
Mimetic Pressures and Environmental Performance: Mediating Role of Internal Environmental Management

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Abstract

During the last century, the growth of industrialization has put enormous pressures on the virgin natural resources of this mother planet. Manufacturing companies need to upgrade their working practices that are less damaging to the environment under different compulsions. The institutional theory states that imitating the already proven processes of leaders in the specific industry is called the mimetic pressures. Small and medium enterprises (SME's) try to adopt already proven successful processes and technologies by industry leaders to improve their environmental performance without taking high financial risks specifically in the developing countries. To test all above-stated assumptions a conceptual model is proposed and a survey was conducted to collect data from SME's of three industrial cities of Pakistan. The conceptual model of this study is tested with the help of collected data from 163 manufacturing SME's through partial least squared (PLS) based structural equation modeling (SEM). The results of the study confirmed a direct effect of mimetic pressures on internal environmental management (IEM) and full mediation of IEM between mimetic pressures and eco-design practices of green supply chain management. Results also proved the significant positive impact of eco-design on environmental performance but no direct effect of IEM is proved significant. Managerial implications and limitations are presented at the end.

Keywords: Eco Design, Environmental Performance, Internal Environmental Management, Mimetic Pressures, Pakistan

1. Introduction

Environmental changes across the globe are happening so fast that everyone now believes in the catastrophic effects of global warming and not just the prediction of few scientists. Unexpected weather conditions and the spread of diseases due to different kinds of pollution

are creating a situation which is affecting everyone both in developing and developed countries. Governments around the world are accused of not taking care of environmental issues timely by appropriate legislation and giving industrialists an open field to destroy the environment in the name of development and progress of economy (Chandra Shukla, Deshmukh, & Kanda, 2009). Now every single business is facing much pressure from customers, suppliers, civil society and governments to improve its manufacturing processes to minimize the negative impact on the environment (Rao & Holt, 2005; Saeed, Jun, Nubuor, Priyankara, & Jayasuriya, 2018; Zhu, Sarkis, & Lai, 2013). Any change process by Organizations needs some reasons to do so. It is a quite important and interesting area for researchers to find out the reasons for and impact of external pressures on organizations (Williams, Lueg, Taylor, & Cook, 2009). Among others, one of the key tools to realize a different kind of external pressures is institutional theory. (de Grosbois, 2016; Dimaggio & Powell, 1983). Government legislations and industrial bodies mechanisms guides manufacturers to act similarly with other manufacturers of the same industry and this phenomenon is called isomorphism while organizations achieve this isomorphism due to the three kinds of external pressures named normative (competitors, customers, and suppliers), coercive (governments, regulatory bodies, powerful trade unions) and mimetic pressures (mimicking successful companies) (Dimaggio & Powell, 1983). A number of studies can be found in the literature exploring the impact of coercive pressures (Esfahbodi, Zhang, Watson, & Zhang, 2017; Saeed, et al., 2018; Zhu, et al., 2013) or normative pressures (Saeed, H.P. Rasika, & Naotunna, 2017; Zailani, Jeyaraman, Vengadasan, & Premkumar, 2012; Zhu, et al., 2013) to implement green supply chain management (GSCM) practices but very little attention has been given to mimetic pressures. While SME's of a developing country might not have huge resources to do R&D and improve their processes at their own for environmental betterment. Most of SME's will be looking for existing successful examples to replicate at a minimum possible cost and time. Similarly, working on building the internal capacities should be the first aim to be a productive partner in a green supply chain. Internal GSCM practices includes internal environmental management (IEM) and eco design and literature suggest that companies should focus on these practices first to improve their environmental performance (Zhu, et al., 2013).

Hence this study has two objectives to fill the gap in the literature. First, find out the impact of mimetic pressures to adopt internal environmental management practice directly and then its mediating role to adopt an eco-design practice of GSCM by the SME's of Pakistan. Secondly, to confirm the positive impact of these adopted practices on environmental performance.

