Identifying and exploring the relationship among the critical success factors of sustainability towards consumer behavior1\*

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**Abstract**

**Purpose:** The purpose of this study is to find out what is the relationship between sustainability towards consumer behavior. Consumer behavior is the method of choosing, buying, and using goods and services with an attachment to needs and wants. Now consumers are aware about sustainability, they make purchase decisions according to environmental safety, benefit to the society and increase economic growth.

**Approach/Methodology:** This study validates the result through experts in textile industry by using the DEMATEL approach. This method has many benefits which provide decision makers and experts to understand the interdependence and influential relation between the criteria by hierarchical approach.

**Findings:** According to the results green culture (F8) and green brand (F3) are the most influential (causal) factor and exerts a substantial amount of influence over the other factors for achieving organizational performance and sustainability. On the other hand, past experience (F14) and time pressure (F12) are the most influenced (effect) factors that are highly influenced by other factors.

**Practical Implications:** This study implements in Pakistan which is important to understand the value of a healthy and fresh environment for the future. Consumers and organizations should be making it in reality by promoting the goods and services that work towards sustainability.

**Managerial Implications:** Mangers should use long-term strategies that meet the high product value to enhance the organization's reputation so it will have positive consumer perception. If managers make policies to implement natural resources in their raw material so this policy avoids conflicts and maintains a balance in our society.

**Originality:** This research delves into the complexities and subtleties associated with the identification and examination of the interconnections between the success factors of sustainability and consumer behavior.

**Keywords:** Consumer behavior, Sustainability, Organizational sustainability, DEMATEL technique, Textile Industry.

**1. Introduction**

Sustainability focuses on the needs of people in the present without compromising the future generation’s needs. There are three dimensions of sustainability; environmental, social, and economics (Hosta and Zabkar, 2020). Economical sustainability implementation decreases environmental issues, which positively effects organizations. Businesses should apply economic strategy carefullyas it impacts the sustainable performance of organizations(Kravchenko et al., 2019). Organizational sustainability is needed for continuously improved performance. However, there are many methods to measure sustainability performance for long-term development (Lace, 2018). Epstein and Roy (2001) stated that the assessment of performance tools developed by many organizations includes team members and stakeholders’ performance as sustainability performance. These measurement tools can help shed light on organizational sustainability processes (Caiado et al., 2019, Leite et al., 2011). Organizational sustainability can be maintained by giving value to people and the environment. Applying this approach in business practices can generate profits for the organization (Stubbs, 2017).

Consumer behavior is the method of choosing, buying, and using goods and services with the attachment of needs and wants (Buerke et al., 2017b, Solomon et al., 2012). Understanding consumer behavior is the strategy that an organization uses to effect consumers to purchase things (Kuchinka et al., 2018, Kumar and Christodoulopoulou, 2014). Now consumers are well aware due to which their purchasing pattern has changed. They consume those products which are not harming the environment. Environmental sustainability plays an important role in fulfilling their needs. It develops the business structure according to the needs of consumers from sustainable perceptive as it impacts the profitability of organizations (Maniora, 2018, Shibin et al., 2017). Consumers who have the notion of sustainability in their perception can switch their minds at the time of purchase. In a regular situation, many factors like product pattern and brand might impact consumer behavior (Jung et al., 2020, Shen et al., 2013). Organizations should promote sustainable messages in their products to respect their consumers.

The performance of an organization is affected by changes in the environment, where new threats can appear out of nowhere, and new opportunities might not be for a long period of time [23]. So, the firm's performance is most likely to be based on how well it can adapt to changes in the environment (Akram et al., 2018). Performance can be broken down into three levels: the individual, the team, and the organization (Zhang et al., 2015). At each level, there are distinct differences in the most important aspects of performance, the factors that affect it, and the necessary measures. According to Bates and Holton [38], "performance is a multidimensional construct, and its results vary greatly depending on the perspective from which it is observed and measured (Zhang et al., 2023). The aim of this study was to investigate organizational-level performance from the perspective of sustainability. Furthermore, the performance of a sustainable firm is one that can increase customer satisfaction, has strong financial and operational performance, prioritizes the creation of long-term shareholder and stakeholder values, and has an outstanding brand and reputation (Avery and Bergsteiner, 2010, Winit et al., 2023).

Consumer behavior is the method of taking purchase decisions of goods and services. As consumer behaviors show interest about their desired products, it is directly linked with the performance of organizational sustainability (Buerke et al., 2017b, Caruana and Crane, 2008). The role of consumer behaviors sometimes refers to as a tool for encouraging sustainable behaviors. Ignorance of consumers only makes business matters worse (Joshi and Rahman, 2019, Young et al., 2010). Approximately 40 percent of consumers’ household purchasing is the reason of environmental damage. By focusing on this organizations can start implementation on sustainability in operational tasks (Grunert and Juhl, 1995, Joshi and Rahman, 2017). Organizations need to know what are the sources of information consumers use and how trust impacts consumer behavior (O'Rourke and Ringer, 2016). They have essential sources of information that are absorbed by society. Through utilizing this information, organizations can work on consumer needs that covers overall desirable demands. As the untimely response of consumers on production pattern and sustainable performance solution can decrease the unpredictability of the organization (Fang, 2008, Gelhard and Von Delft, 2016).

Previous research has presented consumer behaviors in different prospects. They evaluated the factors of consumer behaviors towards sustainability by showing the connection with different aspects such as consumer information and production pattern (Fang, 2008, Gelhard and Von Delft, 2016). Consumers' purchase decision also changes according to the environment (Maniora, 2018, Shibin et al., 2017). Other studies have shown that most consumers have an impact on the price and functionality of products (Neslin et al., 2006, Peng et al., 2019). Likewise, the source of information also impacts consumer behaviors. One research investigated that consumer’s trust towards sustainability can increase their purchasing pattern (O'Rourke and Ringer, 2016). Showing respect towards the consumers by an organization can also impact consumer behaviors (Dellaert, 2019, Kozlenkova et al., 2014). However, consumer behavior is evolving continuously which identifies needs to understand different factors of consumer behavior and sustainability. The aim of this study is to identify the relationship among critical factors of sustainability towards consumer behavior such as green trust, green attitude and green value.

Considering the importance of the above-mentioned importance, this study will answer the following research question (RQ):

RQ: What is the relationship among critical factors of sustainability towards consumer behavior?

i) Identify critical factors from the literature that are essential to measuring sustainability towards consumer behavior.

ii) Validate identified critical factors that are essential to measuring sustainability towards consumer behavior using the DEMATEL technique.

iii) Identify the relationship between identified and validated critical factors of sustainability towards consumer behavior.

To fulfill the goals, and answer the research question, the rest of the study is arranged as follows. Section two analyzes the research on sustainability and consumer behavior, explains the methods involved in finding the sustainability and consumer behavior components, and finishes with a discussion of the assessment of the literature/gaps and the study's contributions. Section three examines and shows the study methodology, and findings, followed by Section four discussion and implications of the research. Section five concludes the study and highlights its limitations and suggested possibilities for additional research.

**2. Literature review**

**2.1 Sustainability**

When the United Nations released its "Our Common Future" report in 1987, it marked the beginning of a worldwide movement to incorporate sustainability into management theory, policy, and practice. The report defines sustainable development as "development that addresses the needs of the present without jeopardizing future generations' ability to meet their own needs" (Brundtland, 1987). Sustainability entails improving the quality of people’s lives with the help of social and ecological improvements. The idea of sustainability has changed over the past few years. It has also changed the behavior of the people by growing concerns about natural resources (Kuchinka et al., 2018). Sustainability has three dimensions economic, social, and environmental. The economic dimension of sustainability protects businesses and income. It helps grow the business as well as generate profits. The environmental dimension of sustainability protects the environment and works on natural resources, it has the potential to reduce a lot of global issues (Van Doorn and Verhoef, 2015). The social dimension of sustainability refers to the desire of products usage and disposal by people to eliminate harmful effects and provide maximum benefits to society (Frank and Brock, 2019). In the early 20th century, sustainability meant maximizing of natural resources. Sustainability works on the balance between resources and the population. Likewise, through sustainability, global issues can be solved in the most effective way. The goal of sustainability is to avoid irreparable damage to the environment, people, and society (Ayres and Kneese, 1969, Michelsen et al., 2016). The implementation of sustainable behaviors is a difficult task, companies are still facing problems in adopting it (Govindan and Soleimani, 2017, Joung et al., 2013). Companies need to improve strategies that promote economic, social, and environmental sustainability as it plays an important role to solve their problems, for instance, the triple bottom approach. It is the main foundation of any business, as it helps in transformation, through positive behavior towards sustainable consumption.

