DETERMINING IMPACT OF STRATEGIC GREEN ORIENTATION ON GREEN PERFORMANCE OUTCOMES: A STUDY OF TEXTILE INDUSTRY OF PAKISTAN

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ABSTRACT

Green performance outcomes are in huge demand in new competitive sustainable environment. Research indicates that Pakistan's textile industry is lacking basic framework to implement strategic green orientation in productive way. So, this study is intended to suggest them a framework for enhancing their green performance outcomes. The research also aimed at finding the impact of strategic green orientation on green performance outcomes in Pakistan's textile industry. Descriptive study was undergone for this study. Quantitative research methodology was used for this study. Textile industries of Pakistan accredited by All Pakistan Textile Mills Association (APTAMA) were considered for data collection. Random sampling technique was used for this purpose. Data was collected from senior managers of 192 authentic textile industries of Pakistan by circulating a questionnaire. SPSS was used for analyzing data. The results indicated green performance outcomes are significantly affected by strategic green orientation in aspect to textile industries of Pakistan. While, integrated product development mediated the effect between strategic green orientation and green performance outcomes. The research definitely suggested a framework for increasing green performance outcomes in textile industry of Pakistan. Study has also shown the significant (positive) effect of strategic green orientation on green performance outcomes in aspect of textile industries of Pakistan. The findings of research can help senior leadership to shift towards green strategic direction in their policy formulation. Limitations and future research are also given so that green competitive advantage can be achieved by firms by doing research on other aspects.

*Keywords***:-**Strategic green orientation; Integrated Product development; Green performance outcomes

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CHAPTER 1

INTRODUCTION AND THESIS STATEMENT

1.1 Introduction

Environmental sustainability is an uprising concern in modern world as industries are more productive than ever before. Eventually, it is a dire need to educate the industries about how they can develop the eco-friendly products and processes. Industries can change the conventional business method and can gain relative advantage which in result yield more capita for them[1].

Textile sector in Pakistan is considered as a back bone of Pakistan's financial sector due to its large contribution of 55% in gross domestic product of Pakistan. Due to increasing competitive external environment, Pakistan is losing a big part of its share in the world market due to its conventional firm approaches as they did not approach to go towards strategies to lessen energy consumption and bringing novelty in their products. Cooperation among workers and their liberty to share new strategies or goals is essential skill to be adopted[2].

There are numerous drivers which take part in a role to stimulate green innovation in Pakistan. Firm social responsibility related to workers, customers, society and atmosphere have a direct effect on leading towards environmental sustainable goals .By implementing on ESG's ,firms lead towards sustainable innovation in manufacturing industries of Pakistan. Environmental oriented innovation can yield better environmental and financial performance outcomes [3].

Green initiatives in developing countries are largely affected by some factors. These include of knowledge of environment, shipping cost, cost of these initiatives, procurement and inventory of these items. These lead towards sustainable supply chain management which in turn led towards sustainable environment. Environmental oriented programs can increase the production performance of firm .They can also save extra money by less consumption of resources[4].

If firm's innovation capability is enhanced, it can also enhance chances to make a sustainable firm. It is noticed that firms can increase green innovation by collaborating with their partners. Distance can obstruct effective collaborative capacity[5].

R&D in firms can be increased if government provides resources for that. It is also noticed that changing external environment is a factor which hinders capita associated for green initiatives. Research and productivity can be increased by arranging training programs for workers[6].

Green strategies led by managers are negatively correlated with volatile external environment and positively correlated by changing technologies with passage of time[7].

Firms mostly employ their strategies to increase their economical outputs. One of the key strategies used by firms can be to make sure that they have acquired the ISO standard certification. It can be suggested that ISO standards can enhance the perceived reputation of the firm .Customers will attract towards those companies who ensure these ISO standards implementation[8].

Green management is necessary for green performance outcomes. Green human resource management includes the inspiring employees and giving them financial support. Environmental human resource management are positively correlated with green performance outcomes while sustainable innovation mediates relation between them[9].

Green human resource management is positively correlated with green performance outcomes while green organizational culture acts as a mediator between both of them .Green performance outcomes can only be achieved by direct attention and commitment from top leadership. Teams can be made for working on green projects[10].

Green initiatives by management can also increase the environmental performance as well as financial performance of firm. Green advertising; green innovation and green packaging are directly related with green performance outcomes. These lead towards firm's better financial performance outcomes[11].

Green strategic management can be made effective by making green performance evaluation system. It can involve the employees in sustainable initiatives by providing them incentives for achieving green performance outcomes. So, top management can become a driving force for green initiatives[12].

Environmental knowledge among customers can be a driving force for green initiatives. If customers are given awareness about green environment, it can lead towards more demand for green products. Green packaging is its one example[13].

Consumer demand is a factor influencing green innovation. It acts as a moderator towards innovation capability .While it can lead managers to move towards sustainable innovation strategies[14].

Creativity among employees can lead towards more sustainable innovation in products and processes. So, creativity has a positive correlation with green performance outcomes. Collaboration with suppliers can also increase green performance outcomes[15].

Green performance outcomes can also be increased if green initiatives are supported by government. It is noted that government can increase green performance outcomes if they provide the resources to short and medium enterprises[16].

Collaboration between partners can increase green performance outcomes .Green performance outcomes can also be increased if top management is committed to take these initiatives .Appreciation by society has also positive effect on green performance outcomes. So these factors can enhance green performance outcomes[17].

Green processes are adopted due to green image of firm which in result led towards green performance outcomes. While, green innovation and processes are only ensured by full commitment of top leadership[18].

1.2 Gap in study

Green management has a great importance in influencing green performance outcomes. In the previous researches, strategic green orientation was not enough researched with respect to integrated product development to find its implications in textile sector of Pakistan. This study will provide a basic framework mentioning factors having direct and indirect effect on each other. This will also provide suggestions for managers to practice them in their future studies.

1.3 Problem Statement

Pakistan's textile industry is not focusing on the mechanism of finding strategic green orientation's impact on green performance outcomes in general. There are some factors that affect directly or indirectly in green performance outcomes and are being overlooked by textile industries of Pakistan.

1.4 Research Questions

- ➢ To what extent can integrated product development strategy affect the green performance outcomes in Pakistan's textile industry?
- ➢ To what extent green performance outcomes are influenced by strategic green orientation in aspect of Pakistan's textile industry?
- ➢ What is impact of strategic green orientation on green performance outcomes in textile industries of Pakistan?
- ➢ What is impact of green performance outcomes on environmental performance in Pakistan's textile industry?

1.5 Objectives

- ➢ To determine the effect of integrated product development strategy on green performance outcomes in Pakistan's textile industry.
- ➢ To unearth the impact of strategic green orientation on integrated product development with respect to Pakistan's textile industry.
- ➢ To verify the impact of strategic green orientation on green performance outcomes in textile industry of Pakistan.
- ➢ To check the impact of green performance outcomes (GPO) on environmental performance with respect to Pakistan's textile industry.