2. Literature Review and Hypotheses Development

2.1. Mimetic Pressures

Finding out leaders in the same industry for some specialized processes and imitating those already proven significant processes to improve an organizations performance is the basis of mimetic pressures(Dimaggio & Powell, 1983; Sarkis, Zhu, & Lai, 2011). Continuously changing business situation, unavailability of state of the art technology and no clarity in establishing the strategic path creates a situation where SME's are forced to face such pressures (Williams, et al., 2009). Manufacturer's acting as laggards mostly comes under the unforeseen situations and when they don't feel themselves competitive enough to devise some dynamic strategy, they look into outside environment and try to copy those policies of successful companies which they thought legitimate and good enough to lead them out of the crisis (Glenn Richey Jr, Williams, Lueg, Taylor, & Cook, 2009). Uncertainty in the environment appears to be the biggest reason for the companies to mimic the companies they believed are successful in their operations within the same industry (Peng & Lai, 2012), and also they legitimately belong to and represents some specific industry (Williams, et al., 2009). Advancements in the field of information technology have truly converted this world into a global village and it is quite easy now for individuals and organizations to learn from the best practices of others across the world no matter where you are.SME's in the developing countries can also achieve the benchmarks of highly advanced firms as they can get guidance and even technologies from their supply chain leaders which are mostly big multinational companies(Saeed, Yun, & H.P.Rasika, 2016).

2.2. Internal Environmental Management (IEM)

IEM is the first and perhaps the most important practice to be adopted to implement GSCM in its true spirit. It is also among the first practices which have been identified and reported in the literature to be considered a green supply chain-related practice with a focus on top management vision, involvement of middle management and the establishment of task-specific teamshaving members from different concerned departments (Zhu, Sarkis, & Geng, 2005; Zsidisin & Siferd, 2001). Due to the increased pressure from suppliers and customers along with even stricter environmental legislation from the governments make it compulsory for the top management of the organizations to take necessary steps. Moving from traditional manufacturing to a more environmentally friendly organization needs a transformation(Harris & Crane, 2002). A change is required from culture to management style and purchasing to manufacturing along with from eco-designing to customer relations (Clifford Defee, Esper, & Mollenkopf, 2009). Top management gives the vision for long-term and then allocates resources to achieve the targets according to that organizational vision. It

is the middle management who are responsible for turning the dreams and goals set by top management into a reality, and it is empirically proven that to successfully implement the environmental management system a high level of commitment from the middle management is required (Carter, Ellram, & Ready, 1998; Zhu, et al., 2005).

As stated above the IEM includes activities and practices from management within the company. IEM can be summarized as a practice of incorporating GSCM into organizations strategy and showing a full commitment starting from the top management to middle management and spreading across all the organizational members (Zhu, Sarkis, & Lai, 2008). Organizations can decide to adopt sustainability-related practices either as a reaction to certain regulatory pressures for avoiding any financial damages, or they can do it proactively while sensing the changing outside environment and demands from suppliers and customers. Although manufacturers, no matter small or big are under pressures to upgrade their manufacturing processes, the types of pressures are different and SME's are mostly more concerned about following the footsteps of a successful organization from the same industry.

2.3. Eco-Design

To become genuinely sustainable concerning the environment and social aspects; organizations need to integrate these dimensions into their product and process designs systematically (Ahmed & Najmi, 2018; Sellitto, Hermann, Blezs Jr, & Barbosa-Póvoa, 2019). Eco-design is one such GSCM practice which can deal with environmental degradation problem from the very start of the product life cycle, hence not only make sure the compliance with all kinds of pollution prevention but also can be helpful in controlling the damages which will help in saving the cost (Hanim Mohamad Zailani, Eltayeb, Hsu, & Choon Tan, 2012). This practice helps the organizations to start thinking about the environment from the very first step of idea generation and designing of the products that will have an impact on the whole life cycle of the product (Green Jr, Zelbst, Meacham, & Bhadauria, 2012).

