Title: An empirical study of attitude towards construction and demolition waste recycling: Integrating social impression and environmental consciousness with theory of planned behaviour

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Abstract

Purpose: The purpose of this study is to analyse the attitude of contractors, local vendors and builders towards construction and demolition waste (C&DW) recycling.

Methods: Empirical data with 204 responses from different stakeholders of construction sector was analysed through partial least squares based structural equation modelling.

Results: The findings indicate that attitude, perceived behavioural control and environmental consciousness have significant positive association with behavioural intention to C&DW recycling. However, subjective norms and social impression of consumers were not associated with behavioural intention to C&DW recycling.

Conclusions: The study is relevant for practitioners and academicians who deal with C&DW recycling. The study also includes policy insights for regulators and policy makers willing to promote C&DW recycling.

Keywords: Construction and demolition waste recycling, theory of planned behaviour, social impression, environmental consciousness

1. Introduction

The discourse on environmental issues in India has increased in recent years with various factors contributing to that. Rapid economic growth in the last two decades in India has resulted in rapid rise in India energy demand. Fossil fuels account for more than three fourths of India's energy demand and the rise in demand has resulted in rise in fossil fuel consumption with domestic oil and coal consumption going up by 4.0 and 3.7 times respectively between 1991 and 2016 (Indiastat, n.d). Rise in fossil fuel consumption is associated with rise in emissions of greenhouse gases (GHG) which have several health, environment, and climate change related externalities. India is a signatory to the Paris Climate Treaty and has taken a number of steps to limit rising GHG emissions such as promoting energy efficiency measures and renewable energy.

Along with these steps Indian government has also taken a series of steps to promote sustainable development and government programs like the Swachch Bharat Mission and Smart Cities Missions are aimed towards creating sustainable cities and communities. A number of legislations focusing on specific waste streams such as plastic waste, electronic waste, and construction and demolition waste have also been introduced in the last decade by the Ministry of Environment Forests and Climate Change (MoEFCC, 2016).

The private sector on their part is also partnering with the government on many of these missions and are devising their own strategies to align their business with the seventeen sustainable development goals (SDGs) of the United Nations. In 2017, the Niti Aayog, the planning arm of the Government of India, came out with a roadmap on resource efficiency in India that focuses on resource efficiency (RE) and circular economy (CE) as part of the larger Indian government's mission towards sustainability. Focusing on RE and CE, the roadmap argues, will help reduce India's GHG emissions, lower the import burden associated with import of valuable materials, reduce the geo-political and other supply chain risks related to imports of materials, and help meet specific SDGs (e.g. sustainable consumption and production). This roadmap was a part of the ongoing multi-year project by GIZ and Indian government on promoting RE and CE in Indian industries.

These developments all are indicators of increased push to environment and sustainability related issues from the governments and regulators. One of the key focus areas of the legislations on waste, the roadmap on RE, and the project on promoting RE and CE is construction and demolition sector, in particularly management of construction and demolition waste. In 2016, for the first time, India introduced a rules for management of construction and demolition waste (C&DW) (MoEFCC, 2016). The rules apply to "*waste resulting from construction, re-modelling, repair and demolition of any civil structure of individual or organization or authority who generates construction and demolition waste such as building material, debris and rubble*". The rules specify different responsibilities for waste generators, service providers and their contractors, and local municipal authority for management of C&DW. The rules have been introduced with the aim to formalize C&DW management practices. As per the guidelines, every major urban area (with population more than 1 million) is required to have a recycling unit.

