HOW, JOANNE, LEE & TENG EMPLOYEES' GREEN BEHAVIOR BLS(HONS) DECEMBER 2024

FACTORS INFLUENCING EMPLOYEES' GREEN BEHAVIOR IN LOGISTICS OPERATION

HOW YAO LE
JOANNE CHIA ZHU EN
LEE SHAN HUI
TENG QIAN YING

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BY

HOW YAO LE
JOANNE CHIA ZHU EN
LEE SHAN HUI
TENG QIAN YING

A final year project submitted in partial fulfilment of the requirement for the degree of

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DECLARATION

We hereby declare that:

(1) This undergraduate FYP is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this FYP has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the FYP.

(4) The word count of this research report is 11699.

Name of Student:	Student ID:	Signature:
1. How Yao Le	21ABB05504	
2. Joanne Chia Zhu En	22ABB06330	
3. Lee Shan Hui	22ABB05520	
4. Teng Qian Ying	22ABB07070	

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LIST OF ABBREVIATIONS

SLT	Social Learning Theory
SIT	Social Identity Theory
EBGL	Employee Behavior towards Green Logistics in Malaysia
GHRM	Green Human Resources Management
GOC	Green Organizational Culture
EL	Ethical Leadership
SPSS	Statistical Package for the Social Sciences
ESG	Environmental, Social, and Governance
GPC	Green Psychological Climate

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PREFACE

This research paper is a mandatory subject for the research course, Bachelor's Degree of Business Administration (Hons) in Logistics and Supply Chain Management, and for every student to graduate from Universiti Tunku Abdul Rahman (UTAR). This research project was conducted within seven months. The chosen research topic is "Factors influencing employees' green behavior in logistics operations". This research is conducted in the logistics industry and investigates the factors influencing employees' green behavior in logistics operation.

This study examines the influence of ethical leadership, green human resource management and green organizational culture on employees' green behaviors in logistics operations in Malaysia. Through an in-depth analysis of employees' green behaviors in logistics implementation, this study provides valuable insights for managers to help them develop more effective strategies to promote employees' green behaviors. In addition, this study expands the application of Social Learning Theory (SLT) and Social Identity Theory (SIT) in understanding employee green behavior (EGB) in logistics operations, which is important in bridging the gap of SLT and SIT.

ABSTRACT

The worsening of the environmental conditions caused by logistics operations, such as the increasing carbon dioxide emissions and overutilization of paper documentation, has given Employee Green Behavior (EGB) a certain level of importance as the solution. Logistics employees also need more engagement in green practices, such as inefficient route planning, excessive paper use, and unsustainable behaviors. In solving the growing sustainability issues, previous studies have focused on developing both Social Learning Theory (SLT) and Social Identity Theory (SIT) in developing EGB in other industry areas. Thus, they cannot address the pollution issues critically within the logistics area. SLT and SIT have been proposed in this study to examine how Green Organizational Knowledge (GOC), Ethical Leadership (EL), and Green Human Resource Management (GHRM), can be utilized to enhance EGB in the logistics operation of Malaysia. In this study, it meant to examine the factors influencing EGB in logistics operations. This study will use the quantitative method, non-probability, with judgmental sampling techniques. Data was collected physically and virtually, targeting respondents in the Klang Valley area. Multiple tests, such as descriptive analysis, reliability analysis, inferential analysis, linear multiple regression analysis, Pearson correlation coefficient, outlier test, and mediator analysis, were conducted on the 136 responses collected. Subject to prior studies on EGB, the findings of this research show that there is positive significant relationship between the management of GOC, EL, and GHRM with EBG in logistics operations. The results obtained benefit logistics companies in enhancing sustainable logistics operations by providing route planning training programme, showing the ethical leadership of paper reduction, and fostering a culture of sustainability in logistics operation to enhance EGB.

Keywords: Green Organizational Culture, Ethical Leadership, Green Human Resource Management, Employee Green Behavior in Logistics Operation

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

This chapter discussed on the basic foundation for topic of "Factors influencing employees' green behavior in logistics operation". This research will be concentrating on the past research to support the elements of employees' green behavior, and particularly in Malaysia independently. Integration of discussion will then be done afterwards. The subtopics of this chapter are respectively of Research Background, Research Problem, and Research Significance.

1.1 Research Background

Employee Green Behavior (EGB) is the scalable actions or behavior from one employee for its engagement contributing to the sustainable environment (Katz et al., 2022). EGB has recently become increasingly crucial for the worsening of the environmental conditions that may be a great concern to the inhabitants of todays' world as EGB can positively impact the nature and maintain a moral implication for organizations, leaders, and their employees (Saleem et al., 2020). In the context of logistics, this sector has become a top priority as the key contributor to global pollution and plays its role in reducing the pollution levels within the green supply chain management by improving the behavior engagement from the employees (GSCM) (Elzarka, 2020). Most vehicles in Malaysia still depend on gasoline from fossil fuels (Azni et al., 2023). The transportation sector's fuel source in Malaysia mostly depends on non-renewable energy, which is composed of 37% of petroleum, 36% of natural gas, 21% of coal, and other liquids are composed of 6% (Chia et al., 2022). The CO2 emissions in Malaysia were seen to have a growing trend in the fossil fuel and other related industries, which increased by 0.5 tonnes in just five years (Ritchie et al., 2020). According to Muhammad et al. (2023), on0ly 58% of

the researched logispreneurs used real-time tracking systems in optimizing route planning and fuel consumption, which does not encourage the employee enough to save the environment in green route planning.

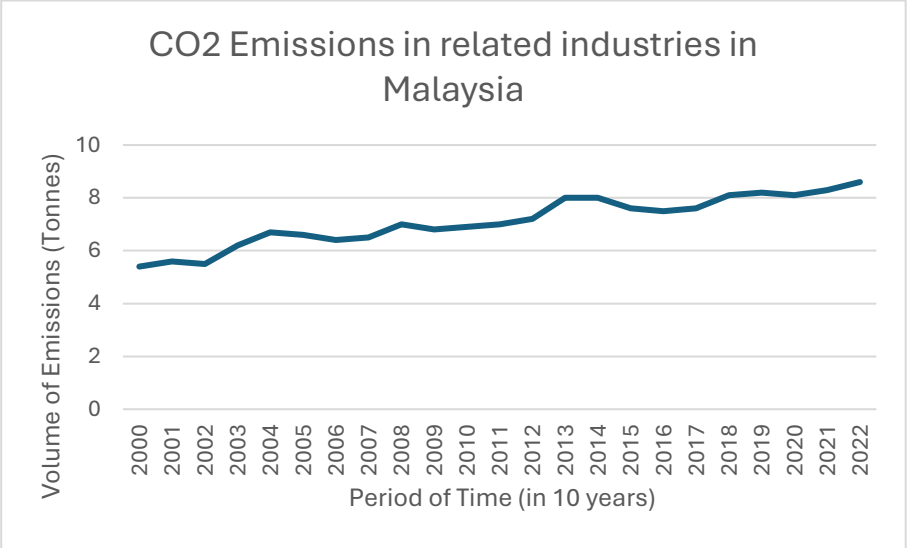

Figure 1.1. Trends of CO2 Emissions in Related Industries in Malaysia. Adapted from Ritchie et al. (2020). *Malaysia: CO2 Country Profile*

Employee Green Behavior can be utilized to reduce carbon emissions with its route planning operation (Molina et al., 2014). The Electrical Vehicle Routing Problem (EVRP) is critical for carbon emission, and it is all about minimizing both the travelling distance and Carbon Dioxide emission with several factors (Amira & Guedria, 2024). Other models, such as the grey wolf optimized genetic algorithm and urban logistics models, have highlighted the importance of route planning behavior in reducing carbon emissions (Pan et al., 2024; Liu et al., 2023). EGB in shipping industry also included reducing printing and utilizing digital methods for documents such as Bills of Lading or Delivery Order (Nurcholis et al., 2024; Pu & Lam, 2021). To cope with the increasing trends of environmental pollution from the logistics industry, government authorities of Malaysia have made some initiatives to reduce the impact. The National Transport Policy 2019-2030 was a motive constructed by the Malaysia government to adopt international environmental

standards as the green standards for transport terminals, development of infrastructure for electric vehicles, and measures to restrict the pollution and waste generated by the transport sector (Ministry of Transport, 2022). Transport Minister Anthony Loke command logistics companies to adopt green strategies to reduce their carbon footprint. The logistics sector accounts for 21% of Malaysia's second-largest carbon emission (Davasagayam, 2019). With the current adverse logistics trend and the impact employees could bring, this study focused on determining the factors influencing employee green behaviors towards green logistics in Malaysia.

1.2 Problem Statement

Malaysia's logistics industry is currently facing the pressure for its negative effect it brings to society through climate change, global warming, and air pollution (Ashfaq et al., 2020; Tarudin et al., 2023). In this case, logistics companies should take the required actions to conserve environmental resources without sacrificing the profit (Yingfei et al., 2022). This is because the carbon emissions from the logistics industry have the consequences of climate change, which leading to flash floods (Gössling et al., 2023). Climate change can impact the logistics industry by reducing the orders it delivers and lowering the revenue it should have gained (Rahman et al., 2022). Weather also plays a role in the transportation disruption, such as flooding, temperature, rainfalls, visibility, and thunderstorms (Wang et al., 2020; Alabbad et al., 2021). In Malaysia, there is a detrimental floods hit Klang, Selangor, in 2021, resulting in a total of RM6.1 billion (2022, Department of Statistics Malaysia as cited in Bedi, 2022). Floods not only result in supply chain delays but also lead to millions of dollars in damaged cargo at Malaysia's Port Klang (Whelan, 2021). Recently, Klang Valley has once again greeted with a sudden flash flood due to torrential downpours, causing major traffic jams and delaying deliveries of orders in October 2024 (Camoens, 2024). According to Yeo (2024), the frequencies of flash floods have been increasing in Klang Valley since 2022.

Despite employee green behavior remaining essential in achieving sustainable green logistics implementation, the environmental sustainability behavior towards logistics in Malaysia still needs to improve in the current decade (Al-Minhas et al., 2020; Al-Tahitah et al., 2023). The transportation employees do not plan the route efficiently due to high expenses, which may not reduce environmental impact, especially the impact of fuel consumption and contributes to further emission of CO2 (Jamhuri et al., 2021). Namely, Logistics employees in one of the companies located in Klang do not care much about operating the operation in a green manner when planning routes of transportation (Bursa Sustain, 2023). Logistics employees in Malaysia also utilize paper documents rather than digitalized methods, which is a more sustainable option (Rahman et al., 2019; Radzi et al., 2021). According to Fen et al. (2020), the current logistics employees do not show any positive green behavior due to the lack of a supportive organizational culture. Barriers to the adoption of green logistics in Malaysia include poor organizational culture (GOC), a lack of top management support (EL), as well as awareness and behavior (GHRM) (Fen et al., 2020).

Ethical leadership is known for its phenomenon of fostering ethical behavior and creating a positive organizational culture (Ahmad et al., 2021). However, the problem is that EGB was not studied in the case of ethical leadership in the logistics industry. In order to solve this gap, this study utilized social learning theory (SLT) in justifying how EL can be applied to enhance employee green behavior in logistics. It is also proven the feasible relationship between knowledge management and behavioral operations in supply chain management (Cooper et al., 2016). Such a lack of studies conducted on ethical leadership towards employee green behavior in logistics has restricted the potential impact it could have on the outcome of this study. Furthermore, this study also sought to utilize Social Identity Theory (SIT) to prove how the employees are able to identify themselves as part of the logistics organization and commit and participate in green behavior (Ahmad et al., 2021). Such oversight means that the full spectrum of factors GHRM influencing employee green behavior is not captured, which could lead to incomplete or skewed conclusions.

1.3 Research Objectives

1.3.1 General Objective

To examine factors influencing employee green behavior in logistics operation.

1.3.2 Specific objective

RO1: To examine the relationship between the ethical leadership and green organizational culture in logistics operation.
RO2: To examine the relationship between the green human resource management and green organizational culture in logistics operation.
RO3: To examine the mediating effect of green organizational culture between the ethical leadership and employee green behavior in logistics operation.
RO4: To examine the mediating effect of green organizational culture between the green human resource management and employee green behavior in logistics operation.
RO5: To examine the relationship between the green organizational culture and employee green behavior in logistics operation.