The companies of the 21st century have been particularly vocal about sustainability issues Organizations that understand it is their responsibility to ensure social and environmental standards are met put sustainability efforts into action strategically and aim for long-term performance in terms of operations and growth. Organizations have been using many different techniques, methods, and models to accomplish long-term success and performance (Tasleem et al., 2018). Organizations are now required to obtain input from a wide range of their internal and external stakeholders by taking into consideration the economic, social, and environmental effects (Mariappanadar, 2019). There are many different forms of environmentally friendly activities that organizations can adopt for the sake of sustainability of the organization. Environmentally friendly or green activities lead to increased efficiency and reduced costs, both of which contribute to the organization's ability to remain sustainable (Likhitkar and Verma, 2017). According to academics, business organizations in the current environment require a standardized development plan that is equally beneficial for social, environmental, and economic growth (Jabbour and de Sousa Jabbour, 2016). The overarching idea behind the concept of sustainability is that the success of a company should not just be evaluated in terms of its financial performance, such as its profits and return on investments, but also in terms of the ways in which it affects its community and the natural environment (Amjad et al., 2021). It is imperative for the textile industry to promote and make use of environmentally friendly management practices in light of the growing number of environmental problems. According to research that has been published, the textile industry in developing nations faces a variety of environmental-related issues, and organizations need to be involved in evaluating, monitoring, as well as correcting management-related practices (Rehman et al., 2016).

**2.2 Consumer behavior**

Consumer behavior is the conduct of choosing, buying, and using goods and services with the addition of needs and wants (Buerke et al., 2017b, Solomon et al., 2012). Satisfying consumer’s needs and wants is the main reason for the success of any organization. The act of satisfying a consumer's needs is the purpose that consumer behavior serves. On the other hand, in light of the concept of sustainability, a discussion about how individual needs can also be fulfilled in a sustainable way emerged (Buerke et al., 2017a). Some researchers have found that consumers use an emotional attitude when they consider sustainability when consuming a product (Shabbir et al., 2020). Likewise, consumption not only fulfills their survival needs but also their social, economic, and personal needs. Social and environmental sustainability can help consumers in making wise decisions (Hosta and Zabkar, 2020, Thøgersen, 2005). Social sustainability is linked to local factors. Knowledge is a main tool through which organizations encourage implementing sustainable strategies conferring to consumers aspect (Govindan and Soleimani, 2017, Hughner et al., 2007). If organizations do not use proper and ethical knowledge for a product, it will cause negative effects in consumer perception and firms will lose their loyalty (Luchs et al., 2010, O'Rourke and Ringer, 2016). In the same way, there is a strong relationship between organizational sustainability and consumer behavior. Organizational sustainability motivates to change the behavior of consumers. Consumer behaviors are important elements because organizations promote the activities and develop trust of consumer by providing such sustainable practices. Organizations should promote their products in the market through informational strategies, which will help to gain consumer loyalty for sustainable products and it can also help to gain a competitive advantage (Nessel, 2016).

A growing number of consumers are interested in knowing whether the product they like was made by a producer who respects the environment and has ethical principles and whether the raw materials were sourced in a sustainable and socially acceptable manner (Paço et al., 2021). In recent times, ethical and sustainable initiatives have become more prevalent in the apparel industry, and there has been a rise in customer interest in choosing to buy from companies that are transparent and adhere to sustainable and ethical practices. Consumers with a greater concern for the environment are more likely to pay for this product (Byrd and Su, 2021). Consumers are more concerned about environmental and social issues, and they view the economic aspect of sustainable development with greater pragmatism (Peirson-Smith and Evans, 2017). Consumers are typically more satisfied with companies that promote and practice environmental sustainability (Khandelwal et al., 2019). Individuals who are concerned deeply about ethics often wonder how they can best help the environment and improve their relationship with the environment (Isnaini, 2020). Consumers worldwide are concerned about sustainability. They worry about climate change, greenhouse gas emissions, and gas emissions. Global companies use green themes for their products and services (Leonidou and Skarmeas, 2017). Consumers expect companies that claim to use energy and water conservation in their production to do so. Thus, consumers expect organizations' environmental claims to be accurate (Jalees et al., 2021).

**Table 1 Closely related studies to sustainability and consumer behavior**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Reference** | **Contribution** | **Methodology** | **Theory** | **Context** | **Findings** |
| Vlastelica et al. (2023) | This study analyzes a model of the factors that influence young adults in developing economies to make ethical fashion choices. | Exploratory factor analysis (EFA), and Structural equation modeling (SEM) | The study did not use any theory for the conceptual framework | Green consumption | The study found that green consumption values were the most significant factor in explaining responsible apparel consumption, followed by awareness of one's own consumption habits and openness to green communication. |
| Bui et al. (2022) | Due to the current unsustainable product usage and environmental damage, this study contributes to a better understanding of valid sustainable consumption behavior characteristics in Indonesia. | Fuzzy DEMATEL | Social exchange theory | Sustainable consumption behavior | Social impact and consumer behavior were found to play a significant role in driving sustainable consumption behavior, which can be thought of as an individual's motivation in planning or decision-making for a given sustainable behavior. |
| Jalees et al. (2021) | This study extended Motivation-Ability-Opportunity-Model to include seven variables: green brand, green satisfaction, green advertising, green buying behavior, and spirituality ethics. | Smart PLS-SEM | ABC model of behavior | Brand Management and Consumer Behavior | The study found that green buying behavior mediates green advertising (GA) and green satisfaction (GS) (H12). Green buying behavior (GBB) also mediates green brand (GB) and green satisfaction (GS) (H13). |
| Matharu et al. (2020) | This research establishes a relationship between LOHAS tendency and sustainable consumption, which may contribute to sharing economy in terms of LOHAS consumer lifestyle and sustainable consumption behavior. | AMOS-SEM | Theory of Planned Behavior | Sustainable consumption behavior | In line with the expanded TPB, the results show that LOHAS propensity precedes sustainable consumption attitudes among consumers. |
| Liao et al. (2020) | Using a signaling theory perspective on eco-friendly marketing, this research synthesizes the theoretical underpinnings of eco-friendly product purchases. | SPSS and Smart PLS | Signaling Theory and Attitude-Behavior-Context (ABC) Theory | Green consumer behavior | The results showed a positive and significant relationship between green customer value and a pro-green product stance. Furthermore, there is a positive correlation between customers' perceived value of green businesses and their intent to make green product purchases. |
| Okur and Saricam (2019) | This study empirically tests a model of consumers' behavior toward sustainable apparel consumption, including knowledge of environmental and social issues, motivation for environmental responsibility, attitude toward green brands, and purchasing intention. | IBM-SPPS and AMOS 21 | The study did not use any theory for the conceptual framework | Sustainable environment | The results showed that consumers' attitudes toward green brands are strongly correlated with environmental responsibility. Consumer knowledge of environmental issues also influenced purchasing intention. |
| Figueroa-García et al. (2018) | This paper defines social factors that influence sustainable behavior and promotes it. These external factors cause sustainable behavior, a neglected topic in literature. | PLS-SEM | The study did not use any theory for the conceptual framework | Sustainable behavior | According to the study, family, and friends, cultural factors like traditions, and market conditions—consumers' positive perception of sustainable products and their willingness to pay higher prices than for conventional products—all have an impact. |
| Song and Ko (2017) | This study identifies consumers' subjective views of sustainable fashion and provides socio-demographic differences across sustainable fashion consumer segments. | Q-R methodology | The study did not use any theory for the conceptual framework | Sustainable consumption | South Korean sustainable fashion consumers are mostly opinion leaders who like fashion and sustainability. They earn more and spend more on fashion. |
| Buerke et al. (2017a) | This paper examines responsible consumption's dimensionality and psychological antecedents from a consumer-centric perspective. The study proposes a societal and individual dimension for responsible consumption. | confirmatory factor analyses | VBN theory | Consumer behavior and sustainability | The results show that both being aware as a consumer and having values that are focused on sustainability have a direct, positive effect on responsible consumer behavior. |
| Goh and Balaji (2016) | This research determines how green skepticism and green purchasing intentions are connected in a developing economy by examining the roles of environmental knowledge and environmental concern. | AMOS-SEM | ABC theory | Green behavior | According to the results, consumer skepticism of green products reduces their environmental awareness and care, which in turn reduces their propensity to purchase such products. |
| Martinho et al. (2015) | This examines the variables that influence the purchasing and recycling behavior of consumers in relation to sustainable packaging. | ANOVA | Theory of planned behavior | Consumer behavior | The findings indicate that the two groups of consumers differ in terms of gender, environmental consciousness, social conscience, a preference for environmentally friendly products, and the way their actions are perceived. |