Eco-design also termed as an environmental design practice, and design for the environment is a way of designing processes and products which has the minimum possible harmful effect on the environment (Nakano & Hirao, 2011). Depending on the type and requirements of a product along with organization objectives; a huge turnaround in the routine product design can be achieved through eco-design strategies. A totally new design of a product also permits the design team to use new or different raw materials which are relatively less harmful to the environment. Such raw materials in new designs could be lighter, recyclable, reusable, require less energy and other resources to be processed and need lesser quantity as a whole (Zhu, et al., 2008). But adopting this practice is only possible if top management of the SME's is committed and truly wants to bring change in their traditional manufacturing

systems and processes. Also, the involvement of middle management and all concerned departments is also mandatory to successfully achieve the target of eco designing of the products(Zhu, et al., 2013). This situation guides towards not only a direct effect of IEM on eco-design but also an indirect effect of mimetic pressures on eco-design practice through the implementation of IEM practice first in the organization. Based on the above discussion following two hypotheses are formed

H1. Mimetic pressures positively and significantly impact manufacturing SME's of Pakistan to adopt internal environmental management practice

H2. Internal environmental management positively and significantly impact eco-design practice

H3. Internal environmental management positively mediates between mimetic pressures and eco-design practice

2.4. Environmental Performance

The industrial revolution has brought so many positive changes and improved standards of living for a large number of people living around the globe. But it has also created some negative impacts on the society and environment which had become the focus of attention of academicians, NGO's, governments and consumers during late seventies and become strong during eighties of the last century (Schaper, 2002). Today it has become a must for almost every manufacturer to improve and report its environmental performance. Different industries have developed their own environmental standards which every manufacturing company within that industry should follow along with generalized environmental management systems such as ISO 14000 (Schaper, 2002). Manufacturing plants need to minimize air, water emissions along with all types of waste while decreasing the use of harmful and hazardous raw materials to show their advancement in the environmental performance (Green Jr, et al., 2012; Zhu, et al., 2008). For many organizations, the concept of green or sustainability is all about improving its environmental performance by keeping it clean and usable for coming generations. A strong relationship between GSCM practices and environmental performance of manufacturing companies has been reported in many studies in both developed and developing countries with a varying degree of impact from practices having a connection with internal and external GSCM (Esfahbodi, et al., 2017; Hanim Mohamad Zailani, et al., 2012; Zailani, et al., 2012; Zhu, et al., 2013). Also, SME's have the same level of responsibility to contribute to environmental protection, and they can achieve the same level of environmental performance through making environmental performance a strategic target of the company (Schaper, 2002). It's the top management vision and responsibility to create an environment where each and every member of the company is focusing on green initiatives to not only save our natural resources but also minimize the

harm to the environment. A true application of IEM appears to have a direct positive link in achieving above mentioned targets (Chandra Shukla, et al., 2009; Jabbour, Frascareli, & Jabbour, 2015; Yu & Ramanathan, 2015). Similarly, the true impact can be created only through actual on the ground working like designing green products which are reusable, recyclable, using less energy and raw materials to be produced. Hence, the eco design proved to be a significant contributing practice to improve the environmental performance of the manufacturing companies (Esfahbodi, et al., 2017; Green Jr, et al., 2012; Hanim Mohamad Zailani, et al., 2012). Based on the above discussion, we formulate the following hypotheses.

