, 28, 787 – 790.
- Manaktola, K., & Jauhari, V. (2007). Exploring consumer attitude and behaviour toward green practices in the lodging industry in India. *International Journal of Contemporary Hospitality Management*, 19 (5), 364 – 377.
- Mannetti, L., Pierro, A., & Livis, S. (2004). Recycling: Planned and self-expensive behaviour. *Journal of Environmental Psychology*, 24, 227 – 236.
- Mansor, I., Aliagha, G.U., & Khoo, G.S. (1999). *Household recycling programme: An evaluation of its effectiveness*. Faculty of Built Environment, Universiti Teknologi Malaysia, Skudai, Johor.
- Margai, F.L. (1997). Analysing changes in waste reduction behaviour in a low-income urban community following a public outreach program. *Environmental and Behaviour*, 29, 786 - 790.
- Mohd Noor Hasan. (1998). Review of environmental quality management in Malaysia: Proceeding, national review on environmental quality management in Malaysia; towards the next two decades. *Institute for Environmental Development (LESTARI), UKM*. Page 1.
- Mega Fokus. (2011, October 18). Transformasi Pengurusan Sisa. *Utusan Malaysia*, p.4.
- Moody, G.L., Alkaff, H., Garrison, D., & Golley, F. (2005). Assessing the environmental Literacy requirement at the University of Georgia. *Journal of Environmental of Education*, Summer, 36 (4), 3 – 9.
- Montesarchio, C. (2009). *Factors influencing the unethical behavioural intention of college students: Theory of Planned Behaviour*. (Unpublished Doctorate Dissertation). Lynn University, UMI No. 3349139.
- Morwitz, V.G., & Fitzmons, G.J. (2004). The mere-measurement effect. Why does measuring intention change actual behaviour? *Journal of Consumer Psychology*, 14, 64 – 74.
- Moorman, J. E., Rudd, R. A., Johnson, C. A., King, M., Minor, P., Bailey, C., ..... Akinbami, L. J. (2007). National surveillance for asthma: United States, 1980-2004. *MMWR Surveillance Summaries*. 56 (8), 1 - 14.
- Muhd Amirul Faiz (2011, September 23). Kompaun tak urus sisa pepejal, *Berita Harian*, p.6.
- Murad, M.W., & Siwar, C. (2008). Factors influencing environmental behaviour of the urban poor concerning solid waste management. *Journal Environmental System*, 31, 257 - 277.

- Nardi, P.M. (2006). *Doing Survey Research: A Guide to Quantitative Methods* (2<sup>nd</sup> Edition). Boston, MA: Pearson Education, Inc.
- National Environmental Education and Training Foundation (NEETF). (1999). *The national report card on environmental knowledge, attitude and behaviour*. Washington D.C: NEETF. Retrieved from <http://www.neetf.org/roper/roper1999>.
- National Strategic Plan for Sustainable Waste Management. (2005). *Published by Local Government Department, Ministry of Housing and Local Government Malaysia*, August, 2005.
- Negev, M., Sagy, G., Garb, Y., & Tal, A. (2008). Evaluating the Environmental Literacy of Israeli Elementary and High School Students. *The Journal Of Environmental Education*, 39, 37 - 45.
- Neuman, K. (1986). Personal values and commitment to energy conservation. *Environmental and Behaviour*, 18 (1), 19 - 29.
- Newhouse, N. (1990) Implications of attitude and behaviour research for environmental conservation. *Journal of Environmental Education*. 22, 26 - 32.
- Newport, D., Chesner, T., & Lindner, A. (2003). The 'environmental sustainability' problem: Ensuring that sustainability stands on the three legs. *International Journal of Sustainability in Higher Education*, 4, 357 - 363.
- Nicholaides, A. (2006). The implementation of environmental management towards sustainable university and education for sustainable development as ethical imperatives. *International Journal of Sustainability in Higher Education*, 7, 414 - 424.