1.4 Research Questions

1.4.1 General Research Question

What are the factors influencing employee green behavior in logistics operation?

1.4.2 Specific Research Questions

RQ1: Is there a relationship between ethical leadership and green organizational culture in logistics operation?

RQ2: Is there a relationship between green human resource management and green organizational culture in logistics operation?

RQ3: Is green organizational culture mediate the relationship between ethical leadership and employee green behavior in logistics operation?

RQ4: Is green organizational culture mediate the relationship between green human resource management and employee green behavior in logistics operation?

RQ5: Is there a relationship between green organizational culture and employee green behavior in logistics operation?

1.5 Hypothesis of the Study

H1: There is a relationship between ethical leadership and green organizational culture in logistics operation.

H2: There is a relationship between green human resource management and green organizational culture in logistics operation.

H3: Green organizational culture mediates the relationship between ethical leadership and employee green behavior in logistics operation.

H4: Green organizational culture mediates the relationship between green human resource management and employee green behavior in logistics operation.

H5: There is a relationship between green organizational culture and employee green behavior in logistics operation.

1.6 Significance of the Study

Firstly, this study intends to extend the application of social identity theory (SIT) and social learning theory (SLT) to logistics. The SIT has been widely used in the past in the area of political and social dynamics in international business, team and employee identification in the sports industry, and clinical psychology in the health industry (Raskovic, 2021; Oja et al., 2020; Godinic et al., 2020). The exetension of SIT into the logistics field by proposing that a well-constructed Green Human Resource Management can encourage the logistical workers to conduct employee green behavior. SLT has been proposed by other scholars in hotel management, highlighting the importance of service industry training programs that aim to improve employee skills and behavior (Karatepe et al., 2020). Besides, advancing of the application of social identity theory (SIT) in the logistics industry by adding green organization culture into the theory. Therefore, this insight posits that GOC is a contextual factor that extends SIT to organizational settings in the logistics sector. This study use SIT and SLT to understand how GOC, EL, and GHRM in shaping EGB.

Moreover, this research is focused on Malaysia's context for the increasing emphasis on sustainability. According to Bursa Malaysia (2023), the 12th Malaysia Plan emphasis Malaysia's commitment in reducing greenhouse gas emissions by 45% of GDP by 2030, with the logistics sector playing a crucial role in achieving this target. By emphasizing the Malaysian logistics sector, this study provides valuable insights into industry practices and policies aligned with the local culture and economy. This localized approach offers insights directly relevant to the government, helping them design more effective strategies for encouraging sustainability within the industry. By identifying key factors that encourage green behavior, such as EL, GOC, and GHRM, this research provides insights for top management. Insights provided can then guide the development of targeted actions such as employee training programs, incentive structures, and strategies that foster a culture of sustainability.

Thirdly, this study enhances the existing studies on employee green behavior, specifically within logistics operations in Malaysia. Previous studies have predominantly concentrated on the manufacturing and hospitality industries, leaving a gap in the literature regarding logistics operations (Jnaneswar, 2023; Khattak et al., 2021). This gap in the literature is particularly noteworthy, as the logistics industry able to overarch framework in sustainable practices. Furthermore, this study is especially timely in light of the growing emphasis on sustainable logistics operations. It addresses the urgent need to understand how employees in logistics operations engage in environmentally responsible behavior (Ren et al., 2020).

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

In this chapter, it provides an examination and justification of grounded theory to offer additional perspectives and a picture of social learning theory and social identity theory. After an extension of the literature on each variable, a hypothesis is being formulated.

2.1 Underlying Theories

2.1.1 Social Learning Theory

Social Learning Theory (SLT) was developed by Albert Bandura. SLT can be used to describe how community members learn to adopt complex behavioral patterns by observing and imitating the behavior of others (Bandura, 1969). According to Christiansen and Tett (2013, as cited in Koutroubas & Galanakis, 2022), behavior is determined by personal, environmental, and behavioral factors. In the field of logistics, an ethical leader can optimize the route planning process to reduce carbon emission as the personal factor, reduce the printing of bills of lading as the environmental cultural factor, and promote sustainable green logistics management as the behavioral factor (Bulmer et al., 2021; Chen et al., 2021; Cano et al., 2021; Huang et al., 2020). In recent years, SLT has been widely used to explain how leadership influences employees' green behaviors (Ahmad et al., 2021; Gu & Liu, 2022). According to SLT, employees learn

green behaviors by observing the behaviors of supervisors, managers, and senior leaders (Ahmad et al., 2021).

The ethical leaders are able to positively influence employees' green behaviors by setting an example and regulating behavior (Saleem et al., 2020). Ethical leadership can be categorized as the environmental factor in SLT. Ethical leaders influence the green behavior of their employees by serving as role models, which fits with the "impact on others" in the environmental factor. In this study, SLT is extended to demonstrate how ethical leadership influences employee green behaviors in logistics operations through the mediator, GOC. By emphasizing and practicing green behaviors, ethical leaders can set an environmental responsible standard such as ISO 14083 in logistics operation in promoting a green culture which drive EGB (Liu & Zhao, 2019; Ahmad et al., 2021; Mattson et al., 2024). Therefore, leaders can push employees to adopt and maintain green behaviors by consistently defining and reinforcing these environmental goals as the company takes steps to reduce carbon emissions.

2.1.2 Social Identity Theory

Social Identity Theory (SIT) is a concept proposed by Henri Tajfel in the 1970s (Ibrar, S., 2024). This theory has received great attention because it can explain the relationship between organizations and their employees (Ali et al., 2022). It suggests that most of the individual's self-concept comes from social group membership. The individual is tending to associate with people who enhance their self-esteem and provide a positive social identity (Ali et al., 2022; Rubel et al., 2021).

The GHRM's impact on EGB to be explained by SIT. When companies in the logistics and transportation industry implement GHRM, they will show

a commitment to environmental responsibility. Employees who value environmental protection are more likely to identify with these organizations, which motivates employees to actively engage in EGB (Ahmad et al., 2021). Employee recognition can motivate them in performing green behaviors at work that go beyond their own responsibilities to support the company's sustainability goals. Green Organizational Culture can also be explained by SIT with the fact that being in the culture of fulfill with green motives will indirectly generate the employee green behavior (Al-Swidi et al., 2021). The Social Identity Theory (SIT) is composed of 3 main elements, which are Social Categorization, Social Identification, and Social Comparison (Tajfel & Turner, 1979, as cited in Raskovic & Tackacs-Haynes, 2021).

Logistics companies can use GHRM in forming GOC to improve employees' green behaviors in their operations. According to Putu et al. (2023), recruiting and selecting in green manner helps companies screen for green-conscious employees; green training can provide employees with the required environmental knowledge, abilities, and skills to promote their green behaviors. As employees' recognition of the company's values in green increases, their performance in green behaviors will be more effective. Employees should emerge themselves within the culture that encourages them in green logistics practices such as the practices of utilizing eco-friendly technologies and resources use optimization (Elzarka, 2020).

2.1.3 Combination of Theories with SLT and SIT

This study aims to integrate Social Learning Theory (SLT) and Social Identity Theory (SIT) to better understand how employees adopt green behaviors through observational learning and shared group identity (Gu & Liu, 2022; Zhu et al., 2021). Moreover, according to logistics employees may observe their leader who are practicing the behavior of eco-driving,

efficient route planning, and other green behavior (SLT) (Ibrahim, 2022; Spasojevic et al., 2019). The logistics employee will then unify the behaviors learned to be as part of the commitment the employees show to the organization and shaping the green organizational culture by conducting the green logistics behavior (SIT) (Shaikh et al., 2022).

2.2 Review of the Literature

2.2.1 Employee Green Behavior

EGB describes actions to minimize the negative outcome on the environment and enhance the positive outcome of protecting the environment (Steg & Vlek, 2009). Employees' green behaviors are also essential and should be used as the key in order to initiate green practices effectively in the workplace (Aboramadan, 2020). Employee Green Behavior can also refer to the pro environmental behavior, specifically in the working area (Leitão et al., 2024). Several studies have also been conducted showing that green practices among employees are crucial for environmental management initiatives as they claimed that this would help contribute to better environmental performance and acquiring a completive advantage (Jabbour et al., 2008; Mazzi et al., 2016; Kim et al., 2019).

In relation to the context of green logistics, EGB is important as well. Studies have found that employee behavior toward green logistics is required for driver behavior, which will affect energy efficiency and control the emission of the intensity of logistics if enough training is provided (Al-Minhas et al., 2020). In applying EGB in logistical context, there are several behaviors to be conducted using the 5 green taxonomy, such as conserving by reusing and recycling in the logistics industry, working sustainably by choosing and changing the current alternative to a greener intention, avoiding possible harm that may impact the environment by avoiding the

danger of pollution and strengthening ecosystems, influencing one another through the training and educating of the workers or supporting their behavior, as well as taking the initiative such as initiating a program or policies that aimed at putting the environmental interest at first (Nurcholis et al., 2024). Several green behaviors an employee or driver should have in restraining carbon emissions are the eco-driving concept, cruise control, and routing an efficient route (Jazairy et al., 2023; Nie & Farzaneh, 2020; Hla et al., 2019).

2.2.2 Green Organizational Culture

Mediating variable are those that explain the relationship between the independent and dependent variables (Sajeevanie, 2020). GOC was utilized as the mediator in this study in mediating, EL and GHRM, into linking the dependent variable, EGB (Al-Swidi et al., 2021). Green organizational culture is an organization's values in set, beliefs, procedures, as week the behavior in supporting environmental sustainability (Ravasi & Schultz, 2006; Owusu & Afum, 2020, as cited in Al-Swidi et al., 2021). Terms such as sustainable, pro-environmental, eco-friendly, and green-conscious are often used to describe this culture (Owusu & Afum, 2020).

A managerial team foster a set of values that direct business objectives to form GOC (Gao, 2017, as cited in Wang, C., 2019). Managers are responsible for ensuring employees adhere to ethical standards and work under the organization's culture (Azhar & Yang, 2021). In a GOC, this managerial guidance becomes critical, as it directly influences employees to behave in environmental conscious behavior as well as motivating to protect the environment (Azhar & Yang, 2021). Moreover, in the context of logistics, it is proposed that effective leadership and incorporation of green logistics practices in HR management is able to foster a GOC leading to

EGB (Bulmer et al., 2021; Khan & Muktar, 2020, Abadiyah et al., 2020). For example, continuous green logistics training is required among the logistics workers and having leader with long term sustainable goal when conducting logistical operation are required to foster a green culture which lead to employee green behavior (Bulmer et al., 2021). A study on the application of green logistics in Slovak SMEs also found that top management decisions are the most influential factor in the adoption of green practices by employees (Denisa & Zdenka, 2015, as cited in Vienažindienėet al., 2021).

2.2.3 Ethical Leadership

According to Hemphill and Coons (1957, as cited in Yukl, 2002), leadership refer to the behavior of an individual in directing the activities in achieving the goal as a whole group. According to Brown et al. (2005, as cited in Eisenbeiss, 2012), ethical leadership includes displaying morale behavior through individual interactions and encouraging the recurrence behavior in followers by open communicating, reinforcing, and decision-making.

The relationship of ethical leadership using social learning theory and its influence on employee green behavior, which ensures ethical human behavior protects future life on Earth and promotes environmentally conscious living (Ahmad et al., 2021). Past study shown that EL that focus on ethical values drives the integration of green supply chain practices which help forming green organizational culture (Wang & Feng, 2022; Şengüllendi et al., 2023). Hence, this study proposed that leadership will affect employees' behavior toward green logistics in Malaysia. It can be further elaborated when the top management's leadership is ethical and environmentally friendly and has the concept of green such as pushing eco-friendly vehicles or operations, which would directly form a green culture

and impact the employees' behavior. It is supported by Siti et al. (2023), Alkhadra et al., (2022), Reynolds (2024) and Saleem et al. (2020). From this, the leaders encourage, motivate and make a culture for these sustainable practices in logistics (Hartana et al., 2023). According to Zhang et al. (2020), ethical leadership could enhance the effectiveness of green logistics policies, which could help shape the GOC and EGB.