1.6 Motivation of study

Conventional business style has not only affected environmental performance of company but also it has affected business performance. First source of inspiration was Bangladesh apparel industry which was considered as one of lowest CO_2 emitter. Bangladesh association "Bgmea" recorded highest foreign apparel orders after green process implementation and attaining sustainable environment. Their export performance is continuously increasing as they are moving towards sustainable environment. Another source of inspiration was "OAT" biodegradable shoe which was designed by an Australian designer by integrating environmental concerns. It attracted attention of a lot of investors to invest in new business environment.

While in aspect of Pakistan, textile industry of Pakistan has replaced a lot of environmentally hazardous processes with eco friendly processes. Its example is that they are using lazar finishing or scaring processes that were previously being done by stone washing .Mangers prefer to use laser finishing which has saved a large consumption of water resources and were polluting the clean water. Many of industries like Azgard9, sapphire,CBL and US(Umer Saeed) are implementing these techniques.

Figure 1.1: Laser Finishing

CHAPTER 2

LITERATURE REVIEW

2.1 Significance of strategic green orientation

Ecological business orientation has a direct relation with economical performance outcomes of a firm but its relation is moderated by competitive price oriented strategy[19].

Eco developments are negatively affected by the technological complexities adopted by short and positively affected by the relative advantage by them. Government moderately affects the eco innovation in this sector which should be considered during small and medium enterprises polices in Pakistan[20].

Firm's performance outcomes are not influenced by procurement of green raw material in Pakistan as there are very few suppliers in the market which overcharge for their services. Some industries import these raw materials which is again costly procedure[21].

Firms in Pakistan are pressurized towards green innovation or performance by different governments and customers. It is noted that these factors force firms to apply sustainable supply chain in their procedures .It leads the companies to save some extra money and enforce them to take part in environmental developments. Green concept in supply chain practices has lead firms to reorient their strategies according to green concept[22].

Corporate financial performance is positively correlated with the in-house and outside competitive strategies in textile industry of Pakistan. In-house competitive approaches are concerned with the workers competitive and flexibility capacity while outside approaches are concerned by considering consumers' viewpoint[23].

2.2 Influencing factors of Strategic Green Orientation

Strategic green orientation scope is very vast. It is noted that those companies who adopt the strategic green orientation are more innovative in every way and their absorptive capacity to learn new skills are much higher than conventional firms. Green strategies should be set to invent new sustainable products and processes as well[24].Managers try to make their strategies more stable .Yet it cannot be seen that strategies are changed more often. Competition with other firms enhances the absorbing and innovative capabilities of firm. Market demands change over the time so the strategies have to change also. This requires that price reduction or innovation must be strategies must be employed in order to win the competition[25].

Competitive strategic orientation and technology strategic orientation enhance the corporate performance .But, it is noted that innovation driven strategy is more influential than competitive market driven strategy in terms of financial firm performance[26].

Short and medium enterprises also use strategic green orientation. But, it depends on the innovative capabilities and learning capacities of firm. There exists a positive correlation between these two parameters[27].

Managerial support for green products and processes adoption in the form of allocating money for these projects and aspiring them for achieving them plays a vital role in getting green performance outcomes[28].

2.3 Integrated Product Development

Sustainable relative innovation advantage is influenced by internal and external capacity of firm .Internally; it includes the factor of making effective strategies formulation while externally it includes inspecting outside competitive environment[29].

Firms in textile industry are being compelled to think about changing the strategies so that they can survive in the market. These firms also try to formulate the new low cost strategies so that they can differentiate their firms from their competitors in terms of goods and procedures. Firms can fulfill their targets by establishing their collaborative linkages with the universities[30].

There exists positive correlation between sustainable innovation and corporate sustainable performance outcomes. While, service advancement acts as a mediator between them[31].

Shared information system among industries has a mediating effect on competitive strategies outcomes[32].

Outside knowledge sharing capability can improve in-house innovative capability. Alliances with the same industry are not such fruitful as the collaboration with the partners. Internal R&D efficiency is decreased by the collaboration with the partners of not internal related firms[33].

Research based theoretical work should be aligned with new innovations. Greater the sharing capability of firm with external sources, greater the green innovation capabilities of short and medium enterprises (SME's).Protection of internal knowledge, relationship with external eternities and absorptive capacity leads the firm to make the environmentally sustainable products. Absorptive capacity of SME's also increases by sharing the external knowledge with partners[34].

2.4 Drivers towards green performance outcomes

Green performance outcomes are positively correlated with interior and outer environment of firm and management plays a moderator role between both of them[35].

Firm's green culture can yield sustainable performance outcomes .It not only requires more allocation of capita for green initiatives but also ensures to save more capita by diminishing the energy expenses[36].

Green purchasing behavior of customers is directly related with perceived quality of green products while green fulfillment and green belief act as mediating variables. Leadership can achieve green financial outcomes by considering quality[37].

Green information system can generate the positive effects in the performance of organization in sustainable design of green practices. It is responsibility of the managers not only to execute the sustainable design in supply chain but also to monitor and to implement the green information system green information systems .It will definitely enhance firm's performance[38].

Increasing consumer purchasing behavior is positively correlated with publicizing of environmental initiatives taken by firm. Information about ecosystem has a mediating in the purchasing behavior of consumers[39].

There is positive correlation exists between ecological and lean practices which in result increases organizational environmental outcomes[40].

Green performance outcomes are influenced by establishing cooperation within a firm and outside of firm. Cooperation within firm is related to increasing knowledge sharing among different teams. Cooperation outside firm includes sharing information among different partners[41].

Lean and green processes affect the ecological performances .Lean execution has a positive correlation with ecological performance of firm while green applications act as a mediator in its implementation[42].

Green practices in supply chain are hindered by a lot of issues. Top barrier includes the lack of the competence of latest technology while others include outsourcing, financial outcomes and knowledge barriers. Evaluation and monitoring of environmental practices is a key factor to be considered as a barrier in green supply chain management (GSCM)[43].

Consumer regulatory pressure has a positive correlation with purchaser and seller association while competition among firms acts as a mediator for boosting this association[44].

Green performance outcomes can play a role of mediator between ecological supply chain management and export output of company. That was noted that foreign customers were more willing to work with those industries that cared for environmental perspectives in their products as well as their processes. So, green image can certainly give relative financial advantage to a firm[45].

2.5 Theoretical Framework

Successful implantation of green strategy and the desired outcome is a target of great companies. Literature shows that by integration of environmental concerns, companies want to achieve the benefits of improved environmental performance and better market performance than competitor's .For green performance outcomes, strategic

green orientation plays an important function. Successful application of green strategy can produce valuable green performance outcomes which can give company a competitive advantage. Integrated product development plays a role of mediating variable. While, green strategic orientation plays a role of independent variable. Green performance outcome is dependent variable.
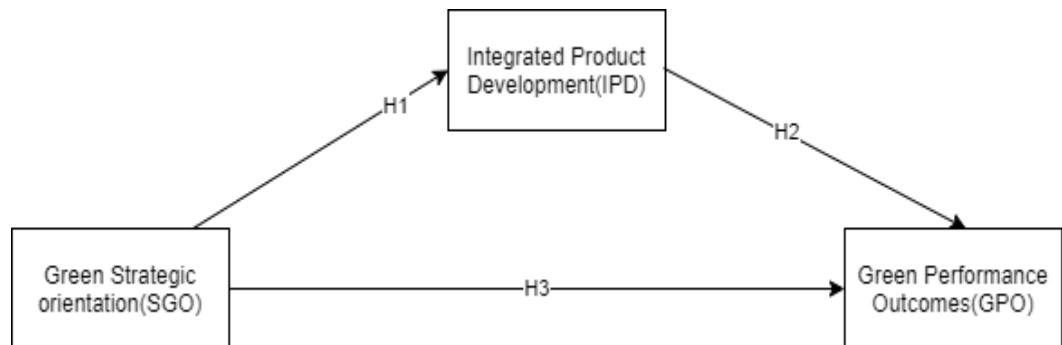

Figure 2.1: Theoretical Framework

2.6 Hypothesis

H1: Strategic green orientation (SGO) positively (increase) correlates with green performance outcomes (GPO).