- Nielson, J.M., & Ellington, B.L. (1983). Social pressure and resource conservation. *Environment Psychology: Direction and Perspective*, 3, 288 - 312.
- Nigbur, D., Lyons, E., & Uzzel, D. (2010). Attitude, norms, identity and environmental behaviour: Using an expanded Theory of Planned Behaviour to predict participation in a kerbside recycling programme. *British Journal of Social Psychology*, 49, 259 - 284.
- Nordlund, A. M., & Garvill, J. (2002). "Value structures behind pro-environmental behaviour." *Environment and Behaviour*, 34, 339 - 347.
- Notani, A. S. (1998). Moderators of perceived behavioural control's predictiveness in the theory of planned behaviour: A meta-analysis. *Journal of Consumer Psychology*, 7, 247 - 271.
- Navarro, R.L. (2002). *Student attitude-behaviour toward residence hall recycling*. (Unpublished Doctorate Dissertation), Illinois State University, UMI No. 3064521.
- Nunnally, J. C. (1978). *Psychometric Theory*. New York: McGraw-Hill.
- Olson, L., Arvai, J., & Thorp, L. (2011). Mental models research to information community outreach for a campus recycling program. *International Journal of Sustainability in Higher Education*, 12 (4), 322 - 337.
- Omran, A., Mahmood, A., Abdul Aziz, H., & Robinson, G.M. (2009). Investigating household attitude toward recycling of solid waste in Malaysia: A case study. *International Journal Environmental Resource*, 3 (2), 275 - 288.
- Onwueme, I., & Bosari, B. (2007). The sustainability asymptogram: A new philosophical framework for policy, outreach and education in sustainability. *International Journal of Sustainability in Higher Education*, 8 (1), 44 - 52.

- Oom Do Valle, P., Reis, E., Menezes, J., & Rebelo, E. (2004). Behavioural Determinants of Household Recycling Participation: The Portuguese Case. *Environment and Behaviour*, 36, 364 - 396.
- Orr, D.W. (1996). Education for the environment: Higher education's challenge of the next century. *The Journal of Environmental Education*, 23 (2), 46 – 50.
- Osbaldiston, R. (2004). *Meta-analysis of the responsible environmental behaviour literature*. (Unpublished Doctorate Dissertation), University of Missouri - Columbia. UMI No. 3144447.
- Oskamp, S., Harrington, M., Edwards, T., Sherwood, L., Okuda, S.M., & Swanson, D.L. (1991). Factors influencing household recycling behaviour. *Environment and Behaviour*, 23, 494 – 519.
- Oskamp, S. (1995). Psychological Contributions to Achieving an Ecologically Sustainable Future for Humanity. *Journal of Social Issues*, 56, 469 – 486.
- Oskamp, S. (2000). Resource conservation and recycling: Behaviour and Policy. *Journal of Social Issues*, 51 (4), 166 – 171.
- Our Green World. (2008). *How green is our world? Research report, TNS. 2010*. Retrieved from [http://www.tnsglobal.com/\\_assets/files/TNS\\_mkt\\_Research\\_our\\_Green\\_World.pdf](http://www.tnsglobal.com/_assets/files/TNS_mkt_Research_our_Green_World.pdf).
- Page, C., & Luding, Y. (2003). Bank managers' direct marketing dilemmas-customers' attitudes and purchase intention. *International Journal of Bank Marketing*, 21 (3), 113 – 123.
- Palmer, J.A. (1993), "Development of concern for the environment and formative experiences of educators", *Journal of Environmental Education*, 24 (3), 26 – 30.
- Park, H., & Levine, T., & Sharkey, W. (1998). The theory of Reasoned Action and self construal: Understanding recycling in Hawaii, *Communication Studies*, 49, 196 – 208.