2.2.4 Green Human Resources Management

Green Human Resources Management is a multidisciplinary tool that implement the practices of human resources to enhance the green awareness and green adoption from the employee (Benevene & Buonomo, 2020). Green Human Resources Management can also be defined as the integration of the management of corporate environment into the human resources management (Renwick et al., 2008, as cited in Arulrajah et al., 2015). Most importantly, several studies have been conducted that have successfully shown the linking the practices of GHRM together with green supply chain management as well as EGB in stating their influential relationships (Nejati et al., 2017; Pinzone et al., 2016; Pham et al., 2019).

In the current society, it is essential to integrate green human resources practices with green logistics as it ensures genuinely sustainable supply chains as well as establishes cooperation with external stakeholders (Agyabeng-Mensah & Tang, 2021; Reynolds, 2024; Agyabeng-Mensah et al., 2020). Furthermore, there are two articles supporting that if the operations of the supply chain and logistics required to be greener (Vo & Nguyen, 2023; Jazairy & Haartman, 2020). Past studies shown that the sustainable green logistics model (SGLOG) as the GHRM practices which cultivated sustainable culture in better engaging EGB (Al-Minhas et al., 2020; Raja & Manoharan, 2024). GHRM with its practices is able to develop a sustainable GOC involving the creation of green awareness among supply

chain stakeholders and partners (Bag & Gupta, 2019) The practices such as selection and recruitment for workers who show commitment environment as well as providing environmental training to improve employee empowerment in forming a sustainable culture as well as behavior (Karatepe et al., 2022). The fleet management and vehicle planning and scheduling are also crucial in GHRM in terms of the behavioral aspects of green logistics employees (Marinagi et al., 2019). Logistics executives can also play their parts by accepting eco-training from GHRM with the behavior of planning a route that is friendly to the environmental impact (Wang & Boggio-Marzet, 2018; Reynolds, 2024).

2.3 Proposed Conceptual Framework

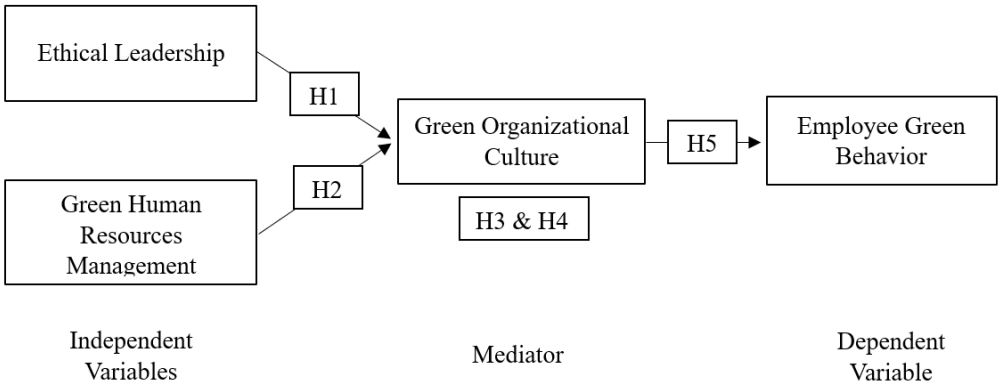

Figure 2.1. The Factors Influencing Employees' Green Behavior in Logistics Operation.

In Social Learning Theory (SLT) framework, ethical leadership is a crucial determinant of employee behaviors. According to Mogaji and Dimingu (2024), leadership is an influence that lets people achieve a goal. According to Pierce and

Bandura(1977), individuals learn behaviors through observation, imitation, and modelling. Therefore, leaders who commit to environmental sustainability can be role models, inspiring employees to adopt green practices. Therefore, in the context of SLT, ethical leadership is expected to positively influence employee behavior in logistics operations. The other study demonstrates that leadership significantly improves green employee behavior (Abadiyah et al., 2020). This means that employee behavior relating to environmental concerns will increase if ethical leadership encourages such activities or behaviors.

According to Social Identity Theory (SIT), employees with a strong sense of identity with their company believe that their success is correlated with that of the company. This identification boosts their motivation, loyalty, and commitment to the organization's goals (Tajfel 1979, as cited in Khan et al., 2023). When organizations implement GHRM practices, they integrate environmental values into their human resource processes, which can strengthen employees' identification with the organization's goals for sustainability and shape green behavior. According to Renwick et al. (2012), embedding green values in HR practices can encourage a sustainable culture of sustainability and enhance employees' environmental commitment. As a result, employees are likely to adopt more green behaviors in response to the GHRM.

Social Identity Theory suggests that employee identification with their organization strengthens when they believe the organization's values align with their own (Al-Swidiet al., 2021). Organizational culture refers to a set of shared values, beliefs, and practices. It is also the critical factor influencing an organization's environmental performance (Shahriari et al., 2022; Newton & Harte, 1997, as cited in Mirahsani et al., 2023). Thus, integrating green values into the organizational culture could foster employee green behaviors through shared values in logistics operations. When employees identify strongly with this green culture, the behaviors align with the organization's green values are more likely to be adopt. Since GOC aligns employee identity with group norms, it enhances sustainable practices and

improves green performance in logistics. Other study further shows that organizational culture positively and significantly impacts employee green behavior (Trimono & Nawangsari, 2021).

2.4 Hypothesis Development

2.4.1 Ethical Leadership

Leadership comprises influence (Yukl, 2002, as cited in Brown et al., 2005). In addition, leadership is often described as exercising deliberate influence over others to support, organize, and direct activities and interactions within a group or an organization (Yukl et al., 2002). It is also supported by other studies (Rauch and Behling, 1984; Richards and Engle, 1986).

Bandura and Walters (1977) explain that employees would observe, imitate, and follow the ways of their managers, supervisors, and other employees with higher positions. It could be applied in "green" situations, where the managers do their tasks eco-ethically, and the employees observe and, in the end, follow similar actions in doing their tasks. Hence, the green organizational culture will then being formed Wu et al. (2015, as cited in Wang & Feng, 2023). It was supported by Şengüllendi et al. (2024). In the logistics context is where the leaders commit in eco-ethically, SLT then came in explaining that the employees see their leaders as role models and imitate them. This will then form a organisztional culture with the employees acceptance level of eco-ethical performance increase, hence, it will form a circle for the company (Şengüllendi et al., 2024).

Hence, the first hypothesis of this study is developed as follows:

H1: There is a relationship between ethical leadership and green organizational culture in logistics operation.

2.4.2 Green Human Resource Management

Integrating environmental sustainability with human resource operations is known as "green human resource management" or "GHRM" (Rubel et al., 2021). It consists of several dimensions, such as "green selection, green training, green performance management," and Shah (2019). According to Fawehinmi et al. (2020, as cited in Fawehinmi et al., 2020), employees who are exposed to green HRM practices are more likely to be mentally and physically ready to engage in eco-friendly behavior. Additionally, such practices help them become more conscious of their environmental impact through their behavior (Gilal et al., 2019; Malik et al., 2020; Irani and Kilic, 2022, as cited in Cahyadi et al., 2022). According to Aggarwal and Agarwala (2023), these practices can be seen as a catalysis to employees to develop and promote this green organizational culture in the organization. It was also supported by Sobaih et al. (2024).

Hence, the second hypothesis of this study is developed as follows:

H2: There is a relationship between green human resource management and green organizational culture in logistics operation.

2.4.3 Green Organizational Culture

Organizational culture is the values and beliefs individuals must align with to be part of an organization (Emmanuel, 2017, as cited in Lubis & Hanums, 2020).

Al-Swidi et al. (2021) explained the relationship between El, GOC and EGB. In the logistics context, the leaders commit eco-ethically, SLT then explains that the employees see their leaders as role models and imitate them. This will then form an organizational culture with the employees' acceptance level of eco-ethical performance increase, hence, the employee will proactively perform their tasks in an eco-ethically method that aligns with the companies' values and their identity (Şengüllendi et al., 2024; Abadiyah et al., 2020; Al-Swidi et al., 2021).

Al-Swidi et al. (2021) explained GHRM is the fundamental key to forming a GOC due to Fernández et al. (2003, as cited in Al-Swidi et al., 2021), creating a green culture in a firm entail encouraging proactive environmental management, informing staff about environmental challenges, rewarding problem solvers, and reinforcing eco-centric ideas. Furthermore, it is noted that GOC plays a significant function for employees behaving in a green manner; it moulds the behaviour and perspective (Fernández et al., 2003; Gürlek &Tuna, 2018; Ahmad, 2015; Chen, 2011).

Al-Swidi et al. (2021) mentioned that GOC is the foundation of employees' green behavior. Leung et al. (2023) explored the impact of promoting awareness of logistics within a company's culture. It has been tested in Mirahsani et al. (2023)

Hence, the third, fourth and fifth hypothesis of this study is developed as follows:

H3: Green organizational culture mediates the relationship between ethical leadership and employee green behavior in logistics operation.

H4: Green organizational culture mediates the relationship between green human resource management and employee green behavior in logistics operation.

H5: There is a relationship between green organization and employee green behavior in logistics operation.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

Chapter 3 presents a comprehensive framework for the methods outlined in the previous section to support a thorough investigation. This study adopts a specific strategy comprising clearly defined steps, including research design, selecting data collection methods, and developing a sampling design. The chapter primarily emphasizes quantitative techniques and mathematical analyses to ensure reliability.

3.1 Research Design

Quantitative research was proposed by using close-ended questions to study the relationship between EL, GHRM, GOC and EGB. Quantitative research uses numbers to measure, usually used by surveys to collect data (Olanrewaju et al., 2020). It takes a broader perspective and involves working with extensive data sets while applying statistically sound methods (Polater, 2018). This research method has been used by Farrukh et al. (2022) and Ahmad et al. (2021).

Additionally, casual research was adopted in examining the relationships among two independent variables, one mediator, and one dependent variable, as defined by XM for Employee Experience (2022).

3.2 Data Collection Methods

3.2.1 Primary Data Collection

Aggarwal (2024) stated that primary data is the original information gathered directly from a source for a particular research or analysis objective. This data has yet to be previously collected, processed, or interpreted by anyone. It is obtained firsthand by interviews, surveys, experiments, and observations, forming the backbone of empirical studies. Moreover, this approach ensures accuracy and relevance, enabling the collection of meaningful insights and informed decision-making based on authentic, real-world evidence.

3.3 Sampling Design

Sampling design can be defined as the structure within the sampling for its occurrence, composing the multiple and different types of sampling schemes as well as the sample size itself (Demetrio et al., 2023). It is essential to consider the way the sampling design was conducted as it enables the final desired number of population representatives in this research to be obtained (Demetrio et al., 2023).

3.3.1 Target Population

The members or populations that fulfilled the requirements for this study are referred to as the target population (Taherdoost, 2016). According to MIDA (2024), Klang Valley is one of the areas where primary logistics operation

is conducted. Several previous studies conducted in relation to the employees' behavior in logistics operations in Klang Valley as well (Omar et al., 2022; AuYong et al., 2020; Khan et al., 2024). Klang Valley is chosen as the target respondent region due to the fact of its importance as one of the major logistics hubs in the country leading to a higher relativity of the topic to be represented by whole Malaysia (Chang et al., 2024).

3.3.2 Sampling Frame and Location

Sampling frame can be defined as the list of sampling range that inclusive of every possible sampling unit in the entire population (Li, 2011). It represents the source for the list of respondents. Employees who work in the field of logistics is the main sampling element in this research.

Through online research, it has been learned that the total number of logistics companies in Klang Valley is 5,018 (Yellow Pages, 2024). As for the approximate number of total Logistics employees in Malaysia, the resources show that there are 235,000 number of total employees in the logistics field in Selangor and 711,400 in the entire state of Malaysia from the "Labour Force Statistics Report" (Department of Statistics Malaysia, 2024). However, the exact number of companies and employees within Klang Valley remains unknown. In this research, the samples were taken from any company within the area of Klang Valley.

3.3.3 Sampling Elements

Individuals from the study's target population who possess the necessary attributes to be examined are referred to as sampling elements. Since this study is meant to study the behavior of logistics employees towards the use of green logistics in Malaysia, employees working in the field of logistics in

Malaysia are focused. Each unit from the sampling frame is selected as the participant provided that they are available on the day for visitation on the premise due to the fact that the companies are readily available. Furthermore, this study does not involve any discrimination based on gender, age, or position.

3.3.4 Sampling Techniques

Sampling techniques are employed to methodically choose a smaller item or individuals from the target population. It can serves as a data source for observation or experimentation, depending on the objectives of the research (Sharma, 2017). Sampling techniques can be divided into 'Probability' and 'Non-probability' samples (Acharya et al., 2013). judgmental sampling from non-probability is utilized in this study.

Judgmental sampling is conducted as the researcher will decide who is able to provide the relevant and best information in succeeding the research (Etikan & Bala, 2017). Past studies also utilize the judgmental sampling method for the research of employee engagement in the logistics sectors in order to ensure the important information related to the variable is captured (Kurniawati, 2022). Judgmental sampling is chosen as resources are insufficient to approach all of the logistics employees in Malaysia and to ensure the operation of the company is running logistics operation. To briefly describe the judgmental process and the questionnaire distribution process, contact was made by calling the target company a day before the visitation to asking for approval to conduct physical questionnaire distribution. The scheduling process was made according to the visitation route exists to enhance the efficiency of the distribution process. Further visitation confirmation of the approval to conduct a physical questionnaire distribution via a phone call.

3.3.5 Sample Size

The software G*Power Win_3.1.9.7 is utilized as the mean to determine the sample size required in this study to conduct the questionnaire. For this study, an effect size of 0.15, which is the medium correlation, is utilized as Cohen suggested it to be more desirable due to its approximate average size of the observed effects in various fields (Cohen, 1992). As for the significance level (α), this study used a fixed value, which is at alpha = 0.05 (Chua, 2006). According to Cohen (1988), though 0.80 is widely and commonly used as a conventional standard, a high power such as 0.95 is also recommended in order to obtain a larger sample size for better accuracy.

This study composed of two predicters which leading to the final sample size value of 107. The result can be referred in Appendix 4.11**,** as shown in appendixes. However, based on the study of Karia (2022), this research adopted the higher number of sample size as 129 respondents.

3.4 Research Instrument

3.4.1 Questionnaire Design

This research used a quantitative approach questionnaire to collect data from respondents. The questions are adopted from past studies. The closed-ended questions are more accessible to administer and analyze (Aithal & Aithal, 2020). A closed-ended questions were used to get a more straightforward response from the respondents. The questionnaire for this study was made available by physical questionnaire and online via email.

The questionnaire is segmented into three sections. Section A gathers demographic information from respondents including gender, age, highest education level, job position, and years of service. Section B is the dependent variable (employee green behavior) and consists of 8 questions. Section C addresses the totaling to 24 questions of mediator and independent variables.

Nemoto and Beglar (2014, cited in Designing Likert Scales - TASO, 2022) recommend selecting the 6-8 most representative items for each variable. This has the advantage of ensuring reliability while making it easier for respondents to complete the questionnaire. Considering the respondents' limited time and cognitive resources, an 8-item scale was finally selected for this study to avoid too many items affecting the response rate and reliability of the questionnaire (Designing Likert Scales - TASO, 2022).

3.4.2 Pilot Test

Pilot tests are small-scale experiments conducted in preparation for the main study and are used to understand why the main research program may fail (van Teijlingen, E. R., & Hundley, V., 2001). Pilot tests are conducted in this research to ensure the problem's reliability and to find out if there have any errors and problems that can be mitigated.

According to Lewis et al. (2021), 30 - 36 respondents were sufficient for a pilot test. This research has received 33 questionnaires from the respondents through physical distribution, sending emails and social media. The data was then recorded in the SPSS software to help with the reliability test.

3.5 Construct Measurement

3.5.1 Nominal Scale

The nominal scale involves the simplest form of assigning numbers, serving as the most basic level of measurement. Nominal scales are named based on characteristics, and they are in no particular rank order (Allanson & Notar, 2020). An example of nominal scale in the questionnaire is gender.

3.5.2 Ordinal Scale

The ordinal variables were subdivided into categories with a clear ordering (Podani et al. 2022). Based on the questionnaire, examples of ordinal scales include age, highest education level, job position, and years of service. The following are questions that use ordinal scales.

3.5.3 Interval Scale

Interval scales are similar to ordinal scales in that both include categorized concepts and categories, but are equidistant from each other (Alhassan et al., 2022). According to Stevens (1946, cited in Willits, F.K., 2016), interval scales are measured using units of measurement with ordinal and distance indicators.

In the previous study, Ahmad et al. (2021) used a 5-point Likert scale ranging to measure employee green behavior. The most common format used utilizes five categories, 1 represents strongly disagree, 2 represents disagree, 3 represents neutral, 4 represents agree and 5 represents strongly agree (Alhassan et al., 2022).

Table 3.1:

Measurement used for each variable

Section	Variable	Measurements
A	Gender	Nominal
	Age	Ordinal
	Highest Education Level	Ordinal
	Job Position	Ordinal
	Years of Service	Ordinal
B	Employee Green Behavior	Interval
C	Green Organizational Culture	Interval
	Ethical Leadership	Interval

	Green Human Resource Management	Interval

Note. Developed for the research.

3.6 Data Processing

Data processing entails converting collected data into an analyzable format. This study used SPSS to analyze questionnaire data, ensure accuracy and reliability by calculating critical metrics like the alpha value (α). This process includes examining, editing, coding, transcribing, and resolving data anomalies. The primary objective is to organize the data and remove irrelevant information for accurate and reliable conclusions.

3.6.1 Data Checking

Data checking is a crucial pre-analysis step to ensure the reliability and accuracy of collected data. This process verifies that no data is missing or overlooked, preventing compromised analysis. Identifying and removing errors or inconsistencies reduces variability and enhances data quality.

3.6.2 Data Editing

Data editing involves reviewing all collected data related to the questionnaire items. Any non-essential or irrelevant questions are removed to align the data with the research objectives. This step ensures that the dataset is uniform and accurate and any necessary amendments are made to maintain the standard required for a seamless analysis process.

3.6.3 Data Coding

Data coding assigns numerical or categorical codes to questionnaire responses for analysis. Categorizing responses under specific labels streamlines the analysis, especially with SPSS software, enabling efficient data management and a smoother workflow.

Furthermore, as for Section B and C, each of the question was coded on a scale from the value of 1 to 5, with "1" representing the opinion of "Strongly Disagree" and "5" representing "Strongly Agree". Further illustrations are shown below:

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

3.7 Data Analysis

Data analysis involves dissecting the data into its fundamental components using logical reasoning and statistical approaches. This study used SPSS to conduct the analysis and presented the percentage and frequency distributions in tables.

3.7.1 Descriptive Analysis

Descriptive analysis is used to summarize and present the main features of a dataset. It focuses on measures of central tendency, to provide insights into the data's distribution (Kent State University Libraries, 2024b). This analysis was applied to all questions related to the infographic profiles in this research study. The table is formed to present the distribution of percentages and frequencies. In Section A of the questionnaire, two questions (Q1 and Q3) are categorized under nominal scales, while four questions (Q2, Q4, Q5, and Q6) are categorized under ordinal scales. Pie charts were utilized to display the responses for Section A visually. For Sections B and C, interval scales were used.

3.7.2 Outlier Test

An outlier test is conducted to detect data points that significantly different from the rest of the dataset. Outliers can skew results, reduce accuracy, and may indicate data entry errors (Sullivan et al., 2021). This study used SPSS software to conduct the outlier test, with a benchmark p-value of 0.05. There

is a 5 % possibility of misclassifying a normal data point as an outlier when the significance level is set at 0.05 (Mahapatra et al., 2020). Therefore, data points with a p-value less than 0.05 were considered outliers and removed from the dataset.

3.7.3 Reliability Analysis

A reliability assessment was conducted to evaluate the questionnaire's consistency. Cronbach's alpha is used to measure the internal consistency of a set of items in a survey or test, showing how well the items work together. A higher alpha indicates stronger reliability, and removing poorly fitting items can improve the score (McNeish, 2017). Alpha values starting from 0.7 and above are acceptable (Barbera et al., 2020).

Table 3.2

The Standard of Cronbach's Alpha

Cronbach's Alpha Score	Level of Reliability
> 0.80 – 1.00	Very Reliable
> 0.60 – 0.80	Reliable
> 0.40 – 0.60	Quite Reliable
> 0.20 – 0.40	Rather Reliable
0.0 – 0.20	Less Reliable

Note. From Ahdika, A. (2017). *Improvement of quality, interest, critical, and analytical thinking ability of students through the application of research-based learning (RBL) in introduction to stochastic processes subject.* International Electronic Journal of Mathematics Education, 12(2), 167–191.

Cronbach's alpha is a metric used to evaluate the internal consistency of items within a survey or test, indicating how well they align with each other. A higher alpha value suggests more excellent reliability. Refer to Table 3.2, the values between 0.80 and 1.00 are considered very reliable, 0.60 to 0.80 are reliable, 0.40 to 0.60 are quite reliable, 0.20 to 0.40 are rather reliable and 0.0 to 0.20 are less reliable (Ahdika, 2017).

3.7.4 Inferential Analysis

Inferential analysis is a statistical method used to conclude a population based on a sample. It involves techniques like linear regression analysis to infer trends and relationships, enabling predictions beyond the data (Bhandari, 2020).

3.7.5 Pearson Correlation Coefficient

Pearson Correlation Coefficient is represented by 'r' and ranges from -1 to +1. 0 means that is no linear relationship, -1 is a negative linear relationship, while +1 is a positive linear relationship (Schober et al., 2018).

Table 3.3

Pearson Correlation Coefficient

Coefficient Range	Strength
±0.91 to ±1.00	Very High
±0.71 to ±0.90	High
±0.41 to ±0.70	Moderate
±0.21 to ±0.40	Small but Definite Relationship
0.00 to ±0.20	Slight, almost negligible

Note. From AnnMichelleJolo (2023). *5.-SIMPLE-LINEAR-REGRESSION-MEASURES-OF-CORRELATION.Pptx*. SlideShare.

3.7.6 Linear Regression Analysis

Linear regression analysis is a statistical method used to examine the relationship between a DV and one or more IV(s). The goal of this analysis is to adjust the coefficients (*b*) to minimize the error. This process finds the value of *b* that result in the best fit of the function to the data (Yeturu, 2020).

3.7.7 Mediation Analysis

Mediation analysis is a statistical approach that examines how an independent variable (IV) impacts a dependent variable (DV) through the influence of a third variable, referred to as the mediator (Fairchild & McDaniel, 2017). Using Andrew Hayes' PROCESS macro in SPSS, direct and indirect effects can be calculated. Bootstrapping tests the reliability of these effects and the Sobel Test determines if the indirect effect is statistically significant.

3.8 Cronbach's alpha value of Pilot Test

Table 3.4

The outcomes of the reliability test generated in SPSS

Variable	No. of Item	Cronbach's Alpha	Reliability
Employee Green Behavior	8	0.812	Very Reliable
Ethical Leadership	8	0.811	Very Reliable
Green Human Resource Management	8	0.859	Very Reliable
Green Organizational Culture	8	0.890	Very Reliable

**Dependent variable: Employee Green Behavior*

Note. Developed for the research.

Based on Table 3.4, the reliability test results for employee green behavior was 0.812, show a high level of internal consistency. This high alpha value showing that the measurement scale for this variable is very reliable, with a strong agreement between the items tested for employee green behavior in this study. Similarly, the independent variables show high reliability, with ethical leadership having a Cronbach's alpha of 0.811, green human resource management an alpha of 0.859, and green organizational culture an alpha of 0.890. These values fall within the very reliable range of 0.80 to 1.00, indicating strong consistency among the items used to measure each variable. These strong reliability scores confirm that the constructs in this study are well-represented by their respective items.

CHAPTER 4: RESEARCH RESULT

4.0 Introduction

Chapter 4 focuses on analyzing and interpreting data gathered through online and offline survey distribution to the target respondents. The collected data was processed and analyzed using the SPSS. Furthermore, analysis on description, inference, reliability, and regression are also carried out for presenting required information.

4.1 Descriptive Analysis

Table 4.1

Gender

Gender	Frequency	Percentage (%)
Male	64	47.1
Female	72	52.9

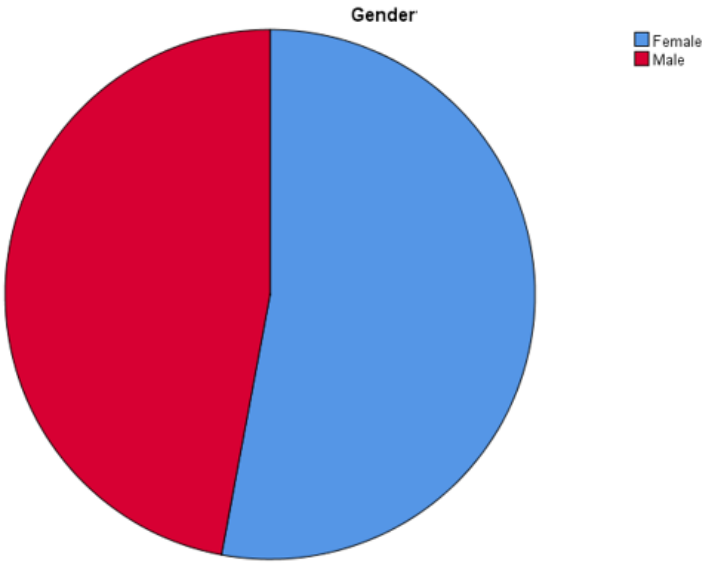

Figure 4.1 Percentage of Respondents' Gender.

Based on the Table 4.1 and Figure 4.1, the percentage of respondents' gender is shown in the. 47.1% of the respondents were male and 52.9% of respondents were female.

Table 4.2

Age

Age Range	Frequency	Percentage (%)
18 – 24 years old	45	33.1
25 – 34 years old	54	39.7
35 – 44 years old	24	17.6
45 – 54 years old	10	7.4
55 – 60 years old	2	1.5

Older than 60 years old	1	0.7

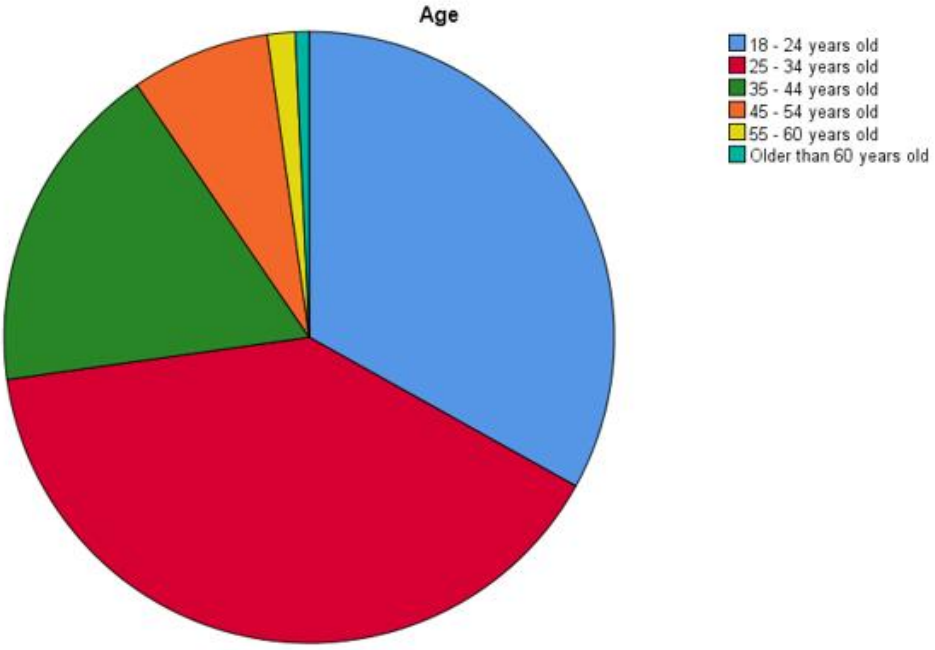

Figure 4.2 Percentage of Respondents on Age.

Table 4.2 and Figure 4.2 show the percentage distribution of respondents by age. The largest group consists of those aged 25-34 years, making up 39.7% of the total respondents, followed closely by the 18-24 years group with 33.1%. The 35 – 44 years old group makes up 17.6%, followed by the 45 – 54 years old group which has 7.4%, and the 55 – 60 years old group has 1.5%. Finally, respondents older than 60 years make up only 0.7% of the sample.

Table 4.3

Highest Education Level

Highest Education Level	Frequency	Percentage (%)
Primary School	3	2.2
Secondary School	22	16.2
Diploma/ Foundation/ Certificate	54	39.7
Undergraduate Degree	56	41.2
Master/ Doctoral Degree	1	0.7

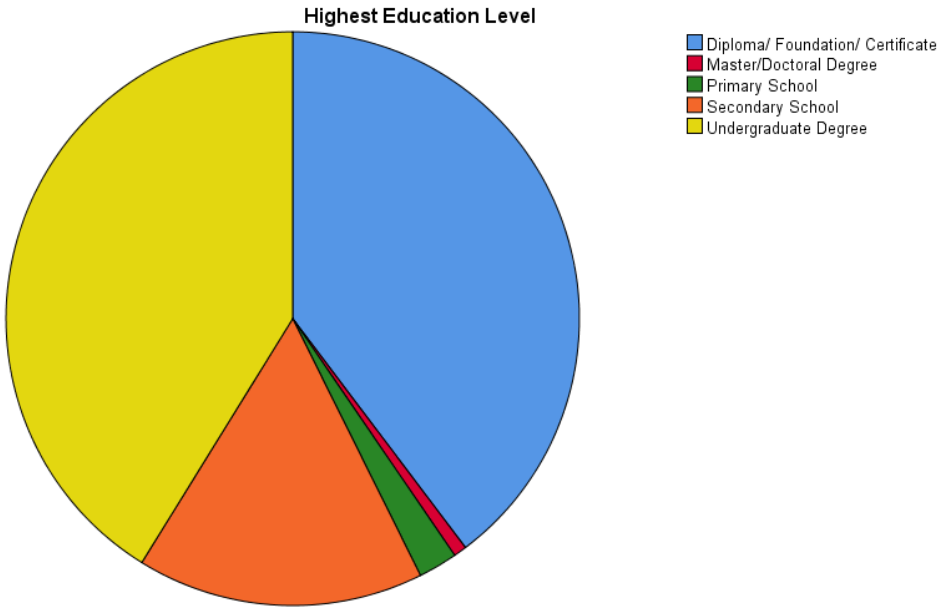

Figure 4.3 Percentage of Highest Education Level.

Based on Table 4.3 and Figure 4.3, most of the respondents have an Undergraduate Degree (41.2%), the second highest composition of the education status is the Diploma/ Foundation/ Certificate (39.7%), followed by Secondary School (16.2%) and the rest of Primary School (2.2%), and Master/ Doctoral Degree (0.7%).

Table 4.4

Job Position

Job Position	Frequency	Percentage (%)
Founder/ Director	3	2.2
CEO/ General Manager	9	6.6
Assistant Managers/ Manager	6	4.4
Executives	42	30.9
General Staff	76	55.9

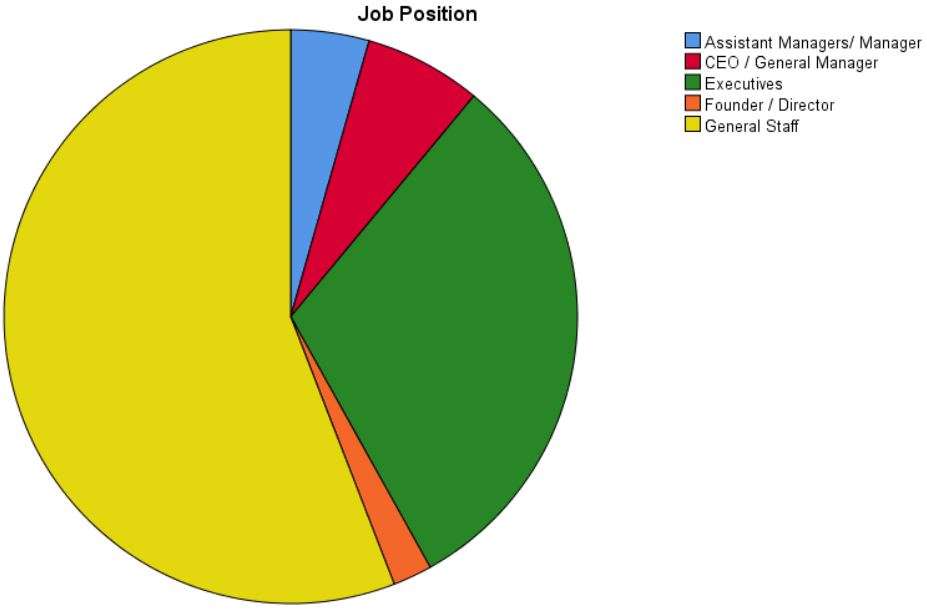

Figure 4.4. Job Position.

From the Table 4.4 and Figure 4.4, 55.9% of the respondents are general staff, with respectively to 30.9% of the respondents are executives. Followed by CEO/ General Manager (6.6%), Assistant Manager/ Manager (4.4%) and Founder/ Director (2.2%). This figure enabled this research to obtain more opinions from the general staff.

Table 4.5

Years of Service

Years of Service	Frequency	Percentage (%)
1 – 5 years	95	69.9
6 – 10 years	28	20.6

11 – 15 years	12	8.8
Above 15 years	1	0.7

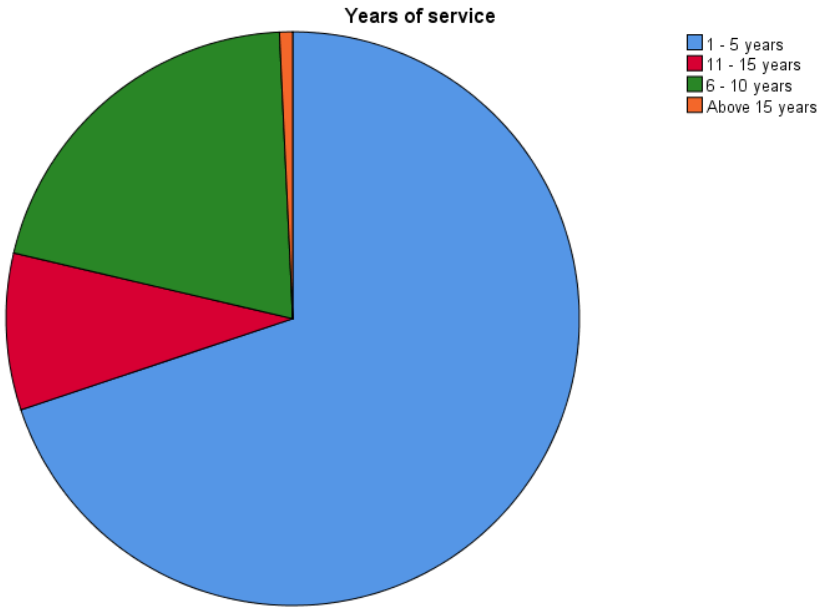

Figure 4.5. Years of Service.

Refer to Table 4.5 and Figure 4.5, most respondents (69.9% or 95 respondents) had 1-5 years of service in the logistics industry. In addition, 28 respondents (20.6%) had 6-10 years of service and 12 respondents (8.8%) had 11-15 years of service. The group with the lowest number of respondents was 15 years and above, with only one respondent or 0.7%.

4.1.1 Central Tendencies Measurement of Constructs

Table 4.6

Variable, Sample Size, Mean, and Standard Deviation

Variable	Mean	Standard Deviation
Employee Green Behavior	3.9154	0.47529
Green Organizational Culture	3.8585	0.52037
Ethical Leadership	3.8539	0.53154
Green Human Resource Management	3.7169	0.63760

*Dependent Variable: Employee Green Behavior

Based on the Table 4.6, Employee Green Behavior had the highest mean value of 3.9154 with a standard deviation of 0.47529. Followed by the Green Organizational Culture and Ethical Leadership, which had the mean value of 3.8585 and 3.8539 with a standard deviation of 0.52037 and 0.53154. Lastly, the Green Human Resource Management had a mean value and standard deviation of 3.7169 and 0.63760.

4.2 Scale Measurement

4.2.1 Outlier test

Table 4.7

Information on Outlier's Value

Code of Questionnaire	Variable	Lower/Upper Fence	Extreme Value
6	Green Human Resource Management	1.30	1.25
26	Green Human Resource Management	1.30	1.25
40	Employee Green Behavior	2.60	2.50
70	Green Organizational Culture	1.90	1.88
94	Employee Green Behavior	2.65	2.63
94	Ethical Leadership	2.38	2.13
102	Employee Green Behavior	2.60	2.50

Note. Developed for the research.

This research had used SPSS software to run for the outlier test. Any p-value less than 0.05 is considered as outlier data. Based on the Table 4.7, 7 inputs that were below 0.05 have been removed.

4.2.2 Reliability Analysis

Table 4.8

Reliability Analysis

Variable	**No. of Item**	**Cronbach's Alpha**	**Reliability**
Employee Green Behavior	8	0.731	Reliable
Green Organizational Culture	8	0.822	Very Reliable
Ethical Leadership	8	0.780	Reliable
Green Human Resource Management	8	0.855	Very Reliable

Note: Developed for the research.

The Cronbach's alpha values for EGB (0.731), GOC (0.822), EL (0.780), and GHRM (0.855), as shown in Table 4.8, indicate that EGB and EL are within the reliable range of 0.60 to 0.80, while GOC and GHRM, with values between 0.80 and 1.00, are classified as very reliable. These results reflect a high degree of internal consistency for the variables assessed in this research.

4.3 Pearson Correlation Analysis

Table 4.9

Pearson Correlation

Independent Variable	r	Sig.
Ethical Leadership	0.570**	.000
Green Human Resource Management	0.597**	.000
Green Organizational Culture	0.619**	.000

**Dependent Variable: Employee Green Behavior*

**. Correlation is significant at the level of 0.001 (2-tailed)

Moderate value of Pearson correlation is often shown more reliable in social science due to the fact they reflex the inherent variability and show the complexity of social phenomena (Danacica, 2017).

According to Cohen (1988), there is a significant and positive correlation between employee green behavior and ethical leadership ($r = 0.570$, $p < 0.001$), green human resource management ($r = 0.597$, $p < 0.001$), and green organizational culture ($r = 0.619$, $p < 0.001$) referring to table 4.9. These correlation coefficients fall within the range of ±0.41 to ±0.70, indicating a moderate relationship between each independent variable and the dependent variable.

4.4 Linear Regression Analysis

Table 4.10

Model Summary

Model	R	R^2	Adj R^2	Std Error
1	0.677	0.458	0.446	.3537

**Dependent Variable: Employee Green Behavior*

**. Correlation is significant at the level of 0.001 (2-tailed)

Based on Table 4.10, the correlation coefficient (R value) between the independent and dependent variables is 0.677. This positive value indicates a positive correlation, with the R value falling within the range of ±0.41 to ±0.70, indicating a moderate relationship between the variables.

The R-squared value for this study was 45.8%, meaning that 45.8% of the variance in the dependent variable can be explained by the independent variables. However, 54.2% of the variance remains unexplained by this analysis.

Table 4.11

ANOVA

Variables	Sum of Squares	df	Mean Square	F	Sig.
Regression	13.968	3	4.656	37.185	0.000
Residual	16.528	132	0.125		
Total	30.496	135			

**/Dependent Variable: Employee Green Behavior*

**. Correlation is significant at the level of 0.001 (2-tailed)

Based on Table 4.11, the p-value and F value address the question, "Are the independent variables effective in predicting the dependent variable?" (*Regression analysis*, n.d.). The p-value (Sig. 0.000) is below the alpha level of 0.05, and the F value (3,132) = 37.185, $p < 0.05$, indicates that the regression model fits the data well. Therefore, the independent variables significantly contribute to explaining the dependent variable, and the alternative hypothesis is supported by the evidence.

Table 4.12

Linear Regression Analysis

Hypothesis	Variables	R^2	Adj R^2	B	F	Sig
H_1	EL	0.394	0.389	0.614	87.098	0.000**

H_2	GHRM	0.562	0.558	0.612	171.638	0.000**
H_5	EGB	0.383	0.379	0.565	83.252	0.000**

Note. Dependent Variable: Employee Green Behavior; Significant levels: ***p<0.001; **p<0.01; *p<0.05.

4.4.1 Correlation between Ethical Leadership and Green Organizational Culture

The first research hypothesis (H1) tested the relationship between EL and GOC, which was:

H1: There is a relationship between ethical leadership and green organizational culture in logistics operations.

As shown in Table 4.12, H1 was used to predict GOC based on EL. The analysis resulted in an R^2 of .389 and a significant regression equation, F (3,132) = 87.098, p < .001. When ethical leadership is measured, GOC is predicted to be 1.490 + .614 units. This means that for each unit of EL, EGB increases by .614. The regression model highlights a positive correlation between EL and GOC in logistics operations. Therefore, H1 is accepted.

4.4.2 Correlation between Green Human Resource Management and Green Organizational Culture

The second research hypothesis (H2) tested the relationship between GHRM and GOC, which was:

H1: There is a relationship between green human resource management and green organizational culture in logistics operations.

According to Table 4.12, H2 was calculated to predict GOC based on GHRM. The analysis revealed a significant regression equation, $F(3,132) = 171.638$, $p < .001$, with an R^2 of .562. When GHRM is measured, the predicted GOC is 1.585 + .612 units. As a result, EGB increases by .612 for each unit of GHRM. The regression model indicates a positive relationship between GHRM and GOC in logistics operations. Therefore, H2 is accepted.

4.4.3 Correlation between Green Organizational Culture and Employee Green Behavior

The relationship between GOC and EGB was examined by testing the fifth research hypothesis (H5), which was:

H5: There is a relationship between green organizational culture and employee green behavior in logistics operations.

Based on Table 4.12, H5 was calculated to predict EGB based on GOC. A significant regression equation was found F (3,132) = 83.252, p < .001, with an R^2 of .383. EGB is predicted to be equal to 1.734 + .565 units when GOC is measured. Therefore, EGB increased by .565 for each unit of GOC. The regression model shows a positive relationship between GOC and EGB in logistics operations. Therefore, H5 is accepted.

4.5 Mediation Model Testing

H3: Green Organizational Culture mediates the relationship between Ethical Leadership and Employee Green Behavior in logistics operation

Table 4.13

Mediation Model Summary: Mediating Effect of Green Organizational Culture on Ethical Leadership and Employee Green Behavior

Relationship	Total Effect	Direct Effect	Indirect Effect	Confidence Interval		p	Conclusion
				Lower Bound	Upper Bound		
EL→GOC→EGB	0.5094 (0.0000)	0.2672 (0.0005)	0.2421	0.1597	0.3856	0.0005	Partial Mediation

Note. P-Value for Direct Effect.

Based on Table 4.13, results shown that the indirect effect of the influence of EL on EGB is significant (b = 0.2421, 95% CI = [0.1597, 0.3856]). Moreover, the direct effect of the influence of EL on GOC is significant as well (b = 0.2672, p < 0.05) (Qomariah & Susteyo, 2024). Hence, GOC partially mediates the relationship between EL and EGB.

The Sobel test for indirect effect was significant. The obtained p-value was 0.00000619, standard error was 0.0536, and point estimate was 2.2421 (4.5199*0.0536). Using 10,000 boot-strapped samples instead, the obtained point estimates is 0.005 (SE = 0.0578, 95% CI = 0.1597 to 0.3856).

H4: Green Organizational Culture mediates the relationship between Green Human Resources Management and Employee Green Behavior in logistics operation

Table 4.14

Mediation Model Summary: Mediating Effect of Green Organizational Culture on Green Human Resources Management and Employee Green Behavior

Relationship	Total Effect	Direct Effect	Indirect Effect	Confidence Interval		p	Conclusion
				Lower Bound	Upper Bound		
GHRM→GOC→EGB	0.4452 (0.0000)	0.2266 (0.0027)	0.2185	0.1295	0.4633	0.0027	Partial Mediation

Note. P-Value for Direct Effect.

Based on Table 4.14, results shown that the indirect effect of the influence of GHRM on EGB is significant (b = 0.2185, 95% CI = [0.1285, 0.4633]). Moreover, the direct effect of the influence of GHRM on GOC is significant as well (b = 0.0027, $p < 0.05$) (Qomariah & Susteyo, 2024). Hence, GOC partially mediates the relationship between GHRM and EGB.

The Sobel test for indirect effect was significant. The obtained p-value was 0.000164, standard error was 0.0580, and point estimate was 0.02185 (3.7686*0.05799). Using 10,000 boot-strapped samples instead, the obtained point estimates is 0.005 (SE = 0.0849, 95% CI = 0.1295 to 0.4633).

CHAPTER 5: DISCUSSION, CONCLUSION, AND IMPLICATIONS

5.0 Introduction

By summarizing the results from the preceding chapter, Chapter 5 validates the research objectives and hypothesis, assesses the study's limitations, and suggests directions for future research.

5.1 Discussion of Major Findings

This study aims to examine how employee green behavior in logistics operations is linked to the three independent variables. Table 5.1 presents the final findings of the hypothesis testing:

Table 5.1

Summary of the result of hypothesis

Hypothesis	**Standardized coefficients Beta**	**Significant level**	**Results**
H1: There is a relationship between ethical leadership and	0.614	0.000	Supported

green organizational culture in logistics operation.			
H2: There is a relationship between green human resource management and green organizational culture in logistics operation.	0.612	0.000	Supported
H3: Green organizational culture mediate the relationship between ethical leadership and employee green behavior in logistics operation.	0.2421	0.005	Supported
H4: Green organizational culture mediate the relationship between green human resource management and employee green behavior in logistics operation.	0.2185	0.005	Supported
H5: There is a relationship between green organizational culture and employee green behavior in logistics operation.	0.565	0.000	Supported

Note. Developed for the research.

5.1.1 Ethical Leadership

The result for the direct effect of EL on GOC is significant (b = 0.2672, p < 0.05). The result was supported by Şengüllendi et al. (2024). Hence, the

data is supported when top management's leadership is ethically and environmentally friendly and has the concept of green, which directly impacts the employees' behavior and which will then form a green culture, as supported by Wang and Feng (2023). The data suggested that the leaders can encourage, motivate and make a culture for these sustainable practices in logistics (Hartana et al., 2023). Overall, this study has proved the relationship between EL and EGB in logistics operations, as tested by Şengüllendi et al. (2024).

Based on the result, EL has a positive relationship with the GOC in logistics operations. Therefore, RQ1 is answered, and the H1 is supported.

5.1.2 Green Human Resource Management

According to the analysis results, a significant direct relationship exists between GHRM and GOC ($b = 0.0027$, $p < 0.05$). This result is supported by Al-Swidi et al. (2021) and Sobaih et al. (2024). Hence, data-supported practices such as recruitment and selection, fleet management, and vehicle planning and scheduling will improve employee empowerment and the behavioral aspects of green logistics. These practices can be seen as a catalysis to employees to develop and promote this green organizational culture in the organization (Aggarwal & Agarwala, 2023) as it moulds the behaviour and perspective of an employee (Chen, 2011). From here, employees will then commit themselves to green behaviour as they have aligned sustainable practices with their identity (Al-Swidi et al., 2021).

Based on the result, GHRM positively correlates with GOC in logistics operations. Therefore, RQ2 is answered, and the H2 is supported.

5.1.3 Green Organizational Culture

According to the analysis results, a significant indirect relationship exists between EL towards EGB mediated by GOC (b = 0.2421, 95% CI = [0.1597, 0.3856]). The result was supported by Al-Swidi et al. (2021). Hence, the data suggest that encourage, motivate and make a culture for these sustainable practices in logistics (Hartana et al., 2023). From these practices, the employee will commit to environmental practices as they align with their identity and their acceptance these practices (Şengüllendi et al., 2024).

Based on the result, the significant indirect relationship between EL and EGB in logistics operations. Therefore, RQ3 is answered, and the H3 is supported.

According to the analysis results, a significant indirect relationship exists between GHRM towards EGB mediated by GOC (b = 0.2185, 95% CI = [0.1285, 0.4633]). This result was supported by Al-Swidi et al. (2021). Hence, when the HR practices combine with the sustainable practices, it will increase the employee awareness. It will act as a catalysis to employee to adopt these practices which after they accept and align with their identity and the company values (Aggarwal & Agarwala, 2023; Al-Swidi et al., 2021).

Based on the result, the significant indirect relationship between GHRM and EGB in logistics operations. Therefore, RQ4 is answered, and the H4 is supported.

The result generated by SPSS shows a positive and significant relationship between GOC and EGB — the p-value (Sig.) of GOC is 0.000. This result

was supported by Al-Swidi et al. (2021). Hence, when the company emphasizes its corporate culture in an eco-friendly way, its employees behave eco-friendly as prioritizing environmental responsibility becomes a part of the organizational behavior.

Based on the result, GOC positively correlates with EGB in logistics operations. Therefore, RQ5 is answered, and the H5 is supported.

5.2 Implication of the study

5.2.1 Practical Implications

This study offers practical implications for managers and organizations aiming to foster sustainable practices within logistics operations. Green human resource management is a crucial driver of employee green behavior. Organizations should integrate training, reward systems, and green recruitment into their HR policies to foster employee green behavior (Al-Swidi et al., 2021). According to Nurcholis et al. (2024), GHRM practices should align with corporate values to strengthen an organization's green performance. Specifically, GHRM should provide training to familiarize employees with green systems to enhance EGB in the workplace.

For example, HR departments can organize seminars for logistics employees to introduce systems such as the Grey Wolf Optimized Genetic Algorithm. Through this training, employees can learn and become familiar with adopting it as part of their route planning procedures. According to Nurcholis et al. (2024), employees who gain green knowledge are more

likely to prevent unsafe behaviors that could lead to environmental pollution in the shipping industry. Therefore, organizations adopting these GHRM practices can enhance employee engagement in green behaviors and contribute to a more environmentally responsible workplace culture.

The findings from Leung et al. (2023) mentioned that both external regulatory environments and internal company initiatives significantly influence employee green behavior. International standards like ISO 14000 and IMO 2020 have forced logistics businesses to implement environmentally friendly operations. Ethical leaders are important in this context as leaders set a positive example and foster a culture of sustainability. For example, leaders can act as role models by implementing efficient route planning and reducing paper use in logistics operations. Organizations should invest in leadership development programs and seminars to cultivate ethical leaders.

According to Leung et al. (2023), logistics companies can expand their talent pool by collaborating with universities to attract new talent with knowledge of green logistics and sustainability practices. According to Leung et al. (2023), companies can provide students with practical experience while leveraging their existing knowledge in these areas by partnering with academic institutions to create internship programs.

By involving individuals proficient in green logistics, companies can foster a culture of sustainability from the ground up, promoting employee engagement in environmentally responsible behaviors. As more interns join the company, they contribute to establishing a solid organizational green culture. Their new ideas can motivate existing employees to engage in green practices. Moreover, the involvement of ethical leadership and GHRM in logistics operations will establish and sustain a robust GOC, as ethical

leadership promotes a shared vision of sustainability. At the same time, GHRM integrates sustainability into recruitment, training, performance evaluation, and rewards. These elements foster a GOC that influences employees to align with the company's environmental objectives, leading to successful green logistics operations.

5.2.2 Theoretical Implications

This study expands the application of Social Identity Theory (SIT) and Social Learning Theory (SLT) in understanding employee green behavior (EGB) within logistics operations.

SLT posits that individuals adopt behaviors through observation and imitation (Bandura, 1969). Ethical leadership (EL) aligns with this theory, as leaders who model sustainable practices provide employees with green behavior to encourage them to adopt similar practices in their roles. The behavioral, personal, and environmental factors from SLT can be applied to the logistics field by ethical leaders to optimize the routeing process (personal factor), reduce paper usage (environmental factor), and promote sustainable logistics operations (behavioral factor). By modeling green values, ethical leaders establish a green organizational culture (GOC), which serves as a critical mechanism for translating the influence of EL into EGB. GOC creates an environment where employees feel supported and motivated to engage in green practices. When EL promotes green values, it fosters a shared culture that reinforces sustainable behaviors among employees, thereby enhancing EGB.

SIT is built on social categorization, social identification, social comparison, and positive distinction. SIT suggests that individuals gain a portion of their

identity from belonging to groups and sharing common values (Tajfel 1979, as cited in Khan et al., 2023). In this study, GHRM practices align with SIT by encouraging employees to internalize green values and identify with a "green logistics" group. GHRM initiatives like green recruitment and training reinforce environmental responsibility and foster this categorization. Social comparison strengthens this identification, as employees with green knowledge differentiate themselves from others, leading to positive distinction and enhanced EGB. However, GHRM practices alone may not directly lead to EGB. They need to be integrated within a strong GOC to effectively promote green behavior (Al-Swidi et al., 2021). GOC acts as a mediator by embedding green values into organizational norms, policies, and practices, reinforcing the employees' sense of belonging to the "green group." This shared culture makes sustainability a group value, not just an individual one. Through this mediation, GOC amplifies the impact of GHRM on EGB, motivating employees to adopt green behaviors by fostering an identity-driven sustainability framework.

GOC is not a direct component of SIT or SLT but serves as a critical mediating factor that bridges and complements these theories. A strong GOC fosters a shared identity centered around sustainability, aligning closely with SIT's emphasis on social identification. When employees perceive themselves as members of a "green" organization, they are more likely to adopt green behaviors as part of their identity. GOC also supports SLT by creating an environment where sustainable practices modeled by ethical leader are reinforced at an organizational level. This shared culture enhances the observation, imitation, and adoption of green behaviors. This suggests that GOC could be a foundational component in extending SIT to contexts where environmental sustainability is prioritized, bridging SIT and SLT to include environmental stewardship as a valued part of organizational identity and behavior.

5.3 Limitations of study

This study's first limitation is the limited past research on employee green behavior, specifically in logistics operations and within Malaysia. The insufficient prior studies in this context may present a challenge in defining and establishing an appropriate academic model or theoretical foundation for this study. Furthermore, this study utilized self-reporting method by which the respondents respond positively relating to themselves in order to avoid undesirability (Wan & Hanib, 2020). Thus, this may lead to social desirability bias in skewing the report. Additionally, this study is focused on the Klang Valley area, which may not be representative of the logistics sector throughout Malaysia. This is due to the fact of different cultures of practices each of the states has across Malaysia

These limitations are acknowledged but are relevant to the significance of the findings. They highlight potential areas for improvement and provide a foundation for future research to build upon and expand the understanding of employee green behavior in Malaysia's logistics sector.

5.4 Recommendation for Future Study

Future research should concentrate on how the variable of legal considerations has constricted the company's ability to conduct employee green behavior. Hence, this may significantly increase the relativity to the intention to conduct employee green behavior in logistics operations. Future studies are encouraged to incorporate projective questions to capture genuine responses. This could help reveal more honest responses without any feeling of personal judgement. Future studies are also suggested to expand its researching area to Pulau Pinang and Johor. This could enhance the generalizability of the findings as the mentioned regions are significant

logistics hubs with substantial economic and operational characteristics that could influence employee green behavior. Therefore, future studies should include a more diverse geographical settings where future studies can differentiate the commonalities in employee green behavior towards the 3 variables proposed (Tetteh et al., 2024).

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APPENDICES

Appendix 3.1

Questionnaire

Factors Influencing Employees' Green Behavior in Logistics Operations.

Dear respondents,

We are students of Bachelor of Business Administration (Hons) in Logistics and Supply Chain Management from Faculty of Business and Finance (FBF) in Universiti Tunku Abdul Rahman (UTAR). The purpose of this study is to examine the factors influencing employees' green behavior in logistics operation for our UBSM3066 Research Project. We hope you will be able to assist us in completing this survey.

This questionnaire consists of 3 sections. Section A pertains to demographics, while Sections B and C cover all the variables in the study. It should take approximately 5 to 10 minutes to complete this questionnaire. Your participation in this study is greatly appreciated.

The information collected from you will be kept strictly private and confidential. All responses and findings will be used solely for academic purpose.

If you have any question regarding to this questionnaire, you may contact us at leeshanhui799@1utar.my.

Your sincerely,
How Yao Le
Joanne Chia Zhu En
Lee Shan Hui
Teng Qian Ying

PERSONAL DATA PROTECTION STATEMENT

Please be informed that in accordance with Personal Data Protection Act 2010 ("PDPA") which came into force on 15 November 2013, Universiti Tunku Abdul Rahman ("UTAR") is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

Notice:

1. The purposes for which your personal data may be used are inclusive but not limited to:-
   - For assessment of any application to UTAR
   - For processing any benefits and services
   - For communication purposes
   - For advertorial and news
   - For general administration and record purposes
   - For enhancing the value of education
   - For educational and related purposes consequential to UTAR
   - For the purpose of our corporate governance
   - For consideration as a guarantor for UTAR staff/ student applying for his/her scholarship/ study loan

2. Your personal data may be transferred and/or disclosed to third party and/or UTAR collaborative partners including but not limited to the respective and appointed outsourcing agents for purpose of fulfilling our obligations to you in respect of the purposes and all such other purposes that are related to the purposes and also in providing integrated services, maintaining and storing records. Your data may be shared when required by laws and when disclosure is necessary to comply with applicable laws.

3. Any personal information retained by UTAR shall be destroyed and/or deleted in accordance with our retention policy applicable for us in the event such information is no longer required.

4. UTAR is committed in ensuring the confidentiality, protection, security and accuracy of your personal information made available to us and it has been our ongoing strict policy to ensure that your personal information is accurate, complete, not misleading and updated. UTAR would also ensure that your personal data shall not be used for political and commercial purposes.

Consent:

1. By submitting this form you hereby authorise and consent to us processing (including disclosing) your personal data and any updates of your information, for the purposes and/or for any other purposes related to the purpose.

2. If you do not consent or subsequently withdraw your consent to the processing and disclosure of your personal data, UTAR will not be able to fulfill our obligations or to contact you or to assist you in respect of the purposes and/or for any other purposes related to the purpose.

3. You may access and update your personal data by writing to us at leeshanhui799@1utar.my.

Acknowledgment of Notice

[ ] I have been notified by you and that I hereby understood, consented and agreed per UTAR above notice.

[ ] I disagree, my personal data will not be processed.

……
Name:

Date:

Section A: Demographic Profile

Please place a tick "√" for each of the following:

1. Gender
   - ☐ Female
   - ☐ Male

2. Age
   - ☐ 18 – 24 years old
   - ☐ 25 – 34 years old
   - ☐ 35 – 44 years old
   - ☐ 45 – 54 years old
   - ☐ 55 – 60 years old
   - ☐ Older than 60 years old

3. Highest Education Level
   - ☐ Primary School
   - ☐ Secondary School
   - ☐ Diploma/ Foundation/ Certificate
   - ☐ Undergraduate Degree
   - ☐ Master/ Doctoral Degree

4. Job Position
   - ☐ Founder/ Director
   - ☐ CEO/ General Manager
   - ☐ Assistant Managers/ Manager
   - ☐ Executives
   - ☐ General Staff

5. Years of Service
   - ☐ 1 – 5 years
   - ☐ 6 – 10 years
   - ☐ 11 – 15 years

☐ Above 15 years

Section B Dependent Variable

Please circle the most appropriate option that best indicate your agreement level with the following statements based on your buying experience as a customer.

Level of agreement

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

The following statement indicates the level of employee green behavior to logistics operation. The number 1 to 5 reflect a scale, with 1 representing strongly disagree and 5 representing strongly agree. Please choose the option that best represents your view regarding that statement based on your opinion.

Employee green behavior

No.	Items	SD	D	N	A	SA
1	I perform routine tasks by reducing use, reusing materials, and recycling.	1	2	3	4	5
2	I fulfill my job responsibilities by choosing responsible alternatives and adapting work methods for sustainability.	1	2	3	4	5
3	I create sustainable methods to perform expected tasks, aligning my work with environmental best practices.	1	2	3	4	5

4	I took a chance to involve in programs that prioritize sustainability.	1	2	3	4	5
5	I took initiative by embracing sustainability and reducing harm.	1	2	3	4	5
6	I committed in work to the environment by avoiding pollution, strengthening ecosystems, and exceeding expectations.	1	2	3	4	5
7	I encourage and support colleagues by educating them on sustainable practices.	1	2	3	4	5
8	I collaborate with others to develop sustainable processes and ensure our work aligns with long-term environmental goals.	1	2	3	4	5

Section C Independent Variables

Please circle the most appropriate option that best indicate your agreement level with the following statements based on your buying experience as a customer.

Level of agreement

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

The following statement indicates the level of green organizational culture to logistics operation. The number 1 to 5 reflect a scale, with 1 representing strongly disagree and 5 representing strongly agree. Please choose the option that best represents your view regarding that statement based on your opinion.

Green organizational culture

No.	Items	SD	D	N	A	SA
1	My company makes a concerted effort to help me understand the importance of environmental preservation.	1	2	3	4	5
2	My company has a clear policy statement urging environmental awareness in workplace.	1	2	3	4	5
3	Environmental preservation is a high priority activity in my company.	1	2	3	4	5
4	Preserving the environment is a central corporate value in my company.	1	2	3	4	5
5	My company associates environmental friendly elements as part of the company's goals.	1	2	3	4	5
6	My company develops logistics SOP that minimize environment impact.	1	2	3	4	5
7	My company complies with environmental laws and principles.	1	2	3	4	5
8	My company changes its management practices due to environmental concerns.	1	2	3	4	5

Level of agreement

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

The following statement indicates the level of ethical leadership to logistics operation. The number 1 to 5 reflect a scale, with 1 representing strongly disagree and 5 representing strongly agree. Please choose the option that best represents your view regarding that statement based on your opinion.

Ethical leadership

No.	Items	SD	D	N	A	SA
1	My leader listens to employee suggestions for improving environmental practices in logistics operations.	1	2	3	4	5
2	My leader considers the environmental impact of logistics operations while keeping employees' well-being in mind.	1	2	3	4	5
3	My leader makes balanced decisions that consider both operational efficiency and environmental sustainability.	1	2	3	4	5
4	My leader can be trusted to prioritize green practices in logistics operations.	1	2	3	4	5
5	My leader discusses the importance of green practices and environmental ethics in logistics operations with employees.	1	2	3	4	5

6	My leader sets an example by adopting environmentally friendly practices in logistics operations.	1	2	3	4	5
7	My leader's success in logistics operations is measured by both results and the sustainability of the methods used.	1	2	3	4	5
8	Before making decisions in logistics operations, my leader asks, "What is the most environmentally responsible action to take?"	1	2	3	4	5

Level of agreement

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

The following statement indicates the level of green human resource management to logistics operation. The number 1 to 5 reflect a scale, with 1 representing strongly disagree and 5 representing strongly agree. Please choose the option that best represents your view regarding that statement based on your opinion.

Green human resource management

No.	Items	SD	D	N	A	SA
1	My company associates green initiative with the company's vision and mission.	1	2	3	4	5

2	My company provides environmental management training to promote green initiatives to all employees.	1	2	3	4	5
3	My company provides employees with environmental management training to develop employees' knowledge and skills required for green management.	1	2	3	4	5
4	My company includes employees' green practices in workplace as part of the staff performance appraisal.	1	2	3	4	5
5	My company rewards the employees' effort of the green initiatives in workplace.	1	2	3	4	5
6	My company assess employees' green practices in workplace as part of the staff promotion scheme.	1	2	3	4	5
7	My company considers personal identity-environmental management fit in the recruitment and selection.	1	2	3	4	5
8	Employees fully understand the extend of corporate environmental policy.	1	2	3	4	5

Appendix 3.2

Questions of dependent variable, mediator and independent variables

Dependent Variable - Employee green behavior		
Q1	I perform routine tasks by reducing use, reusing materials, and recycling.	Adapted from Ahmad et al. (2021) and Nurcholis et al. (2024)
Q2	I fulfil my job responsibilities by choosing responsible alternatives and adapting work methods for sustainability.	
Q3	I create sustainable methods to perform expected tasks, aligning my work with environmental best practices.	
Q4	I took a chance to involve programs that prioritize sustainability.	
Q5	I took initiative by embracing sustainability and reducing harm.	
Q6	I committed in work to the environment by avoiding pollution, strengthening ecosystems, and exceeding expectations.	
Q7	I encourage and support colleagues by educating them on sustainable practices.	Adapted from Nurcholis et al. (2024)
Q8	I collaborate with others to develop sustainable processes and ensure our work aligns with long-term environmental goals.	
Mediator - Green organizational culture		
Q1	My company makes a concerted effort to help me understand the importance of environmental preservation.	Adapted from Yeşiltaş et al. (2022) Adapted from Yeşiltaş et al. (2022)
Q2	My company has a clear policy statement urging environmental awareness in workplace.	
Q3	Environmental preservation is a high priority activity in my company.	
Q4	Preserving the environment is a central corporate value in my company.	
Q5	My company associates environmental friendly elements as part of the company's goals.	
Q6	My company develops logistics SOP that minimize environment impact.	Adapted from Mirahsani et al. (2023)
Q7	My company complies with environmental laws and principles.	
Q8	My company changes its management practices due to environmental concerns.	
Independent Variable – Ethical Leadership		
Q1	My leader listens to employee suggestions for improving environmental practices in logistics operations.	Adapted from Islam et al. (2021)
Q2	My leader considers the environmental impact of logistics operations while keeping employees' well-being in mind.	

Q3	My leader makes balanced decisions that consider both operational efficiency and environmental sustainability.	
Q4	My leader can be trusted to prioritize green practices in logistics operations.	
Q5	My leader discusses the importance of green practices and environmental ethics in logistics operations with employees.	
Q6	My leader sets an example by adopting environmentally friendly practices in logistics operations.	
Q7	My leader's success in logistics operations is measured by both results and the sustainability of the methods used.	Adapted from Islam et al. (2021)
Q8	Before making decisions in logistics operations, my leader asks, "What is the most environmentally responsible action to take?"	
Independent Variable – Green human resource management		
Q1	My company associates green initiative with the company's vision and mission.	Adapted from Ahmad et al. (2021)
Q2	My company provides environmental management training to promote green initiatives to all employees.	
Q3	My company provides employees with environmental management training to develop employees' knowledge and skills required for green management.	
Q4	My company includes employees' green practices in workplace as part of the staff performance appraisal.	
Q5	My company rewards the employees' effort of the green initiatives in workplace.	
Q6	My company assess employees' green practices in workplace as part of the staff promotion scheme.	
Q7	My company considers personal identity-environmental management fit in the recruitment and selection.	Adopted from Fawehinmi et al. (2020)
Q8	Employees fully understand the extend of corporate environmental policy.	

Appendix 3.3:

Questions Coding Table: Personal and Demographical Questions

No.	Items	Indicators	Sources
1	Gender	1= Male 2= Female	Adopted from Aboramadan and Karatepe (2021)
2	Age	1= 18-24 years old 2= 25-34 years old 3= 35-44 years old 4= 45-54 years old 5= 55-60 years old 6= Older than 60 years old	Adapted from MINIMUM RETIREMENT AGE ACT 2012. (2016) and Yu and Wu (2021)
3	Highest Education Level	1= Primary School 2= Secondary School 3= Diploma/ Foundation/ Certificate 4= Undergraduate Degree 5= Master/ Doctoral Degree	Adopted from Kaur (2021)
4	Job Position	1= Founder/ Director 2= CEO/ General Manager 3= Assistant Managers/ Manager 4= Executives 5= General staff	Adopted from Peng et al. (2020)

5	Years of Service	1= 1-5 years 2= 6-10 years 3= 11-15 years 4= Above 15 years	Adopted from Ma Ying et al. (2020)

Appendix 4.1

Demographic Profile of Respondents

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	72	52.9	52.9	52.9
	Male	64	47.1	47.1	100.0
	Total	136	100.0	100.0	

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 - 24 years old	45	33.1	33.1	33.1
	25 - 34 years old	54	39.7	39.7	72.8
	35 - 44 years old	24	17.6	17.6	90.4
	45 - 54 years old	10	7.4	7.4	97.8
	55 - 60 years old	2	1.5	1.5	99.3
	Older than 60 years old	1	.7	.7	100.0
	Total	136	100.0	100.0	

Highest Education Level					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Diploma/ Foundation/ Certificate	54	39.7	39.7	39.7
	Master/Doctoral Degree	1	.7	.7	40.4
	Primary School	3	2.2	2.2	42.6
	Secondary School	22	16.2	16.2	58.8
	Undergraduate Degree	56	41.2	41.2	100.0
	Total	136	100.0	100.0	

Job Position				
	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Assistant Managers/ Manager	6	4.4	4.4	4.4
	CEO / General Manager	9	6.6	6.6	11.0
	Executives	42	30.9	30.9	41.9
	Founder / Director	3	2.2	2.2	44.1
	General Staff	76	55.9	55.9	100.0
	Total	136	100.0	100.0	

Years of service					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - 5 years	95	69.9	69.9	69.9
	11 - 15 years	12	8.8	8.8	78.7
	6 - 10 years	28	20.6	20.6	99.3
	Above 15 years	1	.7	.7	100.0
	Total	136	100.0	100.0	

Appendix 4.2

Reliability Analysis

Employee Green Behavior

Reliability Statistics	
Cronbach's Alpha	N of items
.731	8

Item Statistics			
	Mean	Std. Deviation	N
Q6	3.81	.879	136
Q7	3.95	.728	136
Q8	3.91	.820	136
Q9	3.75	.764	136
Q10	3.95	.833	136
Q11	3.99	.856	136
Q12	3.96	.820	136
Q13	3.97	.739	136
Q14	3.81	.879	136
Q15	3.95	.728	136

Ethical Leadership

Reliability Statistics	
Cronbach's Alpha	N of items
.780	8

Item Statistics			
	Mean	Std. Deviation	N
Q16	3.99	.802	136
Q17	3.89	.828	136
Q18	3.88	.750	136
Q19	3.94	.810	136
Q20	3.83	.853	136
Q21	3.81	.944	136
Q22	3.78	.855	136
Q23	3.66	.919	136
Q24	3.99	.802	136
Q25	3.89	.828	136

Green Human Resources Management

Reliability Statistics	
Cronbach's Alpha	N of items
.855	8

Item Statistics			
	Mean	Std. Deviation	N
Q36	3.85	.873	136
Q37	3.79	.835	136
Q38	3.71	.787	136
Q39	3.65	.937	136
Q40	3.59	.976	136
Q41	3.66	.982	136
Q42	3.64	1.000	136
Q43	3.81	.818	136
Q44	3.85	.873	136
Q45	3.79	.835	136

Green Organizational Culture

Reliability Statistics	
Cronbach's Alpha	N of items
.822	8

Item Statistics			
	Mean	Std. Deviation	N
Q46	3.80	.876	136
Q47	3.86	.808	136
Q48	3.80	.823	136
Q49	3.78	.783	136
Q50	3.79	.826	136
Q51	3.86	.805	136
Q52	3.89	.880	136
Q53	3.83	.862	136
Q54	3.80	.876	136
Q55	3.86	.808	136

Appendix 4.3

Pearson Correlation

Ethical Leadership

Descriptive Statistics			
	Mean	Std. Deviation	N
Ethical Leadership	3.8539	.53154	136
Employee Green Behavior	3.9154	.47529	136

Correlations			
		Ethical Leadership	Employee Green Behavior
Ethical Leadership	Pearson Correlation	1	.570**
	Sig. (2-tailed)		.000
	N	136	136
Employee Green Behavior	Pearson Correlation	.570*	1
	Sig. (2-tailed)	.000	
	N	136	136
**. Correlation is Significant at the level of 0.01 (2-tailed)			

Green Human Resource Management

Descriptive Statistics			
	Mean	Std. Deviation	N
Green Human Resource Management	3.7169	.63760	136
Employee Green Behavior	3.9154	.47529	136

Correlations			
		Green Human Resource Management	Employee Green Behavior
Green Human Resource Management	Pearson Correlation	1	.597**
	Sig. (2-tailed)		.000
	N	136	136
Employee Green Behavior	Pearson Correlation	.597**	1
	Sig. (2-tailed)	.000	
	N	136	136
**. