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## **PERSONALITY AND LIFESTYLE INTERPRETS EXTERNAL CONDITION TO ENVIRONMENTAL BEHAVIOURS**

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### **Abstract**

Personality and lifestyles frame individuals' interpretation of situational information; as such, the encouragement, convenience and reinforcement to behave more environmentally. Issue: Existing research lack empirical evidence on the influence of personality and lifestyle (PL) on external condition (EC) to environmental behaviours. Purpose: This paper aims to verify the statistical predictability of EC based on PL. Approach: Multiple Correlation and Multiple Linear Regression were carried out to assess linear associations and parameters of linear equations to predict EC components based on PL items. Findings: EC components were predictable by some of the PL items. In particular, 'urging media to raise environmental awareness' was the strongest predictor of EC.

**Keyword:** external condition, personality and lifestyle

## INTRODUCTION

Human interdependence with the environment (HIE) entails (i) the ability to contribute, and (ii) the willingness to be responsive, and (iii) the enthusiasm to be more engaged with one's context for meaningful and sustainable well-being. Personality and lifestyle (PL) and external condition (EC) are two interrelated HIE dimensions that significantly contribute to subjective sustainable well-being (SSWB) (Abu Bakar et al., 2017a, 2017b, 2017c, 2018). Personal environmental values stem from collectivist beliefs and biospheric ideals that forms PL serve as guidelines in individuals' life and influence the way individuals evaluate the EC of environmental behaviours. Few studies to date have empirically examined how personal values relate to situation perception. This paper assesses the statistical predictability of EC based on PL.

## LITERATURE REVIEW

Case studies based on articles from selected Asian Journals from the year 2011 onwards highlight conditional factors and potential determinants of Interaction with Nature (EC). Table 1 summarizes these findings.

**Table 1** Conditional Factors and Potential Determinants for External Condition

Conditional Factors	Potential Determinants	References
Sense of urgency pressure, concern, awareness and behavioural change on solid waste management.	Regulation enforcement, and limited resources	(Lim, 2011)
Environmental, ethical commitment (dedication to moral principles in relation to the environment).	Regulation aspects, financial aspects,	(Delima & Zaman, 2012)
Re-arrangements of furniture, environmental appreciation, adjustment to living conditions.	Favourable living area and stress-free environment	(Sahari et al., 2012)
Hazardous exposure from construction and development (fumes and dust as well unregulated building materials such as asbestos, lead and solvents)	proper construction regulation process and procedures, and legal enforcement	(Isnin et al., 2012)
Increase of income per capita and increase of population density (population per unit area).	Pollution, conducive outdoors, health and quality of life	(Borhan et al., 2013)
Adaptation and adjustment of the citizens to the local tropical weather.	Outdoor condition (climate, temperature and humidity)	(Nasir et al., 2013)
Safety, public services, safe surroundings, greenery and quietness, social interaction and proximity.	Access, proximity and neighbourhood quality	(Lamit et al., 2013)
Influences by environmental concern and environmental campaign programmes.	Support from family, neighbours, and colleague	(Rezai et al., 2015)
Public satisfaction and improvements of the public transportation, network and facilities.	facilities, services, comfort and vehicle design	(Hafezi et al., 2013)
Location of living spaces and monthly income or allowance influenced energy-conservative attitudes.	Convenience to facilities and products	(Singhirunusorn et al., 2011)
Prompts, commitment, normative influence, goal setting, barriers, rewards, and feedback	Situational factor (perception of difficulty to performance)	(Latif et al., 2013)

The findings from the case studies generate three significant components of EC: (i) Surrounding Encouragement (ECa), (ii) Convenience (ECb) and (iii) Favourable Enforcement (ECc).

**Table 2** Components and Determinants of External Condition

Definition of EC	Components	Indicators	Code
The contextual circumstances and situational factors that influence and hinder individuals to think and act responsibly towards the environment	Surrounding Encouragement	having family members who support eco-friendly behaviours	ECa
		having a supportive, ethical climate at work	
		having reachable conducive outdoors	
	Convenience	having a neighbourhood that supports green politics	ECb
		recognising accessibility to environmental products	
		recognising affordability of environmental products	
	Favorable Reinforcement	recognising favourable waste handling management	ECc
		recognising conducive surrounding and amenities	
		recognising the efficiency of public transport infrastructure	
		recognising legal enforcement on environmental destruction	

Personal Lifestyle (PL) manifests in the personal outlook and approach to life in relation to environmental consciousness (Abu Bakar et al., 2017a, 2017b, 2017c, 2018). Qualities adhere to PL include (i) moral stance in collectivistic values (Clark et al., 2014; Caesar, 2016), (ii) commitment to modest and environmental choices (Horayangkura, 2012; Khare, 2015; Ming et al., 2015), and (iii) environmental concerns through knowledge and awareness (Horayangkura, 2012; Masud et al., 2013; Ming et al., 2015).