- Pe'er, S., Goldman, D., & Yavetz, B. (2007). Environmental literacy in teacher training: Attitudes, knowledge & environmental behaviour of beginning student. *Journal of Environmental Education*, 39, 45 – 59.
- Peterson, P.J. (1997). Indicators of sustainable development in industrializing countries: From concepts to action. *Institute for Environmental and Development (LESTARI)*, 2, 1 - 14.
- Pike, L., Shannon, T., Lawrimore, K., McGee, A., Taylor, M., & Lamoreaux, G. (2003), "Science education and sustainability initiatives: a campus recycling case study shows the importance of opportunity", *International Journal of Sustainability in Higher Education*, 4 (3), 218 – 229.
- Polonsky, M.J., & Mintu-Wimsatt, A.T. (1995). In M.J. Polonsky & A.T. Mintu-Wimsatt (Eds). *Environmental Marketing: Strategies, practices, theory & research*. New York: The Haworth Press.
- Poortinga, W., Lindstedt, & Vlek, C. (2004). Values, environmental concern, and environmental behaviour: A study into household energy use. *Environment and Behaviour*, 36, 455 - 478.
- Public Agenda. (2010). *Issue Guides: Environmental*. Retrieved from <http://www.publicagenda.org/citizen/issueguide/env/overview>.
- Quaye, S. J. (2007). Hope and leaning: The outcomes of contemporary student activism. *About Campus*, 12 (2), 2 – 9.



- Rascoe, J.T. (1975). *Fundamental research statistic for behavioural sciences 2<sup>nd</sup> Edition*, Orlando: Holt, Rinehart & Winston, Inc.
- Rauwald, K., & Moore, C. (2002). Environmental attitudes as predictors of policy support across three countries. *Environmental & Behaviour*, 34, 405 – 418.
- Raymond, A.S. (1995). Local Government Household Battery Collection Programs: Cost and Benefits. *Journal on Resources, Conservation and Recycling*, 15, 1 - 19.
- Read, A.D. (1999). A weekly doorstep recycling collection, I had no idea we could overcoming the local barriers to participation. *International Journal of Resources, Conversation and Recycle*. 26, 217 – 249.
- Reno, R.R., Cialdini, R.B., & Kallgren, C.A. (1993). The trans-situational influence of social norms. *Journal of Personality and Social Psychology*, 65, 104 – 112.
- Ridener, L.R. (1997), "University students' attitude to the environment: an Australian/USA comparison and the effects of an educational program", *Australian Journal of Environmental Education*, 13, 77 – 84.
- Rise, J., Thompson, M., & Verplanken, B. (2003). Measuring implementation intention in the context of the Theory of Planned Behaviour, *Scandinavian Journal of Psychology*, 44, 87 – 95.
- Robertson, S., & Walkington, H. (2009). Recycling and waste minimisation behaviour of the transfer student population in Oxford: Results of an on-line survey. *Local Environment*, 14 (4), 285 – 296.
- Rowntree, D. (1981). *Statistics without tears: A primer for non-mathematicians* (1<sup>st</sup> edition.). USA: MacMillan Publishing Company.
- Sapp, S.G., Harrod, W.J., & Zhao, L. (1995). Socially constructed subjective norm and subjective norm-behaviour consistency. *Social Behaviour and Personality*, 2. 23 – 28.
- Schultz, P. W. (2001). The Structure of Environmental Concern: Concern for Self, Other People and the Biosphere. *Journal of Environmental Psychology*, 21, 327 – 329.
- Schultz, P., Oskamp, S., & Mainieri, T. (1995). Who recycles and when? A review of personal and situational factors. *Journal of Environmental Psychology*, 15, 105-121.
- Schultz, P.W., & Oskamp, S. (1996). Effort as a moderator of the attitude – behaviour relationship: General environmental concern and recycling. *Social Psychology Quarterly*, 59 (4), 376 – 381.