H2: Strategic green orientation (SGO) significantly (positive) impacts integrated product development (IPD).

H3: Integrated product development (IPD) positively (increases) correlates with green performance outcome (GPO).

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research Design

This research was conducted to find out an impact of independent variable (SGO) on dependent variable (GPO) via a mediating variable (IPD) in aspect of textile industries of Pakistan. Quantitative research technique was used in this research to find its effect. A questionnaire survey was followed to find out the usefulness of the data and results on that basis were checked. Textile industries of Pakistan were put under observation for data collection. For this purpose, industries which were accredited by APTAMA were selected. Descriptive research methodology was conducted to describe their effect.

3.2 Target Population

The targeted population of this study was textile manufacturing industries of Pakistan accredited by APTMA. These industries were consisted of Yarn manufacturing, fabric manufacturing, garment manufacturing and textile processing. These industries were located in different cities of Pakistan including Lahore, Faisalabad, Peshawar and Karachi. These industries were included of both short and medium enterprises and multinational companies. Total population of textile firms in Pakistan is 396.

3.3. Sample Size

Sample size was composed by using power and precision tool .Correlation coefficient value(r) deduced from the previous studies was 0.23 so data was gathered from a sample size of 192 textile firms in Pakistan accredited by APTMA (All Pakistan Textile Mills Association).
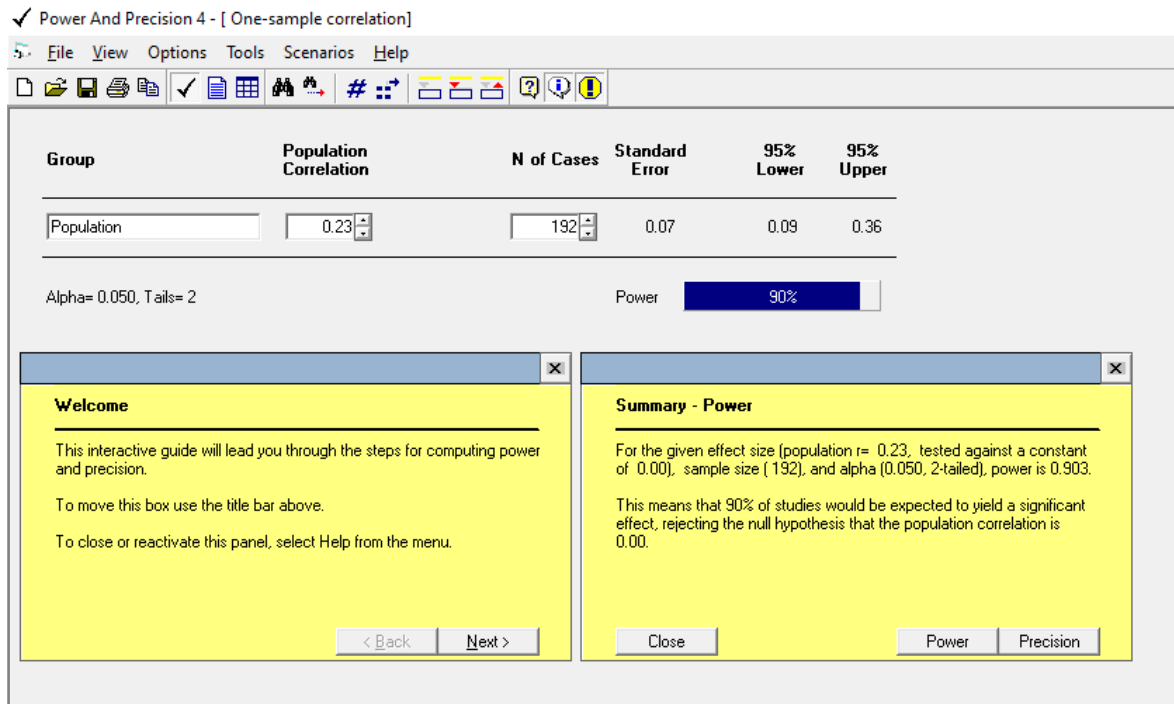
Figure 3.1: Power and Precision results

3.4 Data Collection

A questionnaire survey was conducted for data collection. Survey questions were all made by using five points Likert Scale. One supervisor and co supervisor, who were experienced professionals, were contacted to get their opinion on the developed items. Some of the items were revised to be more specific and to get précised results. Final questionnaire consisted of five portions .Data was collected with help of questionnaires from prescribed population in this study. A survey consisting of 14 questions was finalized for data collection. It was held to testify the validity of proposed hypothesis. Respondents were the managers working in Pakistan's textile industry. Questionnaire was consisted of two main parts. Data was administered by two main techniques. First technique used was consisted of using email for online survey. Second technique was the usage of visits of textile companies in different cities of Pakistan. Visits and conversations with industrial members would lessen the barrier to share quantitative data due to concern of companies on their confidential data.

This study was developed to target CEO's ,directors, managing directors ,general managers, deputy managers ,assistant managers or person in charge of environmental protection departments, research and development departments, production planning and control(PPC) department and marketing department of textile industries. These persons were chosen as they had knowledge and concerned information on green programs, green issue and green initiatives and on green product or process development.

First section of the questionnaire was comprised of demographic which was actually consisted of personal data of respondents and their company name. The second part was consisted of questions relevant to variable which categorized the effect between dependant and independent variables on Likert five points scale(e.g very low, very high).Second part was further consisted of questions on competitive market environment(competition intensity and market concentration),strategic green orientation(environmental sustainable products in the past years ,in the current scenario and in the future),integrated product development(prior collaboration during designing and its implementation process) and green performance outcomes (environmental performance outcomes). Sample population was set to find out the factors influencing the main subject. The first part was conducted to know about who was the responder and second art told about the responses generated on the variables. The respondents who were unemployed or inexperienced were not considered as the part of this study.

Likert Scale one to five applies on this study for the measurement of questionnaire items.

Independent variable

Strategic green orientation:-Strategic green orientation was considered as an independent variable for evaluating its effectiveness including the importance of the goals setting in the manufacturing of environmental sustainable products in the previous years, in the current era and in the future .In this way, the goals setting would be made effectively.

Mediating Variable

Integrated product development:-Integrated product development was used as a mediator in this study. It included the items: the application of the method of prior collaboration in its designing and its implementation, design of materials and procedures

to be used should be inclined during manufacturing and capability to collaborate in trial product manufacturing and designing.