**Table 3** Determinants of Personal Lifestyle

Definition of PL	Indicators	Code
The personal orientation that portrays collectivistic worldviews, modesty and humility towards others as well as consciousness of environmental issues	favouring relationships with others over personal success	PL1
	choosing to disappointing self over disappointing family	PL2
	taking account others' opinions in making life decisions	PL3
	taking the pleasure of working with others	PL4
	practising moderation in purchasing and using resources	PL5
	feeling unconcerned if not being able to afford things	PL6
	believing that having many assets does not lead to happiness	PL7
	being mindful about environmental destruction	PL8
	feeling affected by the environmental loss of other countries	PL9
	urging media to raise environmental awareness	PL10

Based on theoretical underpinnings, the research hypothesize that EC components are predictable by PL. The following sections provide empirical evidence on the predictability of ECa, ECb and ECc based on PL items.

## METHOD

A sample of 4315 was pooled after the data screening process. The Malaysian respondents were given an 11-point Likert scale to respond to questionnaire items which consist of the components of EC and the ten (10) PL items. Pearson correlation analyses were conducted to observe if there were linear associations between the EC components and PL items. Ensuing correlation analyses, multiple linear regression analyses were conducted to estimate parameters of the linear equations used to predict values of ECa, ECb and ECc from PL items.

RESULTS AND DISCUSSION

**Table 4** Multiple Correlations between PL items and ECa,ECb and ECc

H <sub>0</sub> There is no statistically significant correlation between ECa and respective PL items											
H <sub>0</sub> There is no statistically significant correlation between ECb and respective PL items											
H <sub>0</sub> There is no statistically significant correlation between ECc and respective PL items											
Correlation Strength Threshold (Dancey & Riley, 2004)											
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	1
	zero	weak			moderate			strong			perfect
DV	Stats	PL1	PL2	PL3	PL4	PL5	PL6	PL7	PL8	PL9	PL10
ECa	r	.277**	.267**	.286**	.319**	.280**	.240**	.234**	.280**	.257**	.291**
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	4315	4315	4315	4315	4315	4315	4315	4315	4315	4315
ECb	r	.237**	.235**	.260**	.274**	.263**	.248**	.249**	.283**	.256**	.261**
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	4315	4315	4315	4315	4315	4315	4315	4315	4315	4315
ECc	r	.274**	.264**	.279**	.300**	.284**	.246**	.232**	.267**	.231**	.271**
	p	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	4315	4315	4315	4315	4315	4315	4315	4315	4315	4315

**Statistical Interpretation of Multiple Correlation Analyses**

ECa	At 95% confidence level, there were statistically significant and weak correlations between ECa and (i) PL1 (r =.277, p = .000); (ii) PL2 (r =.267, p = .000); (iii) PL3 (r =.286, p = .000); (iv) PL4 (r =.319, p = .000); (v) PL5 (r =.280, p = .000); (vi) PL6 (r =.240, p = .000); (vii) PL7 (r =.234, p = .000); (viii) PL8 (r =.280, p = .000); (ix) PL9 (r =.257, p = .000); and (x) PL10 (r =.291, p = .000).
ECb	At 95% confidence level, there were statistically significant and weak correlations between ECb and (i) PL1 (r =.237, p = .000); (ii) PL2 (r =.235, p = .000); (iii) PL3 (r =.260, p = .000); (iv) PL4 (r =.274, p = .000); (v) PL5 (r =.263, p = .000); (vi) PL6 (r =.248, p = .000); (vii) PL7 (r =.249, p = .000); (viii) PL8 (r =.283, p = .000); (ix) PL9 (r =.256, p = .000); and (x) PL10 (r =.261, p = .000).
ECc	At 95% confidence level, there were statistically significant and weak correlations between ECc and (i) PL1 (r =.274, p = .000); (ii) PL2 (r =.264, p = .000); (iii) PL3 (r =.279, p = .000); (iv) PL4 (r =.300, p = .000); (v) PL5 (r =.284, p = .000); (vi) PL6 (r =.246, p = .000); (vii) PL7 (r =.232, p = .000); (viii) PL8 (r =.267, p = .000); (ix) PL9 (r =.231, p = .000); and (x) PL10 (r =.271, p = .000).

At 95% confidence level, there were statistically significant positive correlations between (i) ECa and each of PL items, (ii) ECb and each of PL items, and (iii) ECc and each of PL items. The null hypotheses claiming there are no statistically significant correlations between (i) ECa and respective PL items, (ii) ECb and respective PL items, and (iii) ECc and respective PL items were all rejected.

Three (3) multiple regression analyses were carried out to predict the values of each of dependent variables (i) ECa, (ii) ECb and (iii) ECc given the set of PL explanatory variables (PL1, PL2, PL3, PL4, PL5, PL6, PL7, PL8, PL9, and PL10).

**Table 5** Multiple Linear Regression – PL predicting ECa

H <sub>0</sub>							
There will be no significant prediction of ECa by PL1, PL2, PL3, PL4, PL5, PL6, PL7, PL8, PL9 and PL10							
Model Summary							
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson		
1	.362 <sup>a</sup>	.131	.129	1.67677	1.426		
ANOVA							
Model	Sum of Squares	df	Mean Square	F	Sig.		
Regression	1821.833	10	182.183	64.798	.000 <sup>b</sup>		
Residual	12100.958	4304	2.812				
Total	13922.791	4314					
Coefficients							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std Error	$\beta$			Lower Bound	Upper Bound
(Constant)	3.689	.165		22.415	.000	3.366	4.012
PL1	.062	.024	.060	2.568	.010	.015	.110
PL2	.013	.026	.013	.505	.614	-.038	.065
PL3	.042	.028	.036	1.478	.140	-.014	.097
PL4	.130	.028	.119	4.718	.000	.076	.184
PL5	.036	.027	.034	1.336	.182	-.017	.089
PL6	.016	.024	.015	.658	.511	-.031	.063
PL7	.002	.025	.002	.069	.945	-.046	.050
PL8	.064	.027	.058	2.387	.017	.011	.116
PL9	.020	.023	.020	.862	.389	-.025	.065
PL10	.096	.021	.096	4.477	.000	.054	.138

A multiple regression was generated to predict ECa based on PL items. R value of .362 indicated slightly a weak level of prediction ( $R < 0.4$ ). The Durbin-Watson statistic was 1.426 which is greater than 1.0 and therefore the data was not autocorrelated. A significant regression equation was found,  $F(10, 4304) = 64.798$ ,  $p = .000$ , with an  $R^2$  of .131; indicating that the proportion of variance in ECa that can be explained by PL items was 13.1%.

At 95% confidence level, PL1 ( $B = .062$ ,  $t = 2.568$ ,  $p = .010$ ); PL4 ( $B = .130$ ,  $t = 4.718$ ,  $p = .000$ ); PL8 ( $B = .064$ ,  $t = 2.387$ ,  $p = .017$ ) and PL10 ( $B = .096$ ,  $t = 4.477$ ,  $p = .000$ ) were significant predictors of ECa. On the contrary, it was found that PL2 ( $B = .013$ ,  $t = .505$ ,  $p = .614$ ); PL3 ( $B = .042$ ,  $t = 1.478$ ,  $p = .140$ ); PL5 ( $B = .036$ ,  $t = 1.336$ ,  $p = .182$ ); PL6 ( $B = .016$ ,  $t = .658$ ,  $p = .511$ ); PL7 ( $B = .002$ ,  $t = .069$ ,  $p = .945$ ) and PL9 ( $B = .020$ ,  $t = .862$ ,  $p = .389$ ) were not significant predictors of ECa.

Personality and Lifestyle (PL) items account for 13.1% of Surrounding Encouragement (ECa). Four (4) of PL items were significant predictors of ECa.