- Schwarz, E.J., Wdowiak, M., Amer-Jarz, D.A., & Breitenecker, R.J. (2009). The effects of attitude and perceived environmental condition on student entrepreneurial intent: An Austrian perspective. *Education and Training*, 51 (4), 272 – 291.
- Sekaran, U. (2000). *Research method for business: A skill-building approach*. (4<sup>th</sup> Edition). Singapore. John Willey & Sons.
- Senge, P., Smith, B., Krugwitz, N., & Laur, J. (2008). *The necessary revolution: How individuals and organizations are working together to create a sustainable world*. New York, Doubleday.
- Sharifah A. Haron, Laily Paim, & Nurizan Yahya. (2005). Toward sustainable consumption: An examination of environmental knowledge among Malaysians. *International of Consumer Studies*, 29, 426 – 436.

- Sheeran, P., & Orbell, S. (1998), "Do intention predict condom use? Meta-analysis and examination of six moderator variables", *British Journal of Social Psychology*, 37, 2107 - 2142.
- Sheeran, P., Trafimow, D., & Armitage, C. (2003). Predicting behaviour from perceived behaviour control: Test for the accuracy assumption of the theory of planned behaviour. *British Journal of Social Psychology*, 42, 393 - 410.
- Sheeran, P. (2002), "Intention-behaviour relations: a conceptual and empirical review". In Hewstone, M. and Stroebe, W. (Eds), *European Review of Social Psychology*, 12, 1 - 36.
- Shih, Y., & Fang, K. (2004). The use of decomposed Theory of Planned Behaviour to study internet banking in Taiwan. *Internet Research*, 14, 213 - 223.
- Shim, S., Eastlick, M.A., Lotz, S.L., & Warrington, P. (2001). An online pre-purchase intention model: The role of intention to search, *Journal of Retailing*, 77, 397 - 416.
- Shrum, L.J., Lowrey, T.M., & McCarty, J.A. (1995). Applying social and traditional marketing principles to the reduction of household waste. *American Behavioural Scientist*, 38 (4), 650 - 653.
- Sia Su, G.L. (2008). Environmental worldwide and concern of college students in the Philippine. *International Journal of Sustainability in Higher Education*, 9 (1), 39 - 47.
- Sia, A.P., Hungerford, H.R., & Tomera, A.N. (1985/1986). Selected predictors of responsible of environmental behaviour: An analysis. *Journal of Environmental Education*, 31, 33 - 40.
- Spacearelli, S, E., Zolik, E. & Jason, L. A. (1989/1990). Effect of verbal prompting and block characteristic on participation in curbside recycling, *Journal of Environment System*, 4, 45 - 47.
- Staats, H., Harland, P., & Wilke, H. (2004). Effecting Durable Change: A team approach to improve environmental behaviour in the household. *Environment and Behaviour*, 36 (3), 341 - 367.
- Stern, P.C. (2000). "Toward a coherent theory of environmentally significant behaviour." *Journal of Social Issues*, 56, 407 - 424.
- Stern, P. C. (2005). Understanding individual's environmentally significant behaviour. *Environmental Law Reporter*, 35, 1611 - 1636.
- Stern, P.C., Dietz, T., Kalof, L., & Guagnano, G.A. (1995). Values, belief & pro-environmental action: Attitude formation toward emergent attitude objects. *Journal of Applied Social Psychology*, 25, 1611 - 1636.
- Stern, P.C., Dietz, T., Abel, T., Guagnano, G.A., & Kalof, L. (1999). A values-belief, norm theory of support for social movement: The case of environmentalism. *Human Ecology Review*, 6, 87 - 97.
- Straughan, R.D., & Robberts, J.A. (1999), "Environmental segmentation alternatives: a look at green consumer behaviour in the new millennium", *Journal of Consumer Marketing*, 16 (6), 558 - 575.
- Stoll-Kleeman, S., O'Riordan, T., & Jaeger, C.C. (2001). The psychology of denial concerning climate mitigation measures: Evidence from Swiss focus groups. *Global Environmental Change*, 11, 107 - 117.