Dependent variable

Green Performance outcomes:-Green performance outcomes elaborated the outcomes of different goals set in initial processes. It included the items: calculating betterment in client service in the previous years, measuring out the improvement in workers contentment and estimating the improvement in ecological functioning.

Table 3-1: Likert Scale 1-5

Deteriorated	1
Worst	2
No change	3
Better	4
Improved	5

3.5 Data Analysis

Analysis of data was brought out using software which is known as "SPSS". Observed information was run in "SPSS". Reliability test was run to measure its reliability and correlation test was used to find out whether the results were significant or not. As data coefficient was Likert scale so, different tests would be run. These tests include of reliability analysis, normality test, simple linear regression and correlation tests and mediation analysis were applied.

Reliability test was used to find out the consistency among the values. "cronbach's alpha"'s value was analyzed. It was implemented to check the reliability in the dimensions.[46] Normality tests were run on data and histogram and normal curve was also plotted. Purpose of normality test was to find out the outliners in data and the analysis of any irregularity or wrong data and their removal[47]. Correlation test was run in SPSS in order to find out correlation between variables. Correlation test was used to find out the extent of association between the variables. Values of analysis were checked

between +1 and -1.In the case of +1 value, positive linear relationship would be detected. In the case of -1, there would be negative relation between the variables[48].

Hypotheses were tested by using linear "regression test". Regression test was used to check hypothesis. [49]In the end, mediation test was run by using process model by Andrew.F.Hayes. Purpose of mediation test was to find out the effect of mediating variable. It was used to check whether there was complete mediation or partial mediation.

CHAPTER 4

DATA ANALYSIS AND RESULTS

4.1 Reliability Analysis

Reliability and validity of the constructs were analyzed before testing of hypothesis. "Cronbatch's alpha" value will be analyzed to check the reliability of data."Consistency "of data will be analyzed by using reliability test. The threshold value for good reliability is $\alpha \geq 0.70$. It indicates that internal consistency of all constructs as per this criterion was high [50].

4.1.1 Reliability of SGO

Table 4-1 shows the reliability value of 192 questionnaires with respect to strategic green orientation

Table 4-1: Reliability of SGO

Reliability Statistics

Cronbach's Alpha	N of Items
.798	3

4.1.2 Reliability of IPD

Table 4-2 shows the significant values of "Cronbatch's alpha" with respect to integrated product development.

Table 4-2: Reliability of IPD

Reliability Statistics

Cronbach's Alpha	N of Items
.822	3

4.1.3 Reliability of GPO

Table 4-3 depicts the reliability values measured in SPSS by analyzing 192 questionnaires.

Table 4-3: Reliability of GPO

Reliability Statistics

Cronbach's Alpha	N of Items
.845	3

4.2 Demographic Statistics

Demographic statistics of respondents have been done in order to get fundamental examination of the research. "Descriptive analysis" is used to facilitate the interrelating pattern of "demographic variables". In order to have a better representation of responses frequency tables are designed for each variable. Percentage and frequency of each variable are given in the table of demographic variables. Table 6 to 12 show the frequency tables of demographic variables.

4.2.1 Age

As table given below indicates that 35.4% of the respondents were being at the age-range of 25-35, 21.9% respondents were ate age of 35-45, 21.4% respondents were at age of 45-55, 21.4% respondents were at age of above 55. Therefore, number of respondents from 25-35 were in the high proportion of this sample.

Table 4-4: Age Statistics

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	25-35	68	35.4	35.4	35.4
	35-45	42	21.9	21.9	57.3
	45-55	41	21.4	21.4	78.6
	above 55	41	21.4	21.4	100.0
	Total	192	100.0	100.0	

4.2.2 Income

As the table below indicates that 5.7 % of the respondents were having income between 50k-100k, 14.6% respondents were lying in income range Rs.101k-150k, 27.6% respondents were lying in income range Rs. 151k to 200k, 24.5% respondents were lying in income range Rs.201k-250k and 27.6% respondents having income above 250k.

Table 4-5: Income Statistics

income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	50k-100k	11	5.7	5.7	5.7
	101k-150k	28	14.6	14.6	20.3
	151k-200k	53	27.6	27.6	47.9
	201k-250k	47	24.5	24.5	72.4
	above 250k	53	27.6	27.6	100.0
	Total	192	100.0	100.0	

4.2.3 Education

Table 4-6 revealed that 124 of the people who responded were BS qualified and 68 were MS qualified.

Table 4-6: Education Statistics

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Master	124	64.6	64.6	64.6
	Mphil	68	35.4	35.4	100.0
	Total	192	100.0	100.0	

4.2.4. Experience

Table 4-7 revealed that out of 192 people who replied, 90 repliers mentioned that they had experience of 5-10 years, 52 respondents indicated that they were having experience of 11-15 years and 50 respondents told that they had experience of more than 15 years.

Table 4-7: Experience Statistics

Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5-10years	90	46.9	46.9	46.9
	11-15years	52	27.1	27.1	74.0
	above 15	50	26.0	26.0	100.0
	Total	192	100.0	100.0	

4.2.5 Location

Table 4-8 shows that 53 of managers belonged to Lahore, 44 belonged to Karachi, 50 belonged to Faisalabad and 45 belonged to Peshawar.

Table 4-8: Location Statistics

Location

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Lahore	53	27.6	27.6	27.6
	Karachi	44	22.9	22.9	50.5
	Faislabad	50	26.0	26.0	76.6
	Peshawar	45	23.4	23.4	100.0
	Total	192	100.0	100.0	

4.2.6 Sectors

Data was collected from 81 "SME's", 98 were from multinational companies and 13 belonged to other categories.

Table 4-9: Sectors Statistics

Sectors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SME's	81	42.2	42.2	42.2
	Multinational corporations	98	51.0	51.0	93.2
	others	13	6.8	6.8	100.0
	Total	192	100.0	100.0	

4.3 Descriptive Analysis

All variables which were put under consideration are mentioned in table given below. As the below table shows the mean values, standard deviation, lowest and highest values of different variables i.e. location, age, sectors, education, income, employee and experience of the workers.

Table 4-10: Descriptive Statistics

Descriptive Statistics

	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Age	192	1.00	4.00	2.2865	1.16053
income	192	1.00	5.00	3.5365	1.20154
Education	192	1.00	2.00	1.3542	.47951
Experience	192	1.00	3.00	1.7917	.83027
Location	192	1.00	4.00	2.4531	1.12928
Sectors	192	1.00	3.00	1.6458	.60503
Valid N (listwise)	192				

4.4 Normality tests:-

Figure 4.1 shows graph where standard deviation value is 1.003 which less than half of mean value 3.59.It means that data was normally distributed[47].
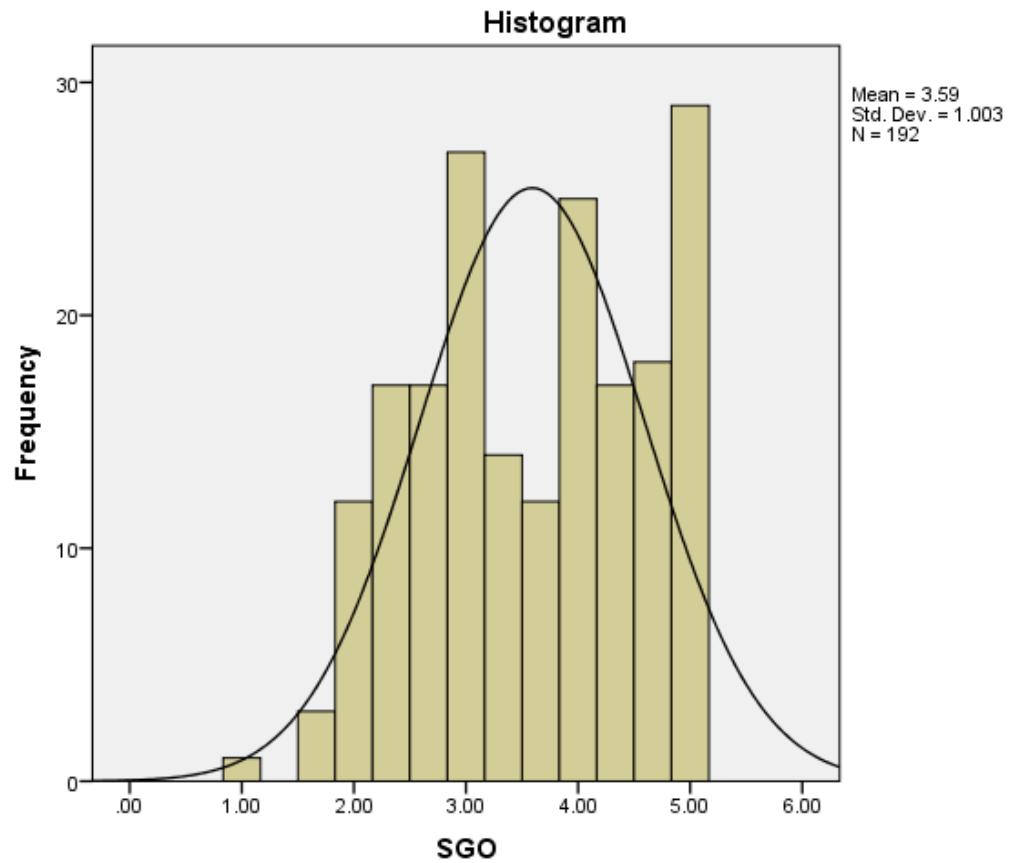
Figure 4.1: Histogram of SGO

Figure 4.2 of integrated product development shows standard deviation value of 1.05 which is less than half of mean value of 3.25 which indicates that data was normally distributed. Bell shaped curve also indicates that data was normally distributed [47].
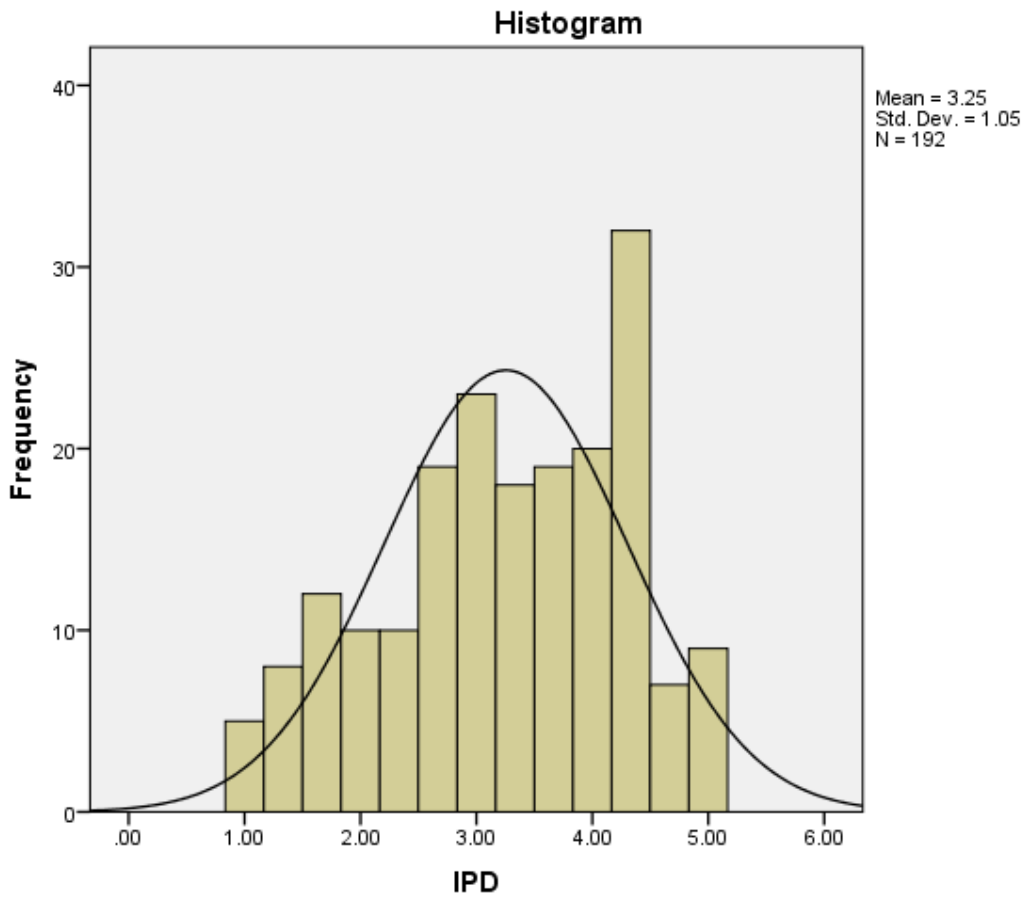
Figure 4.2: Histogram of IPD