**Table 6** Multiple Linear Regression – PL predicting ECb

H <sub>0</sub>							
There will be no significant prediction of ECb by PL1, PL2, PL3, PL4, PL5, PL6, PL7, PL8, PL9 and PL10							
Model Summary							
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson		
1	.335 <sup>a</sup>	.112	.110	1.73798	1.549		
ANOVA							
Model	Sum of Squares	df	Mean Square	F	Sig.		
Regression	1647.291	10	164.729	54.536	.000 <sup>b</sup>		
Residual	13000.532	4304	3.021				
Total	14647.824	4314					
Coefficients							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std Error	β			Lower Bound	Upper Bound
(Constant)	3.561	.171		20.877	.000	3.227	3.896
PL1	.028	.025	.026	1.101	.271	-.022	.077
PL2	.004	.027	.004	.157	.875	-.049	.058
PL3	.067	.029	.058	2.310	.021	.010	.125
PL4	.063	.029	.056	2.215	.027	.007	.119
PL5	.021	.028	.019	.757	.449	-.034	.076
PL6	.053	.025	.050	2.139	.032	.004	.101
PL7	.040	.025	.035	1.569	.117	-.010	.090
PL8	.100	.028	.087	3.590	.000	.045	.154
PL9	.039	.024	.038	1.646	.100	-.007	.086
PL10	.056	.022	.055	2.522	.012	.012	.100

A multiple regression was generated to predict ECb based on PL items. R value of .335 indicated slightly a weak level of prediction ( $R < 0.4$ ). The Durbin-Watson statistic was 1.549 which is greater than 1.0 and therefore the data was not autocorrelated. A significant regression equation was found,  $F(10, 4304) = 54.536$ ,  $p = .000$ , with an  $R^2$  of .112; indicating that the proportion of variance in ECb that can be explained by PL items was 11.2%.

At 95% confidence level, PL3 ( $B = .067$ ,  $t = 2.31$ ,  $p = .021$ ); PL4 ( $B = .063$ ,  $t = 2.215$ ,  $p = .027$ ); PL6 ( $B = .053$ ,  $t = 2.139$ ,  $p = .032$ ); PL8 ( $B = .100$ ,  $t = 3.59$ ,  $p = .000$ ) and PL10 ( $B = .056$ ,  $t = 2.522$ ,  $p = .012$ ) were significant predictors of ECb. On the contrary, it was found that PL1 ( $B = .028$ ,  $t = 1.101$ ,  $p = .271$ ); PL2 ( $B = .004$ ,  $t = .157$ ,  $p = .875$ ); PL5 ( $B = .021$ ,  $t = .757$ ,  $p = .449$ ); PL7 ( $B = .040$ ,  $t = 1.569$ ,  $p = .117$ ) and PL9 ( $B = .039$ ,  $t = 1.646$ ,  $p = .100$ ) were not significant predictors of ECb.

Personality and Lifestyle (PL) items account for 11.2% of Convenience (ECb). Five (5) of PL items were significant predictors of ECb.

**Table 7** Multiple Linear Regression – PL predicting ECc

H <sub>0</sub>							
There will be no significant prediction of ECc by PL1, PL2, PL3, PL4, PL5, PL6, PL7, PL8, PL9 and PL10							
Model Summary							
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson		
1	.349 <sup>a</sup>	.121	.119	1.65688	1.448		
ANOVA							
Model	Sum of Squares	df	Mean Square	F	Sig.		
Regression	1633.719	10	163.372	59.511	.000 <sup>b</sup>		
Residual	11815.579	4304	2.745				
Total	13449.298	4314					
Coefficients							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std Error	β			Lower Bound	Upper Bound
(Constant)	3.833	.163		23.569	.000	3.514	4.152
PL1	.072	.024	.071	3.003	.003	.025	.119
PL2	.019	.026	.018	.730	.465	-.032	.070
PL3	.049	.028	.044	1.763	.078	-.005	.104
PL4	.076	.027	.070	2.779	.005	.022	.129
PL5	.070	.027	.066	2.602	.009	.017	.122
PL6	.033	.024	.032	1.384	.166	-.014	.079
PL7	-.003	.024	-.003	-.120	.904	-.050	.045
PL8	.075	.026	.069	2.845	.004	.023	.127
PL9	-.016	.023	-.017	-.714	.475	-.061	.028
PL10	.085	.021	.087	4.013	.000	.044	.127

A multiple regression was generated to predict ECa based on PL items. R value of .349 indicated slightly a weak level of prediction ( $R < 0.4$ ). The Durbin-Watson statistic was 1.448 which is greater than 1.0 and therefore the data was not autocorrelated. A significant regression equation was found,  $F(10, 4304) = 59.511$ ,  $p = .000$ , with an  $R^2$  of .121; indicating that the proportion of variance in ECc that can be explained by PL items was 12.1%.