- Stubbs, W., & Cocklin, C. (2008). Teaching sustainability to business students: Shifting mindsets. *International Journal of Sustainability in Higher Education*, 9(3), 206 - 221.
- Takacs-Santa. (2007). Barrier to environmental concern. *Human Ecology Review*, 14, 26 - 38.
- Taylor, S., & Todd, P. (1995), "An integrated model of waste management behaviour: a test of household recycling and compost intentions", *Environmental Behaviour*, 27 (5), 603 - 630.
- Terry, D.J., Hogg, M.A., & White, K.M. (1999). The theory of planned behaviour: Self identity, social identity and group norms. *British Journal of Social Psychology*, 38 (3), 225 - 244.
- Thapa, B. (2010). Environmentalism: The relation of environmental attitude and environmental responsible behaviour among undergraduate student. *Bulletin of Science, Technology & Society*, 19 (5), 426 - 438.
- The Final Report Study on National Minimisation in Malaysia*. (2006) by Japan International Cooperation Agency.
- Thomas, C. (2001). Public understanding and its effect on recycling performance in Hampshire and Milton Keynes. *International Journal Resources, Conservation and Recycling*. 32, 259 - 274.
- Thomas, I. (2004), "Sustainability in tertiary curricula: What is stopping it happening?" *International Journal of Sustainability in Higher Education*, 5 (1), 33 - 47.
- Thorgersen, J. (1996). Recycling and morality: A critical review of literature. *Environmental and Behaviour*, 28, 543 - 555.
- Tikka, P. M., Kuitunen, M., & Tynys, S.A. (1999). Effects of educational background on students attitudes, activity levels and knowledge concerning environment. *Journal of Environmental Education*. 31, 12 - 18.
- Tonglet, M., Phillips, P.S., & Bates, M.P. (2004). Determining the drivers for householder behaviour: Waste minimization compared to recycling. *International Journal of Resources, Conservation and Recycling*. 42, 55 -73.
- Truelove, H.B. (2010). *An investigation of the psychology of global warming: Perceptions, predictors of behaviour and the persuasiveness of ecological footprint calculators*. (Unpublished Doctorate Dissertation). Washington State University, UMI No. 3382201.
- Trumbo, C.W., & O'Keefe, G.J. (2001). Intention to conserve water: Environmental value, planned behaviour and information effects. A comparison of three communities sharing a watershed. *Society & Natural Resources*. 4, 889 - 899.
- Tucker, P., & Spiers, D. (2003). Attitude and behavioural change in household waste management behaviour. *Journal of Environmental Planning and Management*, 46 (2), 289 - 307.
- Ugboro, I.O., & Obeng, K. (2000). Top management leadership, employee empowerment, job satisfaction and customer satisfaction in total quality management organization: An empirical study. *Journal of Quality Management*, 5, 247 - 272.
- United Nations. (1992), 'Promoting education, public awareness of training', Report of the UK Conference on Environment and Development. Retrieved from [http://www.gopher/gopher.undp.org:70/00/unconfs/UNCED/English/a21\\_36](http://www.gopher/gopher.undp.org:70/00/unconfs/UNCED/English/a21_36).

- University Leaders for a Sustainable Future. (2001). *The Talloires Declaration*. Retrieved from [http://www.ulsf.org/programs\\_talloires\\_report.htm](http://www.ulsf.org/programs_talloires_report.htm).
- Van Liere, K. D., & Dunlap, R.E. (1981). "Environmental Concern: Does it make a difference how it's measured?" *Environment and Behaviour*, 13, 651 – 676.
- Vaske, J.J., & Donnelly, M.P. (1999). A value-attitude-behaviour model predicting wildland preservation voting intention. *Society and Natural Resources*, 12, 523 – 537.