Management of C&DW in India is associated with many challenges including those related to data on C&DW generation, policies and regulations, and proper infrastructure in cities. Availability of accurate data is an integral part of an effective waste management system, but there are issues related to data reliability on C&DW generation in

India. For example, according to official estimates, India generates over 65 million tons of construction and demolition waste (C&DW) every year (BMTPC, 2016; TIFAC, 2001), but some independent organizations have argued that actual numbers might be 5-10 times higher than the official estimates (CSE, 2014; Development Alternatives, 2015). In addition to data issues, there are challenges related to lack of formal waste management practices for managing C&DW. C&DW is usually treated as part of regular MSW, and such mixing of waste makes waste segregation difficult. Although informal sector recovers some waste, most of the C&DW is either left unpicked, dumped illegally on water bodies and vacant lands, or sent to landfills along with rest of the waste (Development Alternatives, 2015). Therefore achieving higher rates of C&DW recycling by merely constructing recycling plants, as indicated in the 2016 C7DW rules, may not be sufficient.

Many formal waste management initiatives in India have mainly focused on improving physical infrastructure or 'hard' factors such as installing new plants or trying new technologies, but many of such improvements have been unsuccessful (Narayana, 2009; Srivastava et al., 2015). Studies have suggested that there are several social and behavioural factors that are just as important for developing an efficient management of any type of waste (Desa, Ba'yah Abd Kadir, et al., 2011; Guerrero et al., 2013; Moh and Abd Manaf, 2017). Developing efficient and sustainable waste management system requires shared efforts of government and society, and members of society must have attitude and willingness to address waste related issues (Desa, Ba'yah Abd Kadir, et al., 2011). Narayana (2009) pointed out that in Indian context involvement of civic society is essential for successful management of MSW in India. In addition to behavioural factors, market-driven factors are important as well. Factors affecting the demand of recycled products are likely to play an important role in keeping recycling programs operational and achieving circular economy (Moh and Abd Manaf, 2017). It has been suggested previously that people's preference for products made of virgin materials rather than recycled materials, due to differences either in prices or perceived environmental benefits may be a barrier to adoption of recycling products (Hamzaoui Essoussi and Linton, 2010). Therefore, such behavioural and social factors should be integral part of C&DW management system.

The existing studies have explored role of soft factors in C&DW management in developing and developed countries, but to the best of authors' knowledge, there is no study available in Indian context. As amount of C&DW continues to increase in India and government intends to build more recycling plants, integrating influential social and behavioural factors in can play an important role in improving overall efficiency of C&DW management system

in India. The main purpose of this study is to analyse the attitude of various stakeholders from construction sector towards C&DW recycling.

The rest of the paper is organized as follows. Section two contains a review of literature from which relevant research gaps and questions are identified. Conceptual framework and hypotheses are developed in section three. Research methodology, sampling technique used, and data collection methods are described in section four while statistical analysis is carried out in section five. Section six presents the discussion and managerial implications of the study. Section seven concludes the paper by presenting limitations of the study and indetifying future research opportunities.

2. Literature Review

The systematic literature was carried in three different categories namely theory of planned behaviour, social impression and environmental consciousness.

2.1 Theory of planned behaviour

Several theories have been developed to study the human behavior (Ajzen, 1991; Fishbein and Ajzen, 1975). (Ajzen, 1991) extended theory of reasoned action and proposed theory of planned behavior that includes perceived behavioral control in addition to attitude and subjective norm to predict human behavior. Theory of planned behavior has been studied in the literature to explain behavioral intentions of individuals (3-4 references). For example, (De Leeuw et al., 2015) studied pro-environmental behavior of youth; (Cordano and Frieze, 2000) studied pollution reducing preferences of environmental managers and (Greaves et al., 2013) explored environmental behavioral preferences at workplace using theory of planned behavior.

Based on the appropriateness and application of theory of planned behavior to various contexts, we relied on theory of planned behavior to study the stakeholders' attitude towards C&DW recycling.

2.2 Social Impression

Social cognitive theory is another strong theory that explains human behavior (Bandura, 1986; Compeau and Higgins, 1995). Previous literature has taken social foundations to predict human behavior and have conceptualized as social factors (Triandis, 1971), social influence (Venkatesh and Morris, 2000) and social impression (Chen and

Hung, 2016). Social factors include the individual's internalization of individual norms, roles, and value (Thompson et al., 1994, p.170) that also determines behavioral intention. Social impression refers to the external factors that influence individual behavior. It includes the respect earned from society for meeting their expectations (Chen and Hung, 2016). Maslow's hierarchy of needs theory defined five basic needs for all human behavior (Maslow, 1970) namely physiological needs, safety needs, love and belonging needs, esteem needs and self-actualization needs. Here, esteem also includes need for self-esteem and importance by others (Chen and Hung, 2016).

Among all these variables, social impression includes esteem need of importance from society that essentially explains human behavior.

2.3 Environmental Consciousness

Environmental concerns have become an important factor that affects human behavior. Previous literature has conceptualized environmental related factors that predicts human behavior (Chen and Hung, 2016; Iyer et al., 2016; Roberts and Bacon, 1997; Schlegelmilch et al., 1996; de Vicente Bittar, 2018). Environmental consciousness has been conceptualized as concerns and perceptions towards environment and the attitudes to reduce environmental problems (Chen and Hung, 2016; Schlegelmilch et al., 1996). Environmental consciousness incorporates knowledge on environmental factors, attitude and behavior towards environmental factors (Chen et al., 2011; Schlegelmilch et al., 1996). Given the complex nature of construction sector, individuals with high environmental consciousness will lead to C&DW recycling.

3. Conceptual Framework and Hypotheses Development

The conceptual framework was developed integrating behavioural dimensions along with social and environmental factors (see Figure 1) to investigate the behavioural intention of stakeholders towards C&DW recycling.

As per the theory of planned behaviour, this research studies the impact of attitude, subjective norm and perceived behavioural control of stakeholders towards C&DW recycling (Ajzen, 1991; Fishbein and Ajzen, 1975). Attitude has the conceptual foundation on expectancy-value theory that measures the beliefs and patterns of human behaviour. Jin et al. (2017) found variation in attitude among different stakeholders towards C&DW recycling whereas Cobbinah et al. (2017) found that the households show positive attitude towards C&DW recycling.

Stakeholders with positive attitude will lead to behavioural intention towards (Desa, Kadir, et al., 2011; Manowong, 2012) C&DW recycling. Consistent with the literature, we propose the following hypothesis:

H1: Stakeholder attitude will be positively associated with behavioural intention of C&DW recycling

Social factors affect the behavior of individuals to meet social expectations (Ajzen, 1991). Subjective norm has its foundations from social norms that enforce stakeholders to perform a certain behavior (Chen and Hung, 2016; De Leeuw et al., 2015). Previous literature have found that the social factors encourage solid waste management (Jones et al., 2010; Manowong, 2012). Therefore, subjective norms could encourage stakeholders to opt for C&DW recycling; that leads us to the following hypothesis:

H2: Subjective norm will positively influence behavioral intention of C&DW recycling

Perceived behavioural control is the third determinant that determines behavioural intentions. Perceived behavioural control deals with control factors and control beliefs that determine the ease or unease for performing a particular behaviour (Ajzen, 1991; Chen and Hung, 2016). Previous studies have found that the self-confidence of an individual significant determines the behavioural intentions (Ajzen, 1991; Bhattacherjee, 2000; Taylor and Todd, 1995). Hence, the perceived behavioural control could encourage stakeholders in construction sector to opt for C&DW recycling. Thus, we propose the following hypothesis:

H3: Perceived behavioural control will positively influence behavioural intention of C&DW recycling

Esteem needs derive from self-esteem and respect earned from friends, family and colleagues (Maslow, 1970). Social impression reflects opinions and values earned by others (Chen and Hung, 2016). Jones et al. (2010) empirically concluded that social capital could influence citizens towards solid waste management. Manowong (2012) found that social sustainability lead to solid waste management efforts. The construction sector could have a regulating effect through social impression that influences stakeholders to opt for C&DW recycling (Jones et al., 2010; Manowong, 2012). Hence, social impression could impact the various stakeholders to opt for C&D waste recycling. Thus, we propose the following hypothesis:

H4: Social impression will positively influence behavioural intention of C&DW recycling

Environmental awareness and environmental behaviour profoundly impact solid waste management (Jones et al., 2010; Manowong, 2012). Yuan (2017) proposed that C&DW recycling may be increased by encouraging, enhancing

and promoting C&DW management principles. Past literature found significant correlation between environmental concerns and solid waste management (Jin et al., 2017; Jones et al., 2010; Manowong, 2012; Marzouk and Azab, 2014). Consistent with the literature, stakeholders having environmental consciousness will opt for C&DW recycling; that leads to the following hypothesis:

H5: Environmental consciousness will positively influence behavioural intention of C&DW recycling

[Insert Figure 1 here]

4. Research Methodology

The waste management practices in construction sector of India was explored through site visits and semi-structured interviews at medium construction projects in North Central Region of India.

4.1 Data Collection

Direct and indirect stakeholders of construction projects having knowledge of C&DW management were the target sampling frame for this study. The data was collected from the respondents residing in South Delhi (India) though street intercept survey. The respondents were provided voluntary participation and were assured of anonymity. The respondents were explained the purposes of the study, a cover letter was attached and were administered to fill the survey. The questionnaire comprised of two parts namely qualifying (those who are aware of C&DW management practices) and main study (close ended questions pertaining to study's constructs described above). 240 questionnaires were returned out of which 36 were incomplete resulting in 204 valid responses.

4.2 Measures

Attitude, subjective norm and perceived behavioural control constructs were adopted from the literature (Ajzen, 1991; Bhattacherjee, 2000; Taylor and Todd, 1995). Social impression was adopted from (Chen and Hung, 2016; Venkatesh and Morris, 2000) with rewording of the items to match the construction sector. Environmental consciousness was adopted from (Chen and Hung, 2016; Iyer et al., 2016; Roberts and Bacon, 1997) and was reworded to make the items suitable for construction sector. All measures were taken on a five-point Likert scale ranging from "1 = strongly disagree" to "7 = strongly agree."

4.3 Face Validity, Pre-test and Pilot Study

The face validity or content validity of the questionnaire was addressed with the help of seven academicians and five industry professionals working in C&DW sector. Pre-testing was carried out with a sample of 26 respondents to validate the questionnaire. Pilot testing was carried out with the sample of 45 respondents. Internal consistency reliability of all the constructs environmental consciousness was obtained more than 0.708. The items of the environmental consciousness were improved with the help of experts.

4.4 Descriptive Statistics

The sample included 68 percent males and 32 percent females whereas 90 percent were aged more than 30 years. More than 75 percent of the sample was graduates and post-graduates. 24 percent of the sample was engineers and 24 percent were supervisors whereas 43 percent of the data was collected from local residents of North Central Region of India (Refer Table 1).

[Insert Table 1]

4.5 Common Method Bias

Common method bias pose concerns to empirical studies with self-report surveys. We followed both procedural and statistical remedies to reduce method bias as suggested by (Podsakoff et al., 2003). Before data collection, we followed iterative process of preparing the questionnaires, validating it with experts, pretesting and pilot testing and again discussing with the experts to purify the wordings of the questionnaire. The questionnaire included reverse coded item and had a forced choice of agree/disagree with neutral choice on a five-Likert scale; and items were designed with diverse content to avoid favouring of items by the respondents. The above precautions is questionnaire stage reduced acquiescence bias and extreme response biases (Meisenberg and Williams, 2008).

During data collection, anonymity and voluntary participation was informed to the respondents. They were also provided a cover letter that explained the purpose of the research for academic purposes to obtain genuine responses. Data was collected in confidentiality after working hours to reduced response and social desirability bias (Nederhof, 1985).

The construction sector has lower female professionals that are likely to bias the research. The survey included 32 percent of the sample as females that is higher than recommended women's participation to construction sector (Manowong, 2012).

Post data-collection, statistical remedies included Harmon's single factor test and marker variable approach (MacKenzie and Podsakoff, 2012; Williams et al., 2010). Harmon's single factor approach was validated as during factor analysis with no rotation resulted in six factors and single factor had low variance (Podsakoff and Organ, 1986; Podsakoff et al., 2003). Further, a marker variable was added to the model and correlations of marker variable with all other constructs were observed. Low correlations of marker variables with all other constructs of main model validated that common variance is not a threat to this research (Williams et al., 2010)..

5. Statistical Analysis

Partial least squares structural equation modelling (PLS–SEM) is suitable for use in the theory building stage of an exploratory study, imposes fewer restrictions on data distribution and sample sizes, and uses a partial least squares estimator (Hair et al., 2013; Sarstedt, 2008; Vinzi et al., 2010). Given the exploratory nature of our study and small sample size, PLS–SEM is appropriate for this study.

5.1 Measurement model assessment

Internal consistency of the structural model was assessed by composite reliability and Cronbach's alpha and values were obtained higher than the recommended value (0.70) for all the constructs (Hair et al., 2006). Convergent validity was established as average variance extracted was higher than specified value (0.50) for all the constructs (Hair et al., 2006). Fornell and Larcker (1981) criterion was followed to address discriminant validity and it was found that inter-construct correlations were lower than square root of AVE of the respective construct (refer Table 2).

[Insert Table 2 here]

Cross-loadings provided evidence for indicator reliability and additional support for discriminant validity (refer Table 3). Some items were dropped since it resulted in improved AVE of that construct. All item loadings were higher than recommended value of 0.06 addressed indicator loadings for exploratory nature of this research (Nunnally, 1978). Respective cross-loadings of all the items were lower than individual loadings further validated discriminant validity (Hair et al., 2013).

[Insert Table 3 here]

5.2 Structural model assessment

The structural model was addressed by calculating coefficient of determination (R^2) values and predictive relevance (Q^2) values for all the constructs; and effect size (f^2) values and path coefficients for all the structural paths.

R^2 value of behavioural intention was 0.631 suggesting 63.10% of behavioural intentions towards C&DW recycling were explained by all the variables. Q^2 value, obtained through blindfolding technique, was found to be 0.369, higher than zero, reflected predictive relevance for the structural model (Geisser, 1974; Stone, 1974). The effect size for all the structural paths was assessed by Cohen's f^2 and effect size was low for all the structural paths except for the structural path between attitude and behavioural intention (refer Table 4).

[Insert Table 4 here]

The structural path coefficients were obtained through bootstrapping technique with 5000 iterations (refer Figure 2). Table 4 showed that attitude and perceived behavioural control dimensions of theory of planned behaviour was positively associated with behavioural intention. Hence, hypotheses H1 and H3 were supported. However, subjective norm did not impact behavioural intention, and therefore hypothesis H2 was not supported. Social impression was not associated with behavioural intention, so hypothesis H4 was not supported. Environmental consciousness was positively associated with behavioural intention (i.e., hypothesis H6 was supported)

[Insert Figure 2 here]

6. Discussion and Managerial Implications

We had started the analysis with hypotheses on five factors of which two hypotheses were rejected. Subjective norms and social impressions were found to be not significantly associated with behavioural intentions while attitude, perceived behavioural control and environmental consciousness were found to be significantly associated with behavioural intentions. The first two findings were different from those reported in literature while the findings for the remaining three factors were in line with previously reported findings. The following section describes the policy and managerial implications of our findings and linkage to the literature.

Environmental consciousness was found to be positively influencing behavioural intention of C&DW recycling. In other words if stakeholders have high environmental awareness or are aware about environmental issues associated with C&DW, they are more likely to recycle C&DW. The finding on environmental consciousness is consistent with findings of others. Governments can focus on provision of information about the environmental impacts of C&DW and the potential benefits of recycling C&DW as measures to promote recycling behaviour. Information is

considered as public goods and as such private agents may not have incentives to provide such information in the absence of any legislation or gains they hope to appropriate by providing such information. Public provisioning of such information through various means like newspapers, televisions, and radio could help increase awareness of society in general about C&DW sector and C&DW recycling in particular.

Perceived behavioural control and stakeholder attitudes were also found to be positively influencing behavioural intention of C&DW recycling. Perceived behavioural control is linked with people's perceptions about the ease or unease of a particular behaviour. From social cognitive theory and modified learning theory, we know that actions of an individual will be influenced by not just the expected outcomes but also their expectations about their efficacy in achieving those outcomes (Bandura, 1977; Wallston, 1992). Closely linked to individual's perceived behavioural control is individual's attitude as the latter would be a predictor of the former. Taken together with environmental consciousness factor, results suggest that making an individual environmentally conscious alone may not be sufficient to positively influence recycling behaviour. While environmentally consciousness can be influenced to an extent by *external* factors, perceived behavioural control and stakeholder attitude are determined to a large extent by *internal* or in other words individual centric factors. For companies in real estate and infrastructure sector looking to increase C&DW recycling, these results suggest that perceived behavioural control and attitude could be two of the important skills that could be assessed for individuals assigned to roles involved in decision making related to C&DW. It was outside the scope of the current study to look into factors that could impact perceived behavioural control and attitude and future research could study their antecedents and determinants.

In contrast to previously reported findings, subjective norms and social impression were not found to be positively related to recycling behaviour intention. What could be the probable explanation for that? Subjective norms and social impression deal with societal perception of one's actions. Societal perception are in turn related to societal norms. One possible explanation for our results could be that awareness about environmental issues, and in particular about environmental benefits of C&DW recycling is low in Indian society. That low awareness is then related to low societal expectations and low or non-existent social norms for C&DW recycling. Now as societal awareness increases about these topics with time or due to effect of public provisioning of information by governments, societal norms and beliefs would also change as a result. That could then lead to subjective norms and social impression emerging as positively related with behaviour intention towards recycling. A reason for our results

to differ from literature could then be that most of other studies have been done in western economies context that are more developed and therefore have more environmental awareness than India. If our interpretation is correct, these results also suggest that in countries that are less developed and have low public environmental awareness, subjective norms and social impression will not be positively related with recycling behaviour intentions. Future research could study role of these two factors in developing countries context.

As Indian economy continues to grow and as new infrastructure development continues to happen, construction and demolition sector will attract even greater interest from the government, regulators, industry, and researchers. This will be on account of not just the environmental related aspects but also that of resource efficiency, circular economy, and sustainability. It is in this broader context of CE, RE, and sustainability that our work should be viewed. By focusing on the attitudes of stakeholders towards C&DW recycling by integrating social impression and environmental consciousness with the theory of planned behaviour, we aimed to understand the dynamics of C&DW recycling closely. Insights from our study, we believe will help the government and regulators plan to adopt an integrated approach improve to C&DW recycling where *soft* issues like environmental consciousness are considered equally important as *hard* infrastructural issues like recycling plants. The insights from our paper can also help the private sector understand the significance of various drivers of recycling behaviour. These insights can then be used by specific companies to align C&DW recycling with their SDG strategy.

7. Limitations, Future Scope and Conclusion

Though this research provides useful managerial insights for the stakeholders in construction sector, it has several limitations that also provide scope for further research in the future. First, this study measures perceptions of behavioural intentions towards C&DW recycling but could not measure actual behaviour. Second, the cross – sectional data comprised stakeholders of North Central Region of India that raises concern on generalizability of the findings to other geographies of India. Further, we focussed on environmental factors and social factors in addition to theory of planned behaviour dimensions; however, further research can also investigate the impact of other factors like technology and innovation in the C&DW recycling towards behavioural intentions of stakeholders C&DW recycling.

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Table 1: Descriptive Statistics

Gender	Male	Female		
Frequency	139	65		
Percentage	68.14	31.86		
Age	<30 years	30-35 years	36-40years	> 40years
Frequency	20	114	56	37
Percentage	8.81	50.22	24.67	16.3
Education	Matriculation	Diploma	Graduation	Post-graduation
Frequency	12	34	109	49
Percentage	5.88	16.67	53.43	24.02
Designation	Manager	Engineer	Supervisor	Resident
Frequency	16	50	50	88
Percentage	7.84	24.51	24.51	43.14

Table 2: Reliability and Validity

Construct	Cronbach's Alpha	CR#	AVE	ATT	SN	PBC	SI	EC	BI
ATT	0.799	0.869	0.627	**0.792***					
SN	0.797	0.866	0.618	0.601	**0.786**				
PBC	0.831	0.887	0.663	0.381	0.320	**0.814**			
SI	0.808	0.873	0.633	0.389	0.383	0.473	**0.796**		
EC	0.854	0.889	0.534	0.630	0.629	0.473	0.470	**0.731**	
BI	0.808	0.874	0.634	0.699	0.534	0.477	0.566	0.673	**0.797**

*The off-diagonal values are the correlations between the latent variables, and the diagonal values are the square roots of the average variance extracted (AVE);

#CR: Composite Reliability ATT: Attitude; SN: Subjective norm; PBC: Perceived behavioural control; SI: social impression; EC: Environmental consciousness; BI: Behavioural intention

Table 3: Crossloadings

	ATT	SN	PBC	SI	EC	BI
A1	**0.857**	0.495	0.335	0.356	0.544	0.653
A2	**0.866**	0.588	0.307	0.345	0.603	0.604
A3	**0.791**	0.462	0.362	0.349	0.486	0.529
A4	**0.631**	0.327	0.181	0.140	0.317	0.387
SN1	0.536	**0.802**	0.286	0.326	0.483	0.479
SN2	0.459	**0.818**	0.304	0.285	0.462	0.441
SN3	0.324	**0.741**	0.106	0.142	0.341	0.326
SN4	0.527	**0.782**	0.269	0.399	0.642	0.499
PBC2	0.399	0.377	**0.874**	0.463	0.469	0.531
PBC3	0.300	0.283	**0.761**	0.355	0.431	0.423
PBC4	0.294	0.188	**0.810**	0.388	0.295	0.380
PBC5	0.218	0.147	**0.807**	0.405	0.311	0.373
SI1	0.354	0.308	0.583	**0.757**	0.387	0.441
SI2	0.259	0.305	0.356	**0.791**	0.403	0.330
SI3	0.288	0.244	0.334	**0.834**	0.353	0.371
SI4	0.322	0.361	0.260	**0.799**	0.350	0.353
EC2	0.347	0.481	0.290	0.356	**0.676**	0.399
EC3	0.415	0.407	0.276	0.388	**0.660**	0.467
EC5	0.374	0.435	0.353	0.289	**0.746**	0.460
EC6	0.401	0.470	0.356	0.343	**0.741**	0.506
EC7	0.517	0.521	0.338	0.328	**0.801**	0.559
EC8	0.633	0.512	0.360	0.371	**0.799**	0.521
EC9	0.495	0.389	0.435	0.338	**0.678**	0.505
BI1	0.583	0.463	0.495	0.441	0.568	**0.782**
BI2	0.508	0.453	0.393	0.269	0.541	**0.770**
BI3	0.573	0.435	0.379	0.429	0.515	**0.832**
BI4	0.557	0.452	0.425	0.368	0.515	**0.800**

Table 4: Path Coefficients

Structural Path	Path coefficient	Standard Deviation	p-value	Decision	f2
ATT -> BI	0.387***	0.049	0	Accepted	0.211
SN -> BI	0.087	0.06	0.15	Not accepted	0.07
PBC -> BI	0.206***	0.047	0	Accepted	0.077
SI -> BI	0.077	0.052	0.137	Not accepted	0.011
EC -> BI	0.241***	0.062	0	Accepted	0.011

*p<0.05, **p<0.01, ***p<0.001

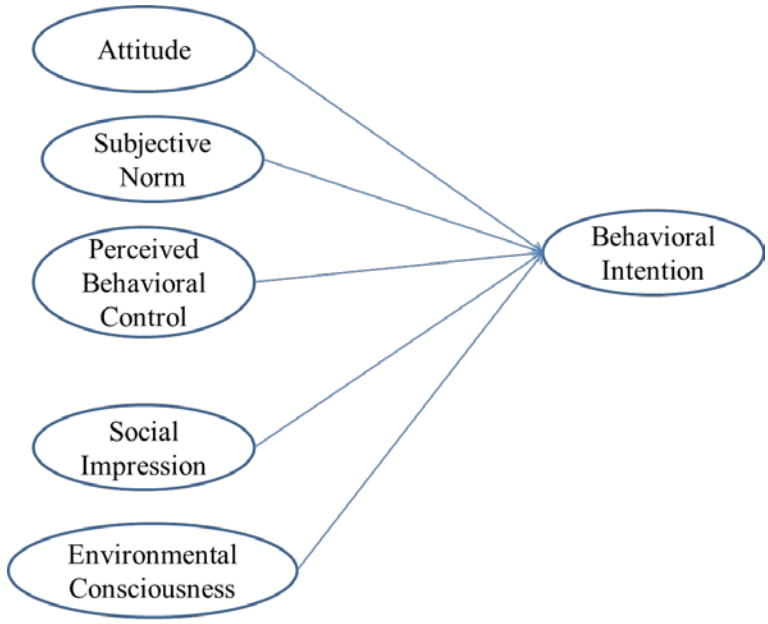

Figure 1: Conceptual Framework

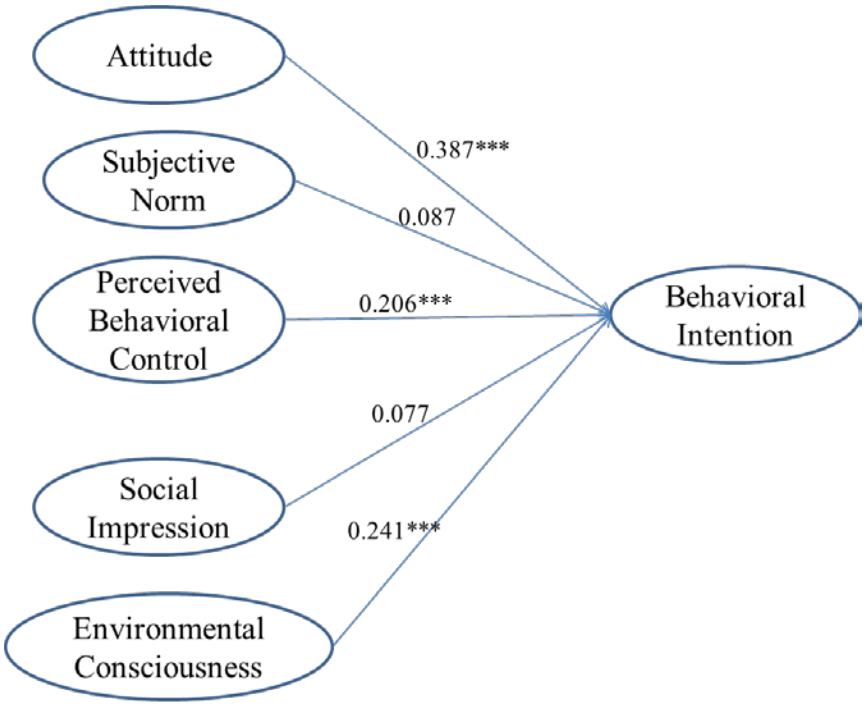

Figure 2: Results