**2.3 Literature round-up and contribution**

In light of the abovementioned studies in Table 1, this research has been done to investigate the critical factors of sustainability which have an impact on consumer behavior, there are many few studies that are related to sustainability and consumer behavior but the studies which exactly correspond to the theme of this study are few. Consumer behavior is the method of choosing, buying, and using goods and services. This study also contributes to consumer behavior factors that are most important in achieving sustainability. If organizations analyze consumer behavior and sustainability factors properly, they can achieve long-term sustainable performance. However, consumer behavior is a continuous process, it offers the need to understand different factors of consumer behavior that show how their behaviors can impact sustainability. This study identifies the relationship among critical factors of sustainability towards consumer behavior by using the DEMATEL technique. Consumers’ past experience, information, and time pressure have an impact on sustainability which should be properly understood by the organizations for long-term performance. Furthermore, consumer behavior is a focused purchase condition. Consumers have a responsibility to use products and after their use their disposal as well. This research proposes resilient and diverse factors of sustainability which show a positive impact on consumer behavior.

**3. Methodology**

**3.1 CSF Theory**

In this study, the critical success factor (CSF) theory was applied in order to investigate the factors of sustainability and consumer behavior. The term "success factor" was used by Daniel (1961) for the first time in a book about management. He said that certain industry-related critical success factors (CSF) are important for any company in a certain industry. Bullen and Rockart (1981) define the CSF method as a strategy for identifying the most important influencing factors in a situation. Boynton and Zmud (1984) define critical success factors (CSFs) as "those few things that must go well in order to ensure success." This is the standard definition of CSF, and it can be utilized in any kind of industry. Because there are so many factors that need to be taken into account, the process of making decisions and managing an organization becomes more difficult when the organization has a specific objective in mind. The application of the CSF theory is one way to simplify this complicated situation (Kannan, 2018). The CSF theory enables organizations to concentrate their efforts on the most significant CSF factors, which in turn helps them successfully achieve their goals (Bai and Sarkis, 2013).

**3.2 Selection and validation of proposed factors**

To begin, the goal was to establish a link between long-term sustainability and overall consumer behavior by concentrating on specific areas where appropriate results and maximum efficiency could be obtained. Professionals from the textile sector assessed these critical factors and shared their observations in a survey questionnaire that was sent to participants. We have selected fifteen essential sustainability and consumer behavior factors after a discussion with industry and academic experts for this study, each of which has its importance. The factors that we have selected for this study are shown in Table 2.

**Table 2 Factors of sustainability and consumer behavior**

|  |  |  |
| --- | --- | --- |
| **Factor** | **Description** | **Reference** |
| **Factors of Sustainability** | | |
| Green Attitude (F1) | Green attitudes are the tendency to respond consistently in a positive or negative way to issues about the environment. | (Coşkun, 2017) |
| Green Environment (F2) | The environment is the external conditions that affect the behavior of consumer. Consumer behavior towards the environment can be more favorable in evaluations. This shows that consumers make their purchase decisions towards environmental sustainability and feel motivated. Now consumers are generally more concerned towards resources. This concern makes them responsible to make environmental decisions related to consumption. | (do Paço et al., 2019) |
| Green Brand (F3) | A green brand can be identified as a specific group of brand benefits and attributes related to minimizing the brand's impact on the environment and its perception as being environmentally healthy. | (Hartmann et al., 2005, Simão and Lisboa, 2017) |
| Green Product (F4) | Products that are preferred by consumers because of their low environmental impact throughout the product's life cycle. Green products are those that are organic, environmentally friendly, recyclable, and efficient. | (Yıldırım et al., 2018) |
| Green Value (F5) | The term "green value" refers to the benefits that customers receive from using environmentally friendly goods and services. A product or service's green value is the sum of its monetary, ecological, social, informational, and practical benefits to consumers. | (Kuscu, 2019) |
| Green Loyalty (F6) | The term "green loyalty" describes a consumer's willingness to buy and advocate for an environmentally friendly plastic product. | (Pahlevi and Suhartanto, 2020) |
| Green Trust (F7) | Trust in a product, service, or brand is considered "green" when consumers have faith in that item because of its reputable reputation, good intentions, and superior ability to protect the environment. | (Chen, 2010, Chuah et al., 2020) |
| Green Culture (F8) | The term "green culture" refers to the widespread acceptance within an organization of an ecological, environmentally friendly approach to (co)production. | (Liu and Lin, 2020) |
| **Factors of Consumer Behavior** | | |
| Information (F9) | Information means learning something new. It plays an important role in consumption patterns. Consumer behaviors are influenced by the informational factor in decision making. This is an important activity to achieve sustainability. Consumers have various sources from where they get information. Organizations can first use information to achieve competitive advantage. The role of information can directly influence consumers by making them aware of sustainability. | (Kuchinka et al., 2018) (Gelhard and Von Delft, 2016, Homburg et al., 2009) (Jaca et al., 2018) |
| Social class (F10) | Social class refers to the divide of economic and social rank by society. Those people who share similar interest, behavior and values have an ordered division relatively. This factor is determined by income and measured by lifestyle, education and consumption patterns. It is very important for marketing managers to carefully study it, as consumer behavior influences their purchasing pattern with the social class, they can take suitable measures and actions for consumers according to their social class. | (Ramya and Ali, 2016) |
| Online purchase (F11) | It is web-based shopping that allows consumers to buy products through the internet. There are several studies that have suggested that online purchasing factors have an impact on consumer purchase decision. It is the ability to search for meaningful information from websites. Now businesses are promoting their commercials through the internet, which is a decent idea for engaging their consumers. Businesses collect consumer’s data through the internet. It is an effective way for achieving organizational growth. | (Le and Liaw, 2017) |
| Time pressure (F12) | Time pressure means when consumers have less time to complete the task, it can increase stress. There are many studies which have found that time pressures have an impact on consumer behavior. Time pressure on consumer decision have a relative influence on information processing. Time pressure have impact on consumer decision quality. | (Jang and Namkung, 2009, Peng et al., 2019) |
| Price (F13) | It is the element that is used in buying and selling of goods and services. The price factor is an important pillar of consumer behavior. The discounted price promotion can engage the consumer to purchase the products in a limited time. If consumers do not grasp the offer they will feel regret. Sometimes, its limited-time offer which is given by an organization. It is the opportunity for a consumer to buy the product with low cost and it also helps make profits for companies. | (Graciola et al., 2018) |
| Past experience (F14) | Past experience means people learned activities from their past. Consumer purchasing decision is influenced from their past experiences, such as the quality of the product, the pricing factor and supplier name etc. all these past experiences have influence on consumer’s behavior. Consumers focus on social and environmental sustainability. Companies’ success depends on consumer’s experience. | (Kuchinka et al., 2018, Saunders, 2006) |
| Market place influence (F15) | It is the area where people gather for buying and selling of products. Some consumers have the belief that their decisions and behaviors have an impact on the marketplace. It is directly associated with consumer purchase behavior. Researchers have found that perceived marketplace influence and the individual's behavior help grow sustainable practices. | (Joshi and Rahman, 2019, Leary et al., 2014) |

**3.3 Grey DEMATEL**

The mathematical theory known as the "grey" theory was initially introduced by Ju-Long (1982) based on a grey set. The grey system possesses a significant advantage over other systems in that it is capable of generating potential outcomes with a limited amount of data (Fu et al., 2012). The integration of the grey set theory and the Decision-Making Trial and Evaluation Laboratory (DEMATEL) methodology is proposed as a means to address the inherent uncertainties arising from subjective assessments, thereby improving the precision of empirical findings (Rajesh and Ravi, 2015). The Grey DEMATEL approach commences with the identification of the problem, followed by the development of a problem framework, the establishment of causal connections among variables, the assessment of the degree of influence between variables, and ultimately the analysis of the findings to identify the pivotal factors that drive the problem (Xia et al., 2015).