- Vining, J., & Ebreo, A. (1990). What makes a recycler? A comparison of recyclers and non-recyclers. *Environment and Behaviour*, 22, 55 – 73.
- Vining, J., & Ebreo, A. (1992). Predicting recycling behaviour for global and specific environment attitude and changes in recycling opportunities. *Journal of Applied Psychology*, 22, 1597 – 1603.
- Wade, J.A. (1999). Students as environmental change agents. *International Journal of Contemporary Hospitality Management*, 11 (5), 251 – 255.
- Wang, M.S., Chen, C.C., Chang, S.C., & Yang, Y.H. (2007). Effects of online shopping attitudes, subjective norms and control Beliefs on online shopping intentions: A test of the theory of planned behaviour. *International Journal of Management*, 24, 296 – 302.
- WARMER. (1995). Information sheet on the world resource foundation. WARMER Bulletin: *Journal of the World Resource Foundation*, 44, 13 – 16.
- Webb, T.L., & Sheeran, P. (2006). "Does changing behavioural intentions engender behaviour change? A meta-analysis of the experimental evidence", *Psychological Bulletin*, 132, 249 – 268.
- Welford, R. (2004). Corporate social responsibility in Europe and Asia: critical elements and best practice. *Journal of Corporate Citizenship*, 13, 139 – 150.
- Werder, O. (2002). *Understanding values and attitudes toward recycling: Predictions and implications for communication campaign*. (Unpublished Doctorate Dissertation). University of Florida. UMI No. 3065997.
- Werner, C., & Makela, E. (1998). Motivation and behaviours that support recycling. *Journal of Environmental Psychology*, 18, 373 – 386.
- Werner, C. M., Byerly, S., White, P. H., & Kieffer, M. (2004). Validation, persuasion and recycling: Capitalizing on the social ecology of newspaper use. *Basic and Applied Social Psychology*, 26, 183-198.
- White, K.M., Smith, J.R., Terry, D.J., Greenslade, J.H., & McKimmie, B.M. (2009). Social influence in the theory of Planned Behaviour: The role of descriptive, injunctive and in group norms, *British Journal of Social Psychology*, 48, 135 – 158.
- Williams, I.D., & Kelly, J. (2003). Green waste collection and the publics recycling behaviour in the Borough of Wyre, England. *International Journal Resource Conversation Recycling*, 38, 139–160.
- World Bank. (1992). *Malaysia: Managing costs of urban pollution*. Report no. 11764 – MA. Washington DC.
- World Business Council on Sustainable Development-WBCD. (2000). *Eco-efficiency. Creating more value with less impact*. Retrieved from [www.wbcsd.org](http://www.wbcsd.org).
- Wolfe, V.L. (2001). "Survey of the environmental education of students in non-environmental majors at four year institutions in the USA", *International Journal of Sustainability in Higher Education*, 2, 301 – 315.

- Young, R. (1984). Motivating people to recycle: The use of incentives. *Resource Recycling*, 42, 14 – 15.
- Zainal Abidin Sanusi, Z.A., & Doost, H.K. (2008). Regional center of expertise as transformational platform for sustainability: A case study of University of Science Malaysia, Penang, *International Journal of Sustainability in Higher Education*, 9 (4), 487 – 497.
- Zhang, X., Prybutok, V.R., & Strutton, D. (2007). Modelling influences on impulse Purchasing behaviours during online marketing transactions. *Journal of Marketing Theory and Practice*, 15 (1), 79 - 89.
- Zia, H., Devadas, V., & Shukla, R. (2008). Assessing informal waste recycling in Kanpur City, India. *Management of Environmental Quality: An International Journal*, 19 (5), 597 – 612.
- Zimmerman, J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Education Psychology*. 81, 329 – 339.
- Zinkman, G.M., & Carlson, L. (1995). Green advertising and the reluctant consumer. *Journal of Advertising*, 24, Summer 1 - 5.