- H4. Internal environmental management positively and significantly impact the environmental performance of manufacturing SME's of Pakistan
- H5. Eco-design positively and significantly impact the environmental performance of manufacturing SME's of Pakistan

3. Methods

Being a quantitative study we need to collect data from the SME industry professionals and survey is the best technique to achieve this target (Bryman, 2015). A questionnaire was finalized based upon already validated measures of selected constructs taken from Zhu et al (2013). The respondents were the managers of manufacturing SME's covering the sectors of textile, leather, sports and electronics industry. The first section of the questionnaire included questions asking about the influence of mimetic pressures in the implementation of internal environmental management and eco-design practices of GSCM and their impact on the environmental performance of these companies. The second section collected demographic information of the respondents. In total 181 survey responses were collected from three industrial cities Lahore, Sialkot, and Gujranwala but 18 were discarded due to inconsistencies and uncompleted answers. Mimetic pressures are measured with the help of three items taken from (Zhu, et al., 2013), which have used a five-point Likert scale where (1=Unimportant to 5=Very Important). To measure IEM and Eco Design thirteen items were adopted from (Zhu, et al., 2008, 2013). A five-point Likert scale, where (1=not considering it to 5=implemented successfully) is used to get responses from the managers. Environmental performance is measured through 5 items taken from (Zhu, et al., 2013), and also uses the five-point Likert scale, where (1=not at all to 5= significant). The data were analyzed using partial least square structural equation modeling and with the help of SmartPLS3.2.7 software (Ringle, 2015).

3.1. Reliability and Validity

Partial least squares (PLS) structural equation modeling (SEM) works in two stages and

firstly it calculates reliability and validity of the constructs being used and after getting the minimum required values it goes for hypothesis testing to verify the model (Hair, Black, Babin, & Anderson, 2009). The first stage in this two-step approach is called the measurement model and the second one is a structural model. First of all defined measures are examined for their internal consistency through composite reliability (CR) and/or more conventional Cronbach Alpha and the values for both should be higher than 0.7 (Hair Jr, Hult, Ringle, & Sarstedt, 2016). Item loadings should also be higher than 0.7 to confirm the indicator reliability although values higher than 0.5 are also acceptable provided overall construct reliability and validity are not compromised (Hair, et al., 2009). Convergent validity is confirmed through average variance extracted (AVE) values for the constructs which should be more than 0.5 (Hair Jr, et al., 2016).

Table 1: Statistical Quality Indicators

	Alpha	CR	R ²	AVE		Eco	Envtp	IEM	Mimetic
Eco	0.71	0.814	0.220	0.523	Eco	0.723	0.554	0.503	0.394
Envtp	0.931	0.945	0.228	0.743	Envtp	0.464	0.862	0.328	0.246
IEM	0.884	0.905	0.115	0.519	IEM	0.443	0.304	0.721	0.392
Mimetic	0.729	0.845	0	0.647	Mimetic	0.295	0.216	0.340	0.804

Eco= Eco Design; Envtp = Environmental performance; IEM= Internal environmental management; Mimetic= Mimetic pressures

Finally, to test the discriminant validity there are two approaches available where Fornell and Larcker method is more conventional one which states that no squared correlation of any construct with other constructs is higher than the AVE of that construct (Fornell & Larcker, 1981), while Hensler et al. (2015) recommended the latest technique of HTMT which confirms the discriminant validity if values are less than 0.90. Table 1 presents all statistical quality values and confirming that all minimum criteria are achieved where Cronbach α value ranges from 0.71 to 0.931, CR values are 0.814 to 0.945, AVE from 0.519 to 0.743. Similarly, 0.7 thresholds are achieved for all item loadings. Here discriminant validity is established through the square root of AVE values on the diagonal in Table 1 by using Fornell and Larcker test, while values above the bold ones in the diagonal show the HTMT values and these they also confirmed the discriminant validity being lesser than 0.85.

3.2. Structural Model Results

To confirm the significance of proposed paths in the structural model, a bootstrapping

procedure with 5000 bootstrap samples at a significance level of 0.05 for a one-tailed test was performed. Results indicated that β value of Mimetic→IEM practice is 0.342 (t-value 2.464 ; $p<0.0$); Mimetic →Eco 0.149 (t-value 1.138; $p<0.126$); IEM → Eco 0.398 (t-value 3.402; $p<0.000$); IEM→EnvtP 0.115 (t-value 0.954; $p<0.175$); Eco→EnvtP 0.414 (t-value 3.749; $p<0.0005$). It shows that other than Mimetic → Eco and IEM→EnvtP, remaining direct path relationships were found significant.