Figure 4.3 shows that standard deviation value of 1.03 which is less than half of mean value of 3.38 which indicates that data was normally distributed. [47]
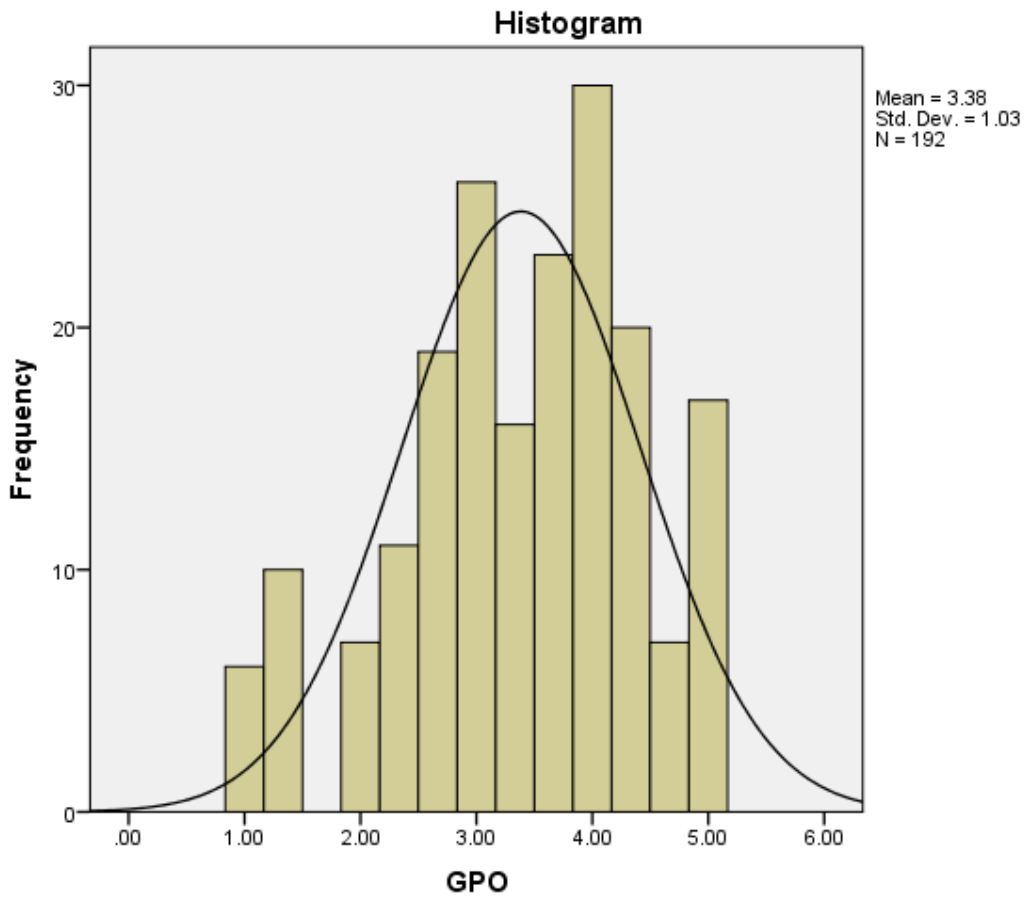
Figure 4.3: Histogram of GPO

4.5 Correlation Analysis

In table given below correlation analysis reveals same hypothesized direction of relation among variables. Correlation examination uncovered that the scales positively correlate with each other. Significant results are shown among scales of different variables. These all mentioned that they have positive correlation with each other. It means that by increasing one variable, values in other variables also increase.

Table 4-11: Correlation Analysis

Correlations

		SGO1	SGO2	SGO3	IPD1	IPD2	IPD3	GPO1	GPO2	GPO3
SGO1	Pearson Correlation	1								
SGO2	Pearson Correlation	.678**	1		*					
SGO3	Pearson Correlation	.511**	.547**	1						
IPD1	Pearson Correlation	.454**	.466**	.615**	1					
IPD2	Pearson Correlation	.443**	.453**	.525**	.615**	1				
IPD3	Pearson Correlation	.345**	.410**	.610**	.657**	.552**	1			
GPO1	Pearson Correlation	.415**	.328**	.570**	.565**	.370**	.547**	1		
GPO2	Pearson Correlation	.262**	.271**	.518**	.467**	.377**	.470**	.580**	1	
GPO3	Pearson Correlation	.391**	.407**	.636**	.521**	.432**	.562**	.671**	.683**	1

**. Correlation is significant at the 0.01 level (2-tailed).

4.6 Regression Analysis

Table 4-12 shows regression analysis shows results of different regression analysis which were applied. Beta value in first hypothesis second hypothesis and third hypothesis are 0.597,0.698and 0.628 which revealed that these hypothesis are validated[49].

Table 4-12: Regression analysis

IV	DV	Beta	S.E	F	T	R²	p-value
SGO	GPO	.597	.840	94.98	9.848	.338	.000
SGO	IPD	.698	.784	152	12.3	.445	.000
IPD	GPO	.628	.792	132	11.5	.441	.000

4.6.1 Regression analysis of SGO on GPO

Tables 4-13,14 and 15 indicate that the Strategic green orientation significantly predicts green performance outcome (B = 0.597, t = 9.848, p < 0.05).The fact that unstandarized coefficients B = 0.591 shows a positive relationship i.e. when strategic green orientation increases green performance outcome also increases[49].

Table 4-13 shows R square values as 0.338 and standard error was recorded as 0.84004.

Table 4-13: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.581[a]	.338	.334	.84004

a. Predictors: (Constant), SGO

Table 4-14 shows anova results where F was recorded as 96.984 and significance value was 0.000.

Table 4-14: Anova results

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	68.438	1	68.438	96.984	.000[b]
	Residual	134.076	190	.706		
	Total	202.513	191			

a. Dependent Variable: GPO

b. Predictors: (Constant), SGO

Table 4-15 shows standardized and unstandarized coefficients values of beta which were recorded as 0.597 and 0.581.

Table 4-15: Coefficients

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.240	.226		5.489	.000
	SGO	.597	.061	.581	9.848	.000

a. Dependent Variable: GPO

4.6.2 Regression analysis of SGO on IPD

Tables 4-16, 17 and 18 indicate that the Strategic green orientation significantly. Integrated product development (B=0.698, t = 12.3, p < 0.05).The fact that B = 0.698 shows a positive relationship i.e. when strategic green orientation increases Integrated product development also increases[49].

Table 18 found R square values at 0.445 and standard error was recorded as 0.7458.

Table 4-16: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.667^a	.445	.442	.78458

a. Predictors: (Constant), SGO

Table 4-17 shows anova results where F was recorded as 152.050 and significance value was 0.000.

Table 4-17: Anova results

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	93.596	1	93.596	152.050	.000^b
	Residual	116.957	190	.616		
	Total	210.553	191			

a. Dependent Variable: IPD

b. Predictors: (Constant), SGO

Table 4-18 shows standardized and un-standardized coefficients values of beta which were recorded as 0.698 and 0.667.

Table 4-18: Coefficients

Coefficients^a

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.747	.211		3.538	.001
	SGO	.698	.057	.667	12.331	.000

a. Dependent Variable: IPD

4.6.3 Regression analysis of IPD on GPO

Tables 4-19, 20 and 21 indicate that the Integrated product development significantly predicts green performance outcome (B = 0.628, t = 11.5, $p < 0.05$).The fact that $\beta = 0.641$ shows a positive relationship i.e when Integrated product development increases green performance outcome also increases[49].

Table 4-19 found R square values at 0.411 and standard error was recorded as 0.79256.

Table 4-19: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.641[a]	.411	.408	.79256

a. Predictors: (Constant), IPD

Table 4-20 shows anova results where F was recorded as 152.050 and significance value was 0.000.

Table 4-20: Anova Results

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	83.165	1	83.165	132.396	.000[b]
	Residual	119.349	190	.628		
	Total	202.513	191			

a. Dependent Variable: GPO

b. Predictors: (Constant), IPD

Table 4-21 shows standarized and unstandarized coefficients values of beta which were recorded as 0.628 and 0.641.

Table 4-21: Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.339	.187		7.172	.000
	IPD	.628	.055	.641	11.506	.000

a. Dependent Variable: GPO

4.7 Mediation Analysis

Tables 4-22, 23, 24 and 25 indicate that indirect effect of Strategic green orientation (IV) on Green performance outcome (DV) through integrated product development (M) shows that integrated product development significantly mediated the

effect of strategic green orientation on green performance outcome i.e. β = 0.312, 95% bootstrapped CI (.447, .194).

Table 4-22: Mediation analysis

IV → MED →DV	S.E	B	UL95%CI	LL95%CI	P-value
SGO → IPD → GPO	.064	.312	.447	.194	0.001

Table 4-23 shows that direct effect from SGO to IPD was significant and positive (b=.6982, s.e. =.0566, p <.001).

Table 4-23: Process model results

```
********************************************************************
Model : 4
    Y : GPO
    X : SGO
    M : IPD

Sample
Size:  192

********************************************************************
OUTCOME VARIABLE:
 IPD

Model Summary
          R        R-sq       MSE          F         df1        df2         p
       .6667      .4445     .6156    152.0504    1.0000   190.0000     .0000

Model
              coeff       se         t          p        LLCI       ULCI
constant     .7467     .2110     3.5383     .0005      .3304     1.1630
SGO          .6982     .0566    12.3309     .0000      .5865      .8099

Standardized coefficients
           coeff
SGO        .6667

********************************************************************
```

Figure 4.4 shows value of direct effect of SGO on IPD.
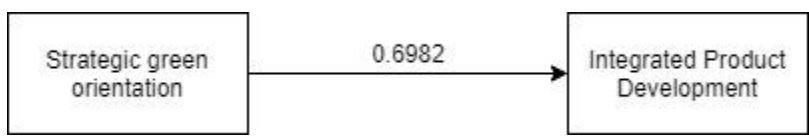
Figure 4.4: Direct effect of SGO on IPD

Direct effect from strategic green orientation was positive and significant (b=0.2849,s.e=0.0741,p=.002)which proves that by increasing strategic green orientation ,integrated product development will also be increased. Direct effect from IPD to GPO was positive and significant (b=0.4471, s.e.=0.0708, p=0.000) which means that increasing performance outcomes will be achieved if integrated product development is increased.

Table 4-24: Process model results

```
**************************************************************************
OUTCOME VARIABLE:
 GPO

Model Summary
          R        R-sq        MSE          F         df1         df2           p
      .6733       .4534       .5857    78.3856      2.0000    189.0000        .0000

Model
             coeff          se           t           p        LLCI        ULCI
constant     .9063       .2125      4.2644       .0000       .4870      1.3255
SGO          .2849       .0741      3.8439       .0002       .1387       .4310
IPD          .4471       .0708      6.3183       .0000       .3075       .5867

Standardized coefficients
          coeff
SGO       .2774
IPD       .4559

**************************************************************************
```

Figure 4.5 shows values of direct effect of SGO and IPD on GPO.
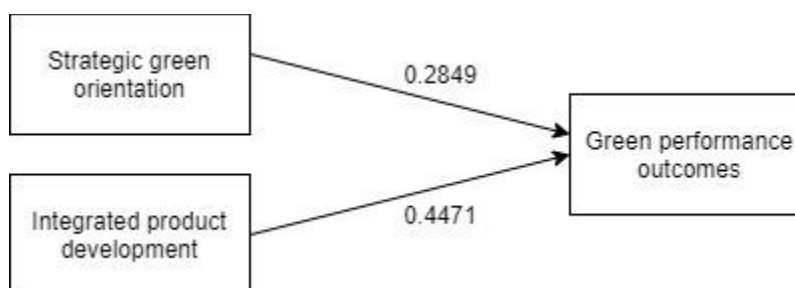
Figure 4.5: Direct effect of SGO and IPD on GPO

In case of indirect effect (b=0.3122) is calculated by product of 0.6982*0.4471=0.3122.Boot strap was analyzed as results were significant;95%(0.1953,0.4465) as 0 did not lie between upper and lower interval of confidence interval so null hypothesis was rejected.

Table 4-25: Process model results

```
*************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect        se         t         p        LLCI      ULCI      c_ps      c_cs
     .5970       .0606     9.8480     .0000     .4775     .7166     .5798     .5813

Direct effect of X on Y
     Effect        se         t         p        LLCI      ULCI      c'_ps     c'_cs
     .2849       .0741     3.8439     .0002     .1387     .4310     .2766     .2774

Indirect effect(s) of X on Y:
        Effect     BootSE    BootLLCI   BootULCI
IPD     .3122      .0647      .1971      .4480

Partially standardized indirect effect(s) of X on Y:
        Effect     BootSE    BootLLCI   BootULCI
IPD     .3032      .0587      .1956      .4257
```

Figure 4.6 shows coefficient values of SGO, IPD and GPO to calculate indirect effect of SGO on GPO.
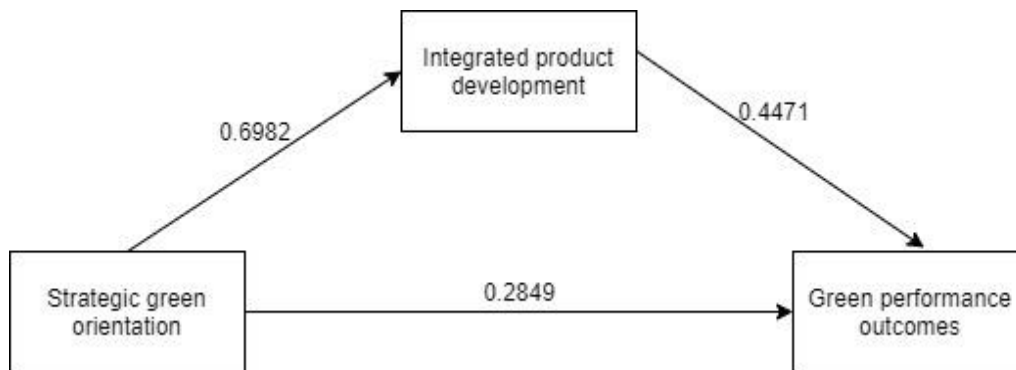
Figure 4.6: Indirect effect of SGO on GPO

Complete standardized indirect effect was 0.3040 which can be contained by multiplying path a and b i.e. standardized coefficients(0.667*0.4559=0.3040) which indicates significant effect as 0 did not lie between upper and lower limits.

Table 4-26: Process model results

```
Completely standardized indirect effect(s) of X on Y:
        Effect      BootSE    BootLLCI    BootULCI
IPD      .3040       .0591       .1946       .4271


*********************** ANALYSIS NOTES AND ERRORS ***********************

Level of confidence for all confidence intervals in output:
   95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
   5000
```

Figure 4.7 shows standardized coefficient values of SGO,IPD and GPO to find out complete mediation effect.
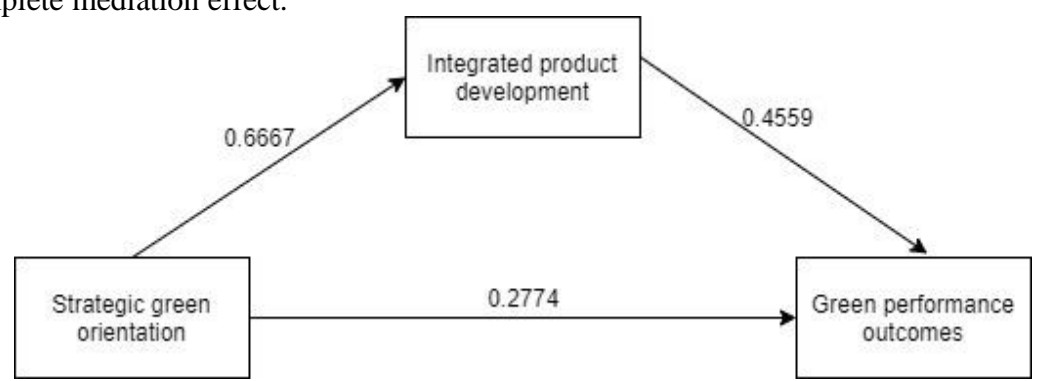
Figure 4.7: Completely standardized indirect effect of SGO on GPO

CHAPTER 5

DISCUSSION OF FINDINGS

5.1 Discussion and conclusion

This research found out that strategic green orientation can enhance green performance outcomes in textile industry of Pakistan. This study also found out the effect of integrated product development between SGO and GPO in textile industry of Pakistan which previous studies did not mention.

Strategic green orientation can increase prospect of achieving integrated product development in textile sector of Pakistan. Green performance can also be increased by implementing integrated product development in textile industry of Pakistan. So, the research has highlighted the importance of strategic green orientation in enhancing green performance outcomes in Pakistan's textile industry. This study has found that integrated product development mediated the effect between dependent and independent variables.

Alliances within firm and outside firm are essential for achieving green performance outcomes. It involves the collaboration among research and development team workers, collaboration among outside partners and collaboration among universities and research institutions.

Whole world is moving towards establishing sustainable environment. Governments and society are driving forces for these initiatives. So, it is need of hour that stakeholders and managers in textile industry of Pakistan should also implement strategies for increasing their green performance outcomes. It not only will attract more customers but also it will make them compete with other countries in this new niche.

This research brought out the importance of strategic green orientation implications for achieving green performance outcomes in textile industry of Pakistan. It provided the managers a model in which integrated product development can be focused for implementing strategies of green management. It should be implemented by considering long term dedication.

This research highlighted the importance of integrating environmental problems in product development by engaging all stakeholders which will increase innovation capability of firm in textile industry of Pakistan. It can lead them towards their competitive green innovation capacity.

Textile industry in Pakistan is trying to implement green strategic orientation in their future goals. Some industries are implementing strategic green orientation but yet lack framework to achieve their goals. In this study, three very significant effects are noticed (green strategic orientation relation with integrated product development, impact of integrated product development on green performance outcomes and direct relation of strategic green orientation with green performance outcomes). Textile industry of Pakistan can reinvent their strategies and enhance the green performance outcomes by using these strategies.

Theoretical Implications

This study has enhanced the literature in multiple aspects. Firstly, green strategic management has positive effect on green performance outcomes in aspect of Pakistan textile industry. This depicts the importance of green management while getting green performance outcomes in textile industry of Pakistan. Previous researches were mainly restricted only for one aspect while devising the green strategies whether they were only targeted for green product development or green process development but green strategies are devised by considering both aspects. Earlier studies did not check the impact of strategic green orientation on green performance outcomes in aspect of textile industry of Pakistan. So, this research filled that gap and gave a basic framework for increasing green performance outcomes in Pakistan. This study found out that integrated product development could increase green performance outcomes which could be achieved if all are indulged in strategies formulation process. Scholars have found out the strategic green orientation impacts in furniture industries but finding its impacts in textile industry of Pakistan will enrich theoretical knowledge.

Practical implications

The outcomes of research can help out textile industries in dealing with difficulties of adopting and implementation of green management. Managers and board of directors

have an important task to devise the strategies and finding out their implications outcomes. Managers should track the previous progress or goals accomplished in strategies outcomes aspect. Conclusion tells the managers to integrate the product and process design and should streamline the information channel for successful implementation of green management. By analyzing the performance of customer service sales and employee statisfaction, green performance outcomes can be gauged in terms of validation of green strategic orientation. So managers can reinvent their strategies and make their strategies more productive by early coordination and better communication.

5.2. Limitation of study

This research also has limitations like every other research. Firstly, this study was marginalized only for study in manufacturing industries of Pakistan and this was done due to fact that manufacturing industries in Pakistan are consuming the natural resources in abundant amount and that includes more amounts of water resources and energy consumption. Secondly, this research was conducted on textile industries of Pakistan which was done to find out GPO impact only for textile industry. Lastly, this research found out only one mediating effect of IPD but did not include the impact of SCC (supply chain coordination).

5.3. Future research

Research was conducted in Pakistan's textile industry .It can be used for evaluating the green performance outcomes of other countries like China and Bangladesh. It has measured the impact of strategic green orientation on green performance outcomes in Pakistan's textile industry. It can be used to find out an effect of strategic green orientation on business performance outcomes in Pakistan's textile sector. In this research, integrated product development is used as a mediator for accomplishment of study. But, in the future, more than one mediating variable can be used. Supply chain coordination mediating effect can be checked in context of Pakistan's textile industry. Further research can be conducted in finding impact of strategic green orientation in case of textile industries of different countries.

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Appendix

Survey Questionnaire

I am a student of Bahria University and doing thesis in MS Engineering Management. Purpose of thesis is to determine the impact of factors influencing strategic green orientation in textile industry of Pakistan. Your data will only be used for educational purpose and will not be shared with anyone else

1. What is the location of your firm?

a) Lahore   b) Karachi   c) Faisalabad   d) Peshawar

2. What type of ownership does your corporate have?

a) State-owned corporate   b) Private corporate   c) Other

3. What is your age?

a) 25-35   b) 35-45   c) 45-55   d) above 55

4. How much is your income?

a) 50k-100k   b) 101k-150k   c) 151k-200k   d) 201k-250k

e) above 250k

5. What is your education qualification?

a) Masters   b) Mphil

6. How much is your work experience?

a)5-10 years   b)10-15years   c) above 15 years

Item Code	Item wording	Worst	Bad	Normal	Better	Best
CME1	Intensity of contest in the external environment	1	2	3	4	5
CME2	How much is market concentrated for new investor?	1	2	3	4	5
SGO1	How much is significance of Eco friendly product over the last three years ?	1	2	3	4	5
SGO2	How much is significance of Eco	1	2	3	4	5

	friendly product in the current era?					
SGO3	Significance of betterment of your environmental performance for the next three years	1	2	3	4	5
IPD1	Application of the early association of manufacturing function in product design	1	2	3	4	5
IPD2	Application of overlapping of product and process design	1	2	3	4	5
IPD3	Prototyping and testing in beginning stages of product design	1	2	3	4	5
SCC1	Degree to which application of development and vendor rating programs over last three years is being undertaken	1	2	3	4	5
SCC2	Degree to which level of cooperation of planning decisions and flow of products with suppliers including dedicated investments is being undertaken	1	2	3	4	5
SCC3	Degree to which level of cooperation of planning decisions and flow of products with customers including dedicated investment is being undertaken	1	2	3	4	5
GPO1	Is performance level of customer service and support changed in current years relative to previous years	1	2	3	4	5

GPO2	Is performance level of employee satisfaction changed in the recent years relative to last years	1	2	3	4	5
GPO3	Any Developments in environmental performance in the recent years as relative to previous years	1	2	3	4	5