**3.4 DEMATEL**

To understand the complex relation of sustainability towards consumer behavior, the (MCDM) DEMATEL approach becomes the best tool to analyze. Many researches employed the DEMATEL methodology in the domain of consumer behavior. DEMATEL evaluates as the solution methodology in this study. Gabus and Fontela (1972) introduced the DEMATEL approach (Aggarwal and Jha, 2019). This method has many benefits which provide decision-makers and experts to understand the interdependence and influential relation between the criteria by hierarchical approach. The approach of DEMATEL is to analyze the cause-and-effect relationship among compared of factors to other alternative techniques (Song et al., 2020). CSF of sustainability towards consumer behavior is executed in the textile sector by DEMATEL.

The steps of the methodology for DEMATEL are described as below (Zhang et al., 2019).

Step 1: Calculation of Initial Relationship Matrix (A)

Firstly, the DEMATEL technique is applied by calculating the initial relationship matrix ‘A’ which is based on the expert replies from the selected industry. The scale range is from 0-4.

Were,

0 denotes ‘No Influence (N)’

1 denotes ‘Very Low Influence (VL)’

2 denotes ‘Low Influence (L)’

3 denotes ‘High Influence (H)’

4 denotes ‘Very High Influence (VH)’

=

Step 2: Normalization (Y) An initial relation matrix will then normalize by dividing every value in the matrix (A) by the highest sum of row values as mentioned in the following equation.

Step 3: development of Total Relation Matrix (TRM)

Thirdly, the development of TRM is employed. It is retrieved with the help of normalized matrix which is calculated in the previous through equation (4) in which ‘I” implies the identify matrix.

Explanation

Then,

When

Step 4: Computation of the sum of rows and columns

‘’ and ‘’ signify the total of rows and columns. It gets from equation (5) and (6)

=; =

(6)

Step 5: Development of Causal diagram

If is sum of row in the matrix T, then shows the sum of the effect of factor *i* the other factors. On the other side, if is the total of column of matrix T, then shows the total sum of the effect of factor *j* on the other factors. The above-mentioned rule will help in developing the causal diagram.

**3.5 Expert’s Data Collection Procedure**

In order to gather expert opinions, a survey questionnaire was created, as illustrated in Appendix A. In response to this questionnaire, 33 experts from textile companies in Pakistan were contacted. It was decided which experts to invite based on their experience and knowledge of ethical decision-making processes in their respective organizations. Each expert has a minimum of three years of professional experience as well as a bachelor's degree in their field. Additionally, subject matter experts were chosen based on their willingness to participate in our research, and one of the researchers visited specific companies to obtain permission to participate in the study.

The expert sample technique, which is a non-probability sampling strategy, was used to select experts for the study. It is a technique in which when a researcher chooses a sample unit based on his or her own expertise, he or she is considered to be using a subset of purposive sampling. A representative sample of people with verifiable expertise and competence in the industry must be gathered in order to complete this task effectively. The first step in expert sampling is to establish the criteria that will be used by the expert (Khan et al., 2021a). In the consumer field, an expert is defined as someone who has worked in the field for at least three years at the level of assistant director or equivalent. This strategy has been used in a number of different investigations. In light of the structure and design of systems for multi-attribute data management, such as DEMATEL, a sample size of approximately 30 people is considered to be quite acceptable (Xia et al., 2015, Govindan et al., 2015, Govindan et al., 2016, Luthra et al., 2017). The vast majority of studies on multi-attribute decision making employ sample sizes ranging from ten to fifteen participants (Khan et al., 2021b). In this instance, a sample size of 29 people is deemed sufficient. The authors spoke with these experts to find out their thoughts regarding the critical success factors of sustainability and consumer behavior.

Before data collection, researchers set the study's goal, purpose, and objective. The findings' significance was also explained to the specialists, calming their concerns. After a brief discussion and clarification, all experts received email questionnaires to complete. All surveys were completed within the timeframe. They were successful.

**Table 3 Demographic of Experts**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No.** | **Education** | **Number of Experts** | **Department** |
| 1 | PhD | 8 | Planning |
| 2 | MBA | 5 | Operations |
| 3 | CA | 3 | Compliance |
| 4 | MS | 3 | Production |
| 5 | ME | 2 | Supply Chain |
| 6 | BS | 5 | Human Resource |
| 7 | BE | 3 | HSE |

**Table 4 Demographic of Textile Companies**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No.** | **Company Name** | **Specialized Product** | **No. of Employees** |
| 1 | Laiba Textile Mills | Fabrics, Bed sheets | 5200 |
| 2 | Saber Textile Mills | Fabrics, Printed, Socks | 4700 |
| 3 | Ikram Textile Mills | Bed sheets, Comforters | 4100 |
| 4 | Bali Textile Mills | Women Clothing, Embroidery | 3700 |
| 5 | Avari Textile Mills | Cotton, Lawn, Fabrics | 3100 |
| 6 | Lawn Mills Limited | Denim, Beddings | 2700 |
| 7 | Evan Textile Mills | Men’s Clothing’s, Towels | 2100 |

**3.6 Case study**

The textile and clothing industry, which plays an important role in the day-to-day lives of people everywhere, is one of the most globally competitive industries in the world (Desore and Narula, 2018a). Pakistan is a leading textile exporter. Asia's 8th largest textile exporter is Pakistan. Cotton production and consumption rank 4th and 3rd, respectively. 46% of the manufacturing sector and 40% of the workforce work in it. Stock exchanges list 5% of textile companies. The nation has 423 textile factories. Pakistan supplies most synthetic and natural yarns and fabrics, including cotton, rayon, and others. Due to its cost and operational lead time benefits, Pakistan's abundance of raw materials is a major advantage (InvestPakistan). The textile industry usually sells products in bulk and many various sources of online selling products. Textile industries contain 57% of total exports. Currently, the demand of this industry is increasing in the global market (Ejuu, 2019). It contributes 8.5 % of the GDP of the overall country in 2018, in the annual report basis of 2018 there was 12.8% textile goods increase. The most emerged export stocks are dresses, socks and nylons which collect around 24% total revenue. Moreover, bed sheets and pillow cover contribute Rs.227 billion (Memon et al., 2020). Sustainability is the most popular concern in recent years. Many companies want to implement sustainability.

In Pakistan, many suppliers are forcefully adopting sustainability (Aggarwal and Jha, 2019). The journey of the textile industry has not always been a smooth road. Recently companies also face problems to find out what CSFs of consumer behavior are helpful to adopt sustainability and also faces economic crisis in entrance of internationally include: rising expenses in manufacturing, increasing of power tariff, decline a sharp in the local value of currency, commodities price increasing and many different factors consider for downfall in Pakistan’s textile industry (Arshad and Arshad, 2019). The textile industry has a major impact on the production phase of the life cycle because of the energy and non-renewable resources used in fiber production, the large amounts of water, crop land, and chemicals used, and the air and water emissions. Landfilling unwanted textiles during the disposal phase contributes to an already existing issue with fiber decomposition (Paço et al., 2021). Due to the textile industry's devastating effects on the natural world, environmental sustainability has emerged as a top priority for both textile companies and their customers (Khan and Islam, 2015). Textile and clothing waste comes from manufacturing, marketing, consumption, and design. Industrial trends and consumer preferences determine the types of products, consumption rate, and recycling methods, which in turn determine the quality and quantity of this waste (Paço et al., 2021). Many textile chemicals are harmful to the environment, factory workers, and consumers. Textile waste is found worldwide, but textile and garment manufacturing countries have the greatest environmental impacts (Niinimäki et al., 2020). The Pakistani textile export sector is experiencing difficulties as a result of the severe environmental challenges currently confronting the Pakistani industrial sector. Additional research is required to fill the gap in the literature concerning the effects of industry practices on environmental performance in Pakistan's textile industry.

**3.7 Proposed framework Application**

It was practiced by three phases in textile sector. Phase 1 identifying the factors of sustainability towards consumer behavior; phase 2 DEMATEL deals on collected the critical factors of sustainability and consumer behavior and phase 3 validate the result. Every step mentions below in detail.