Figure 1: Structural Model Results

Following table shows the final results of all direct hypotheses in this study.

Table 2. Direct Hypotheses Results

No.	Hypotheses	Beta	T Value	p- Value	Bias Corrected Confidence Interval	Decision
H1	Mimetic-> IEM	0.342	2.464	0.000	[0.061 – 0.531]	Supported
H2	IEM -> Eco	0.398	3.402	0.000	[0.170-0.562]	Supported
H4	IEM ->EnvtP	0.115	0.954	0.175	[-0.090-0.313]	Not Supported
H5	Eco ->EnvtP	0.414	3.749	0.000	[0.207-0.576]	Supported

Similarly, we tested for mediation using a bootstrapping technique with 5000 subsamples and the result proved a full mediation between mimetic pressures and eco-design as their direct link is non-significant. Mediation result is shown in table 2.

Table 3. Mediation Hypothesis Result

Hypothesis	Path Relationship	Bias Corrected Confidence Interval at 95 Confidence Level					Result
		Estimate	Lower	Upper	P-value		
H2	Mimetic-> IEM-> Eco	0.136	0.022	0.261	0.038	Supported	

5. Discussion

Environmental degradation and its catastrophic results have become a real-life challenge not only for manufacturers but also for each and every single individual of this world. The

purpose of this study is to find out the impact of mimetic pressures on internal GSCM practices of IEM directly and on eco-design indirectly. Also to find out the impact of these adopted practices by manufacturing SME's of Pakistan on their environmental performance. The results proved that mimetic pressures impactsignificantly the motivation of manufacturing SME's to adopt IEM practice and also this IEM practice is a full mediator among mimetic pressures and eco-design practice. This result is consistent with (Chandra Shukla, et al., 2009) who found a positive relationship between mimetic pressures and IEM practice. It seems that Pakistani SME's are following the success stories from the developed world to go for internal practices implementation first and then move ahead to be an active part of the external green supply chain (Zhu, et al., 2013).

Next hypotheses were postulated to test the positive impact of internal GSCM practices on environmental performance. Surprisingly IEM is proved non-significant but like many other studies,eco-design has a significant positive effect on environmental performance(Esfahbodi, et al., 2017; Green Jr, et al., 2012; Hanim Mohamad Zailani, et al., 2012). This result also confirms the idea of this study that physical activities like designing of products based upon green thinking can have more visible results.But that firstly need motivation, commitment, and guidance of the top management. Here, IEM proved a full mediator between mimetic pressures and eco-design and that also leads to a situation where IEM directly has no significant effect on environmental performance but eco-design do have. It gives a clear indication to the practitioners that only accepting the need for change or changing department names is not enough. SME's need to change their working culture and not only inculcate green thinking to all of its employees but also start designing and producing products which are less harmful to the environment.

This study has certain theoretical and practical implications. On the theoretical side, it has filled the gap of studying mimetic pressures independently. Secondly, this study also contributed to generalizing the existing pieces of evidence that internal GSCM practices should be given priority to implement and that will lead to improving the environmental performance of the whole supply chain. For managers, there is a clear message that tangible results can only be achieved through tangible efforts. Hence, only good wishes are not enough and they need to concentrate on eco designing of the products so that a commitment to the green environment can be seen from the very beginning.

5.1. Limitations and Future Directions

Every single study has its own limitations and one major limitation of this study is the relatively small sample size.Larger sample size with an almost equal representation of manufacturing companies producing the product for local markets and for export could

explain the existence of any significant difference in a better way. Also, the sample of this study consists of respondents from three cities of only one province although it is the most populated province of Pakistan. Having data from organizations all over Pakistan could increase the authenticity of the results. Similarly, to get more detailed results studies of a specific sector end to end supply chain might be a better option which can give more practical insights to the management of those sectors.

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