At 95% confidence level, PL1 ( $B = .072$ ,  $t = 3.003$ ,  $p = .003$ ); PL4 ( $B = .076$ ,  $t = 2.779$ ,  $p = .005$ ); PL5 ( $B = .070$ ,  $t = 2.602$ ,  $p = .009$ ); PL8 ( $B = .075$ ,  $t = 2.845$ ,  $p = .004$ ) and PL10 ( $B = .085$ ,  $t = 4.013$ ,  $p = .000$ ) were significant predictors of ECc. On the contrary, it was found that PL2 ( $B = .019$ ,  $t = .730$ ,  $p = .465$ ); PL3 ( $B = .049$ ,  $t = 1.763$ ,  $p = .078$ ); PL6 ( $B = .033$ ,  $t = 1.384$ ,  $p = .166$ ); PL7 ( $B = -.003$ ,  $t = -.120$ ,  $p = .904$ ) and PL9 ( $B = -.016$ ,  $t = -.714$ ,  $p = .475$ ) were not significant predictors of ECc.

Personality and Lifestyle (PL) items account for 12.1% of Favorable Reinforcement (ECc). Five (7) of PL items were significant predictors of ECc.

**Table 8** Summary of Findings

		IV (Predictor Variables) - $\beta$									
		PL1	PL2	PL3	PL4	PL5	PL6	PL7	PL8	PL9	PL10
DV (Outcome Variables)	ECa	.060 ✓	.013 ✗	.036 ✗	.119 ✓	.034 ✗	.015 ✗	.002 ✗	.058 ✓	.020 ✗	.096 ✓
	ECb	.026 ✗	.004 ✗	.058 ✓	.056 ✓	.019 ✗	.050 ✓	.035 ✗	.087 ✓	.038 ✗	.055 ✓
	ECc	.071 ✓	.018 ✗	.044 ✗	.070 ✓	.066 ✓	.032 ✗	-.003 ✗	.069 ✓	-.017 ✗	.087 ✓
✓ = statistically significant predictor; ✗ = not statistically significant predictor											
DV	Indicators	IV		Top 3 Strongest Predictors	$\beta$						
ECa Surrounding Encouragement	<ul style="list-style-type: none"> <li>having family members who support eco-friendly behaviours</li> <li>having a supportive, ethical climate at work</li> <li>having reachable conducive outdoors</li> <li>having a neighbourhood that supports green politics</li> </ul>	PL4	PL10	taking the pleasure of working with others	.119						
		PL10	PL1	<b>urging media to raise environmental awareness</b>	<b>.096</b>						
		PL1	PL8	favouring relationships with others over personal success	.060						
ECb Convenience	<ul style="list-style-type: none"> <li>recognising accessibility to environmental products</li> <li>recognising affordability of environmental products</li> </ul>	PL8	PL3	being mindful about environmental destruction	.087						
		PL3	PL10	taking account others' opinions in making life decisions	.058						
		PL10	PL10	<b>urging media to raise environmental awareness</b>	<b>.055</b>						
ECc Favorable Reinforcement	<ul style="list-style-type: none"> <li>recognising favourable waste handling management</li> <li>recognising conducive surrounding and amenities</li> <li>recognising the efficiency of public transport infrastructure</li> <li>recognising legal enforcement on environmental destruction</li> </ul>	PL10	PL1	<b>urging media to raise environmental awareness</b>	<b>.087</b>						
		PL1	PL4	favouring relationships with others over personal success	.071						
		PL4	PL4	taking the pleasure of working with others	.070						

Findings show that some of PL items significantly account for ECa, ECb and ECc, particularly PL4, PL8 and PL10. PL10, denoting ‘urging media to raise environmental awareness’ was in the top three strongest predictors across EC components. Urging greater media awareness implies the confidence in environmental education as the driver to better EC of environmental behaviours. Environmental concerns through knowledge and awareness positively impact the way individuals perceive their contextual factors such as physical infrastructure, technical facilities, products availability as well as social encouragement.

**CONCLUSION**

HIE in SSWB proposes the idea that when personal values are compatible with the contextual situation, personal values strengthen the contextual situation. This paper evidence that EC is predictable through PL. Future studies could fruitfully explore the constructs elaborated in this paper further via structural causal modelling and expand the findings through

control, moderation and mediation effects of other socio-demography and socio-psychology variables.

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