Phase 1 is identifying the critical factors of sustainability and consumer behavior, it consists of two steps. In step one manages with assemble of CSFs of sustainability and consumer behavior. The CSFs of sustainability towards consumer behavior were collected from the literature. The literature review has directed with in term of containing sustainability and consumer behavior, After the evaluation, 15 CSFs of sustainability towards consumer behavior were identified; for more accurate results, collected, the decision maker and experts were participating for analyze the result of CSFs of sustainability towards consumer behavior. These factors were completed with experts. It was based on the evaluation. The list of critical factors of sustainability towards consumer behavior are shown in Table 2. The second step consists of the development of a questionnaire by circulated CSFs of sustainability towards consumer behavior. After evaluation of CSFs of sustainability towards consumer behavior, the questionnaire was established. This questionnaire distributes to the textile managers. It was made with evaluation scale from 0 to 4. The 0 denotes no influence (N) and 4 denotes very high influence (VH). After filling questionnaires by textile managers then proceed further evaluation process of the DEMATEL Approach.

Phase 2 is the DEMATEL application. The steps of DEMATEL are described as below (Aggarwal and Jha, 2019).

1. Calculation of initial relationship matrix A

The initial relationship matrix A based on expert’s replies were identified in equation from (1) as shown in table 5.

1. Calculation of normalization matrix X

The normalization matrix X as shown in table 6.

1. Calculation of total relationship matrix (TRM)

Applied the normalization relationship matrix by equation (4) to achieve total relationship matrix T as seen in Table 7.

1. Calculation of total of rows and columns

The 'ri' is mentioned as the total of rows and the 'si' is mentioned as total of columns. It gets from equations (5) & (6) as shown in Table 8.

**3.8 Development of causal diagram**

This is the DEMATEL approach last step to develop the causal diagram through which experts can find the influential factors of consumer behavior that were examined. The influential diagram between the CSF of sustainability towards consumer behavior is drawn and it is shown in fig 2. The x-axis is made through ri + si values and y-axis is made through ri - si. The top position indicates the most influential factors while the lowest position indicates the least influential factors.

**Figure 1 Proposed framework**

**Goal**

Tofind the most critical factors of consumer behavior towards sustainability

**Step 1**

Frame collection of critical factors of consumer behavior towards sustainability in textile sector

**Step 2**

Comparison pairwise framed among collected the critical factors of consumer behavior by help of decision-makers

**Step 3**

The success factors were analyzing by (MCDM) DEMATEL

**Step 4**

Results based on DEMATEL, the best critical factors selected

**Result**

After discussions and feedbacks, identify the most relevant critical factors and prioritized them

**Table 5 Initial relationship matrix in appendix**

**Table 6 Normalized matrix (Y) in appendix**

**Table 7 Total relationship matrix in appendix**

**Table 8 Sum of rows and columns (ranking)**

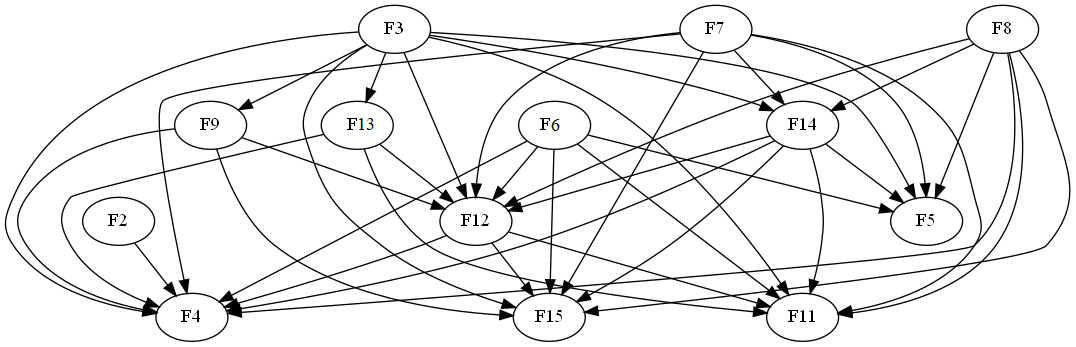
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fs** | **ri** | **si** | **ri+si** | **ri-si** | **Identify** |
| **F 1** | 7.31663 | 8.21665 | 15.5333 | -0.9 | effect |
| **F 2** | 8.07939 | 7.84488 | 15.9243 | 0.23452 | cause |
| **F 3** | 9.13707 | 7.17264 | 16.3097 | 1.96443 | cause |
| **F 4** | 6.86493 | 9.44058 | 16.3055 | -2.5757 | effect |
| **F 5** | 7.83198 | 8.66776 | 16.4997 | -0.8358 | effect |
| **F 9** | 8.49624 | 8.19179 | 16.688 | 0.30446 | cause |
| **F 7** | 8.68292 | 7.79979 | 16.4827 | 0.88313 | cause |
| **F 13** | 8.84846 | 7.29858 | 16.147 | 1.54988 | cause |
| **F 6** | 8.5041 | 8.06741 | 16.5715 | 0.43669 | cause |
| **F 10** | 7.68896 | 7.43736 | 15.1263 | 0.2516 | cause |
| **F 11** | 7.68592 | 8.9077 | 16.5936 | -1.2218 | effect |
| **F 12** | 8.41879 | 8.84134 | 17.2601 | -0.4225 | effect |
| **F 8** | 8.85626 | 6.86308 | 15.7193 | 1.99318 | cause |
| **F 14** | 8.57087 | 8.70373 | 17.2746 | -0.1329 | effect |
| **F 15** | 7.35666 | 8.88587 | 16.2425 | -1.5292 | effect |

**Table 9 Sum of rows and columns (influence)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fs** | **ri** | **si** | **ri+si** | **ri-si** | **Identify** |
| **F 8** | 8.85626 | 6.86308 | 15.7193 | 1.99318 | cause |
| **F 3** | 9.13707 | 7.17264 | 16.3097 | 1.96443 | cause |
| **F 13** | 8.84846 | 7.29858 | 16.147 | 1.54988 | cause |
| **F 7** | 8.68292 | 7.79979 | 16.4827 | 0.88313 | cause |
| **F 6** | 8.5041 | 8.06741 | 16.5715 | 0.43669 | cause |
| **F 9** | 8.49624 | 8.19179 | 16.688 | 0.30446 | cause |
| **F 10** | 7.68896 | 7.43736 | 15.1263 | 0.2516 | cause |
| **F 2** | 8.07939 | 7.84488 | 15.9243 | 0.23452 | cause |
| **F 14** | 8.57087 | 8.70373 | 17.2746 | -0.1329 | effect |
| **F 12** | 8.41879 | 8.84134 | 17.2601 | -0.4225 | effect |
| **F 5** | 7.83198 | 8.66776 | 16.4997 | -0.8358 | effect |
| **F 1** | 7.31663 | 8.21665 | 15.5333 | -0.9 | effect |
| **F 11** | 7.68592 | 8.9077 | 16.5936 | -1.2218 | effect |
| **F 15** | 7.35666 | 8.88587 | 16.2425 | -1.5292 | effect |
| **F 4** | 6.86493 | 9.44058 | 16.3055 | -2.5757 | effect |

**Figure 2 Causal diagram**

**Figure 3 Causal diagram**

**~~~~**

**4. Results and Discussion**

This study has an effective response to the implementation of critical success factors of sustainability towards consumer behavior in the textile industry. The DEMATEL approach has been tested with collected critical success factors of consumer behavior with experts for implementation. Table 9 has shown the results. It has a total of rows and columns. When the value of ri - si is negative, it indicates that one factor is highly influenced by another (or has a "net effect"). By contrast, if ri - si is positive, it indicates that the factor in question exerts a substantial amount of influence over the other factors in question (i.e., is a "net cause"). The significance of a connection between variables is described by the sum of their correlation coefficients (ri + si). Strong relationships between these factors are represented by large values of ri + si, while weak relationships are represented by small values of ri + si (Ocampo et al., 2018). A causal diagram (Figure 2) was created after receiving green-light from the decision group and computing the total relation matrix. The significance of enablers is outlined along the horizontal axis that is indicated by the ri + si column. The labeling of the cause and effect group is represented by the relative column of ri – si, which is plotted on the vertical axis of the graph. The causal diagram offers an explanation of the analysis of the key factors that contribute to the successful shift in consumer behavior toward sustainability. The complexity of the situation is simplified and made easier to understand by using the causal diagram, which also makes it easier to make significant decisions (Lin, 2013). Practitioners and researchers can find the factors that are influenced by others as well as the factors that influence others by analyzing the relative importance as well as the position of the various factors. As shown in Table 9, the critical success factors of consumer behavior from the perspective of sustainability are found as F8> F3> F13> F7> F6> F9> F10> F2> F14> F12> F5>F1> F11> F15>F4 with reference to performance factors importance (ri - si).

From Table 9, the most influential factors are green culture (F8) and green brand (F3) having values 1.99 and 1.66 respectively. According to figure 3 Green culture (F8) is influencing four factors namely, online purchase (F11), time pressure (F12), past experiences (F14), and marketplace influence (F15). Green culture (F8) was revealed as the top CSF and this result is supported by the findings of Sharma et al. (2021) who also found that green culture is an important factor for achieving sustainability, also influence online purchase (F11) of consumers (Hussain and Huang, 2022). Researchers (Bissing-Olson et al., 2016) found that people with a stronger green cultural identity prioritized sustainability and engaged in environmentally friendly behaviors, even when time pressure (F12) was present. This may indicate that green culture has an impact on how people prioritize their activities. The growing demand for eco-friendly products and services demonstrates the impact of green culture on the marketplace (Bansal and Roth, 2000). In turn, the marketplace has influenced green culture by shaping consumer attitudes and behaviors regarding environmental sustainability.

Furthermore green brand (F3) is another influential factor that is influencing information (F9), online purchase (F11), price (F13), and past experiences (F14). Several studies have also acknowledged the significance of green brand (F3). For example, a study conducted by Gong et al. (2021) validated the effects of green branding on the responses of customers. In a similar manner, Chen et al. (2020) suggested that a green brand story is beneficial to the perception of online purchase (F11). Moreover, Green branding, which means putting environmental sustainability and responsible resource use into a brand's identity, has been found to affect how consumers think about information (F9) about products and services. In particular, research has shown that green branding can change how consumers see the quality, value, and trustworthiness of a product (Polonsky and Rosenberger III, 2001). As per Figure 3 green brand (F3) influences prices (F13) as well. Recent research demonstrates that green branding can increase consumers' willingness to pay higher prices for environmentally friendly products, especially when they perceive the brand to align with their personal values and beliefs (Ewe and Tjiptono, 2023). These two most influential factors green culture (F8) and green brand (F3) are followed by green trust (F7) and green loyalty (F6). Similarly, the least influential factor is green environment (F2) having a value 0.23. On the other hand, according to Table 9 past experience (F14) and time pressure (F12) are the most influenced factors with -0.13 and -0.42 values, respectively. As per Medalla et al. (2021) past experiences (F14) of consumers impact their perception of the green product (F4) features. Further, price (F13) during the purchasing process has a profound impact on green product’s (F4) purchase decisions. In Pakistan, the primary determinant of consumer choice for green products is price, as consumers assess the product's value based on the cost incurred relative to the benefits received (Khan and Mohsin, 2017).

**4.1 Contribution to theory**

Sustainable concept development is not something new, but it seems to be getting more and more important in many businesses (Kineber et al., 2021). The CSF theory was applied to use in order to suggest a framework for analyzing relations between recognized critical factors of sustainability with regard to consumer behavior. Through the CSF theory, the authors identified critical factors of sustainability and consumer behavior that are both the most important and have the most productive relationships. These factors are most important because they are the ones that have the most effective relationships. In addition to being one of the first studies of its kind to be conducted using the DEMATEL method in a developing nation such as Pakistan, this research also sought to validate its findings through consultation with textile industry professionals. The act of selecting and purchasing various goods and services is an example of consumer behavior. This study makes a contribution to the consumer behavior factors that are most important in achieving sustainability. This is because sustainability helps to improve economic, environmental, and social conditions.

**4.2 Practical implication**

This research has major practical suggestions for the critical factors of sustainability towards consumer behavior. According to the theoretical framework, organizations are using effective ways to work on natural resources and started to implement techniques to reduce the wastage of industry which is increasing day by day. It is suggested to the textile industry to start working on green culture (F3) to improve their manufacturing brand process, culture shift across to global is impact on consumer. Industry must know the fashion trend within the culture it will attract consumers and make cultural compatibility across consumer segments by providing the context variety to satisfy the consumer interest. This will help to sector to target the audience worldwide (Blazquez et al., 2020). Green brand (F3) is suggested to the textile sector, that industry improve their brand by creative an effective message, make according to the consumer preferences and create it unique. These branding strategies are the key success of industries, this will make a strong position in the market and also gain a competitive advantage. Providing cheap quality material, textile lose their consumers (Ceylan, 2019). Textile companies should maintain price (F13) to make good quality materials like using of green raw materials (recycled material) can make quality product and also achieve consumer satisfaction with low price. Textile companies should work on green trust (F7) to promote credibility products. Organizations should use credibility in their advertisement as they make product which they promised in their advertisement. It will help to develop a positive consumer trust towards organization.

The textile industry should start working on online purchase (F11) it will help to achieve advancement technology, many industries are selling their products through the internet with efficient speed. It is a very effective strategy; it provides speedy delivery to the consumers and also gives a chance to expand their business worldwide. For gaining green loyalty (F6) textile industry should promote loyalty programs like offering a member ship card to consumer with point collection for special discounts and offer sale promotions including rebates, free premium and cash back offers. These loyalty programs can enhance the reputation of the industry as well as make consumer post purchase behavior stronger (Desore and Narula, 2018b). For improvement the climate, green environment (F2) sustainability is suggested to the textile industry. There are number of chemicals are used in industry, which evaporate into air and harm our climate, textile industry should recycle and reuse the material which can be achieved great environmental benefits through less consuming and keeping garments longer. Land filling and recycling energy also reduce environmental damage. This change will become positive outcomes for Pakistan. Information (F9) is suggested to the textile industry to focus on that when they are launching a new product. Collecting the information is also known as market research, companies must collect data from their target audience and compare it. It provides a deep understanding on your competitors and consumers. It will help the textile sector to gain new opportunities (Kuo and Smith, 2018).

**4.3 Managerial implication**

Managers should need to focus on undertake evaluation and social analysis and identify social opportunities which reduce risk it is suggested to managers to work on past experience (F14). It will improve the chance of textiles to reduce the mistakes in which they have made in their workplace. Collecting feedback is the most effective tool to use against their competitors, it can improve their seasonal demands and also improves managerial forecasting. Green value (F5) will be a factor that managers should focus on to make marketing strategies good, activities of marketing managers are suggested to carry out by consumers themselves in order to get product value. Staying with the consumers can increase their market share. To improve their brand delivery system time pressure (F12) is suggested to managers. Longer time consumption leads negative impact on their product reputations, it will improve the transportation system, and suppliers process and minimize human error thus if managers focus on, it will improve overall manufacturing process (Blazquez et al., 2020). Similarly, managers should understand the green attitude (F1) of consumers to improve their brand selling decision and also improve promotions channel at what are the best channel should use to promote their brands, improve prices at which consumers would be easily ready to purchase their brands and improves designing the best possible brand that fully satisfies the consumer’s need and wants. It is the factor that managers need to establish in actionable guidelines on how to implement closed learning with consumer attitude.

After improving promotion, price and designing decision according to consumer attitude, managers should decide according to the marketplace (F15). It will improve textile brand placement. Shelf place and the brand display is very important, it is not only the attention of consumers and sight attract, but also consumers increase their consumption. So, managers should need to identify their proper brand placement in the market. It brings make more profits from the market. Organizational managers suggested to use durable product features (F4) and make changes with the understanding of consumers. For good product features managers make a goal to achieve long-lasting success, proper working is required to the managers to measure the impact of features to the consumers and estimate its success, and after change is implemented compare actual result to your expected result. This will help managers to understand that are there any additional features or changes which are required in the future (Desore and Narula, 2018b). Brand reputation is needed to establish in different classes instead of only one class. Therefore, managers should maintain their social class (F10) to improve brand reputation. The higher class always want fine brand with expensive, middle class just satisfying their wants which they created with minimum cost. Similarly, the lower class are concerned with simple getting by, they just focus on basic necessities. Each social class has different purchasing pattern. A manager should understand dynamic of social class to develop brand reputation (Shamsi and Siddiqui, 2017).

**5. Conclusion**

The purpose of this study was to identify factors of sustainability towards consumer behavior. Consumer behavior plays an important role to implement sustainability. With increasing concern about sustainability, the industry is making more focus on effective strategies. This study could improve the problems of consumer behavior by identifying the most critical factors of sustainability by implementation in the textile industry. In this study, 15 common CSFs of sustainability and consumer behavior were collected and validated results from literature with the field of experts. Moreover, DEMATEL is used to analyze the result. Based on the replies of experts proposed a model of framework and tested in the textile industry. According to the result, green culture (F8) shows top position in diagram which clearly understand the consumer culture is the most influential factor for implementation in the textile industry. While green product (F4) leads low position in the diagram which means it is a low influential factor of consumer behavior in implementation. Focusing on the most influential factors can help other influential factors to be calculated.

**5.1 Limitations and future directions**

There are a number of limitations to this study that need to be investigated further. First, due to the situation of a pandemic the authors were unable to collect data from a large sample size so, the sample size is based on expert sampling from the opinions of the experts of textile, and this is why the sample size was limited. In the future researchers can work with the large sample size to conduct a more detailed analysis of these critical factors of sustainability and consumer behavior. It would also be of interest to replicate the study using new samples from different countries or cultures in order to conduct a comparative analysis that would allow for more precise identification of the critical factors of sustainability towards consumer behavior. This research study was conducted on the MCDM DEMATEL technique. This study was put together based on the opinions of experts, and the results can be interpreted based on personal preferences. In fact, weights and ratings can be based on the evaluator's opinion of what's important, so they have a lot of subjectivity. It would be interesting for future research efforts to use a mixed-method approach in this area.

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**Appendices**

**Table 4 Initial relationship matrix**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Fs** | **F 1** | **F 2** | **F 3** | **F 4** | **F 5** | **F 6** | **F 7** | **F 8** | **F 9** | **F 10** | **F 11** | **F 12** | **F 13** | **F 14** | **F 15** |
| **F 1** | 0 | 2 | 2 | 3 | 2 | 2 | 4 | 3 | 1 | 1 | 3 | 2 | 3 | 4 | 2 |
| **F 2** | 1 | 0 | 2 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 |
| **F 3** | 1 | 2 | 0 | 4 | 3 | 4 | 4 | 2 | 4 | 2 | 3 | 4 | 3 | 4 | 3 |
| **F 4** | 2 | 2 | 3 | 0 | 2 | 1 | 2 | 1 | 2 | 2 | 3 | 4 | 2 | 3 | 3 |
| **F 5** | 4 | 3 | 3 | 3 | 0 | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 2 | 2 | 3 |
| **F 6** | 3 | 3 | 3 | 3 | 2 | 0 | 2 | 4 | 3 | 4 | 3 | 3 | 2 | 3 | 2 |
| **F 7** | 2 | 3 | 4 | 4 | 3 | 2 | 0 | 3 | 2 | 2 | 4 | 3 | 2 | 4 | 3 |
| **F 8** | 3 | 3 | 3 | 4 | 3 | 3 | 3 | 0 | 3 | 4 | 2 | 3 | 2 | 3 | 3 |
| **F 9** | 3 | 3 | 2 | 3 | 3 | 3 | 4 | 3 | 0 | 2 | 2 | 3 | 3 | 3 | 3 |
| **F 10** | 1 | 2 | 3 | 3 | 3 | 4 | 3 | 2 | 2 | 0 | 2 | 3 | 2 | 2 | 4 |
| **F 11** | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 | 4 | 3 | 0 | 2 | 2 | 2 | 3 |
| **F 12** | 4 | 2 | 2 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 4 | 0 | 2 | 3 | 3 |
| **F 13** | 3 | 4 | 4 | 3 | 3 | 3 | 2 | 1 | 3 | 3 | 4 | 4 | 0 | 2 | 3 |
| **F 14** | 4 | 3 | 0 | 3 | 4 | 3 | 3 | 2 | 3 | 2 | 4 | 3 | 3 | 0 | 4 |
| **F 15** | 4 | 3 | 0 | 4 | 3 | 3 | 1 | 2 | 2 | 1 | 3 | 3 | 2 | 4 | 0 |

**Table 5 Normalized matrix (Y)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **F 1** | **F 2** | **F 3** | **F 4** | **F 5** | **F 6** | **F 7** | **F 8** | **F 9** | **F 10** | **F 11** | **F 12** | **F 13** | **F 14** | **F 15** |
| **F 1** | 0 | 0.046 | 0.046 | 0.069 | 0.046 | 0.046 | 0.093 | 0.069 | 0.023 | 0.023 | 0.069 | 0.046 | 0.069 | 0.093 | 0.046 |
| **F 2** | 0.023 | 0 | 0.046 | 0.069 | 0.093 | 0.069 | 0.069 | 0.069 | 0.069 | 0.069 | 0.069 | 0.069 | 0.046 | 0.046 | 0.069 |
| **F 3** | 0.023 | 0.046 | 0 | 0.093 | 0.069 | 0.093 | 0.093 | 0.046 | 0.093 | 0.046 | 0.069 | 0.093 | 0.069 | 0.093 | 0.069 |
| **F 4** | 0.046 | 0.046 | 0.069 | 0 | 0.046 | 0.023 | 0.046 | 0.023 | 0.046 | 0.046 | 0.069 | 0.093 | 0.046 | 0.069 | 0.069 |
| **F 5** | 0.093 | 0.069 | 0.069 | 0.069 | 0 | 0.069 | 0.046 | 0.046 | 0.069 | 0.069 | 0.046 | 0.046 | 0.046 | 0.046 | 0.069 |
| **F 6** | 0.069 | 0.069 | 0.069 | 0.069 | 0.046 | 0 | 0.046 | 0.093 | 0.069 | 0.093 | 0.069 | 0.069 | 0.046 | 0.069 | 0.046 |
| **F 7** | 0.046 | 0.069 | 0.093 | 0.093 | 0.069 | 0.046 | 0 | 0.069 | 0.046 | 0.046 | 0.093 | 0.069 | 0.046 | 0.093 | 0.069 |
| **F 8** | 0.069 | 0.069 | 0.069 | 0.093 | 0.069 | 0.069 | 0.069 | 0 | 0.069 | 0.093 | 0.046 | 0.069 | 0.046 | 0.069 | 0.069 |
| **F 9** | 0.069 | 0.069 | 0.046 | 0.069 | 0.069 | 0.069 | 0.093 | 0.069 | 0 | 0.046 | 0.046 | 0.069 | 0.069 | 0.069 | 0.069 |
| **F 10** | 0.023 | 0.046 | 0.069 | 0.069 | 0.069 | 0.093 | 0.069 | 0.046 | 0.046 | 0 | 0.046 | 0.069 | 0.046 | 0.046 | 0.093 |
| **F 11** | 0.069 | 0.046 | 0.069 | 0.046 | 0.069 | 0.046 | 0.046 | 0.069 | 0.093 | 0.069 | 0 | 0.046 | 0.046 | 0.046 | 0.069 |
| **F 12** | 0.093 | 0.046 | 0.046 | 0.069 | 0.069 | 0.069 | 0.046 | 0.069 | 0.069 | 0.069 | 0.093 | 0 | 0.046 | 0.069 | 0.069 |
| **F 13** | 0.069 | 0.093 | 0.093 | 0.069 | 0.069 | 0.069 | 0.046 | 0.023 | 0.069 | 0.069 | 0.093 | 0.093 | 0 | 0.046 | 0.069 |
| **F 14** | 0.093 | 0.069 | 0 | 0.069 | 0.093 | 0.069 | 0.069 | 0.046 | 0.069 | 0.046 | 0.093 | 0.069 | 0.069 | 0 | 0.093 |
| **F 15** | 0.093 | 0.069 | 0 | 0.093 | 0.069 | 0.069 | 0.023 | 0.046 | 0.046 | 0.023 | 0.069 | 0.069 | 0.046 | 0.093 | 0 |

**Table 6 Total relationship matrix**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **F1** | **F 2** | **F 3** | **F4** | **F5** | **F6** | **F 7** | **F 8** | **F 9** | **F 10** | **F 11** | **F 12** | **F 13** | **F 14** | **F15** |
| **F1** | 0.442 | 0.466 | 0.429 | 0.572 | 0.510 | 0.481 | 0.503 | 0.456 | 0.456 | 0.422 | 0.545 | 0.519 | 0.433 | 0.553 | 0.521 |
| **F2** | 0.511 | 0.465 | 0.470 | 0.624 | 0.599 | 0.550 | 0.525 | 0.498 | 0.5440 | 0.507 | 0.591 | 0.588 | 0.449 | 0.559 | 0.592 |
| **F3** | 0.577 | 0.571 | 0.480 | 0.718 | 0.646 | 0.633 | 0.606 | 0.533 | 0.627 | 0.543 | 0.663 | 0.679 | 0.525 | 0.669 | 0.661 |
| **F4** | 0.459 | 0.438 | 0.423 | 0.474 | 0.481 | 0.436 | 0.436 | 0.390 | 0.451 | 0.417 | 0.5155 | 0.5310 | 0.390 | 0.504 | 0.513 |
| **F5** | 0.556 | 0.515 | 0.476 | 0.607 | 0.496 | 0.535 | 0.493 | 0.464 | 0.527 | 0.490 | 0.555 | 0.552 | 0.439 | 0.545 | 0.574 |
| **F6** | 0.575 | 0.552 | 0.512 | 0.653 | 0.584 | 0.511 | 0.532 | 0.541 | 0.568 | 0.550 | 0.618 | 0.616 | 0.472 | 0.607 | 0.599 |
| **F7** | 0.568 | 0.563 | 0.541 | 0.686 | 0.618 | 0.565 | 0.496 | 0.528 | 0.560 | 0.517 | 0.653 | 0.628 | 0.481 | 0.640 | 0.632 |
| **F8** | 0.597 | 0.573 | 0.530 | 0.698 | 0.627 | 0.596 | 0.571 | 0.473 | 0.587 | 0.567 | 0.622 | 0.639 | 0.489 | 0.630 | 0.642 |
| **F9** | 0.578 | 0.555 | 0.492 | 0.654 | 0.605 | 0.575 | 0.571 | 0.520 | 0.502 | 0.508 | 0.601 | 0.616 | 0.493 | 0.608 | 0.619 |
| **F10** | 0.488 | 0.487 | 0.469 | 0.598 | 0.553 | 0.548 | 0.502 | 0.456 | 0.499 | 0.419 | 0.547 | 0.564 | 0.430 | 0.536 | 0.586 |
| **F11** | 0.528 | 0.486 | 0.468 | 0.577 | 0.553 | 0.507 | 0.485 | 0.476 | 0.540 | 0.483 | 0.499 | 0.542 | 0.432 | 0.535 | 0.566 |
| **F12** | 0.594 | 0.5281 | 0.486 | 0.647 | 0.599 | 0.569 | 0.526 | 0.516 | 0.562 | 0.523 | 0.634 | 0.544 | 0.468 | 0.602 | 0.613 |
| **F13** | 0.597 | 0.593 | 0.551 | 0.677 | 0.628 | 0.597 | 0.551 | 0.498 | 0.590 | 0.547 | 0.664 | 0.659 | 0.445 | 0.609 | 0.641 |
| **F14** | 0.606 | 0.559 | 0.453 | 0.656 | 0.629 | 0.577 | 0.552 | 0.504 | 0.570 | 0.511 | 0.645 | 0.618 | 0.495 | 0.546 | 0.643 |
| **F15** | 0.533 | 0.488 | 0.386 | 0.592 | 0.532 | 0.503 | 0.443 | 0.438 | 0.478 | 0.424 | 0.546 | 0.5402 | 0.414 | 0.554 | 0.478 |

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# Survey Questionnaire

**Identifying and exploring relationship among critical factors of sustainability towards consumer behavior**

Position in company: XXX Experience (years): XXX

Educational level: XXX Organization type: XXX

Respected Sir,

We are conducting this research to identify and exploring relationship among critical factors of sustainability towards consumer behavior in textile sector. Nowadays, consumer behavior is more concern towards sustainability because consumer behavior is the method of choosing, using and disposal of goods and services which directly leads to better economic, social, environmental sustainable performance of organizations and creates a competitive advantage. Given table shows the factors of consumer behavior that were recognized in literature.

## **Factor’s Description and Validation**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | **Factors** | **Description** | **Relevant (Yes/No)** |
| F1 | Attitude | Opinions, ideas and beliefs of consumer shows that how much they are concerned about sustainability. | YES |
| F2 | Information | The role of information influence on consumers by making them aware of sustainability. | YES |
| F3 | Brand | Sustainable Brands can influence consumers and their changing consumption pattern. | YES |
| F4 | Social class | Organizations should carefully study that consumer behavior influences their purchasing pattern with the social class. | YES |
| F5 | Time pressure | When consumers have less time to complete the task impact on consumer decision quality and information process. | YES |
| F6 | Loyalty | Organizations should promote eco-friendly products which help to measure consumer loyalty that how consumers frequently purchase the products. | YES |
| F7 | Trust | The importance of trust and credibility of consumer have significant impact on organizational sustainable performance. | YES |
| F8 | Price | Organizations offer discounted price promotion can engage the consumer to purchase the products in limited time. | YES |
| F9 | Online purchase | Businesses are promoting their commercials through internet, which is the decent idea for engaging their consumers. | YES |
| F10 | Environment | Organizations focus on decreases in harmful wastes. It will help to take a responsible environmental decision. | YES |
| F11 | Marketplace influence | The area which people gather for buying and selling of products associated with consumer purchase behavior and decision. | YES |
| F12 | Value | Gives the value to the consumer by organization has impact on consumer attitude. | YES |
| F13 | Culture | Organizations adopt the strategies which influences the consumer’s culture, in this way they adopt competitive advantage. | YES |
| F14 | Past experience | Consumer past experience towards the quality of product, the pricing factor and supplier name, help an organization to generate profit. | YES |
| F15 | Product feature | Organizations should make durable products, it has positive outcomes when product features meet the consumer’s expectations | YES |

## **Comparison Scale Table**

|  |  |
| --- | --- |
| **Numeral** | **Definition** |
| 0 | No influence |
| 1 | Low influence |
| 2 | Medium influence |
| 3 | High influence |
| 4 | Very high influence |
| “i” is on vertical axis and “j’ is on horizontal axis | |

You are required to use the below comparison table to compare each indicator and their influence of indicator on indicator .

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **F 1** | **F 2** | **F 3** | **F 4** | **F 5** | **F 6** | **F 7** | **F 8** | **F 9** | **F 10** | **F 11** | **F 12** | **F 13** | **F 14** | **F 15** |
| **F 1** | 0 | 3 | 4 | 1 | 0 | 4 | 4 | 1 | 1 | 2 | 2 | 1 | 2 | 1 | 1 |
| **F 2** | 3 | 0 | 2 | 3 | 1 | 2 | 1 | 1 | 2 | 0 | 1 | 2 | 2 | 2 | 1 |
| **F 3** | 4 | 2 | 0 | 4 | 2 | 3 | 4 | 3 | 3 | 2 | 3 | 0 | 0 | 2 | 2 |
| **F 4** | 1 | 1 | 4 | 0 | 1 | 2 | 1 | 2 | 2 | 2 | 3 | 1 | 2 | 1 | 1 |
| **F 5** | 0 | 1 | 2 | 3 | 0 | 1 | 1 | 3 | 1 | 1 | 2 | 0 | 1 | 1 | 0 |
| **F 6** | 4 | 0 | 3 | 3 | 1 | 0 | 3 | 1 | 3 | 3 | 2 | 1 | 1 | 2 | 1 |
| **F 7** | 3 | 1 | 3 | 3 | 1 | 3 | 0 | 3 | 3 | 1 | 3 | 1 | 1 | 2 | 1 |
| **F 8** | 4 | 3 | 4 | 3 | 1 | 2 | 2 | 0 | 2 | 1 | 3 | 2 | 2 | 2 | 2 |
| **F 9** | 1 | 3 | 1 | 2 | 3 | 2 | 2 | 2 | 0 | 1 | 0 | 0 | 1 | 2 | 1 |
| **F 10** | 2 | 2 | 3 | 1 | 1 | 3 | 1 | 1 | 1 | 0 | 2 | 1 | 2 | 1 | 2 |
| **F 11** | 2 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| **F 12** | 1 | 2 | 3 | 2 | 0 | 3 | 2 | 1 | 1 | 2 | 2 | 0 | 1 | 1 | 1 |
| **F 13** | 1 | 2 | 4 | 2 | 2 | 2 | 3 | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 1 |
| **F 14** | 4 | 3 | 3 | 1 | 3 | 3 | 4 | 1 | 4 | 1 | 3 | 1 | 1 | 0 | 2 |
| **F 15** | 3 | 4 | 4 | 3 | 1 | 4 | 4 | 2 | 3 | 0 | 1 | 0 | 2 | 1 | 0 |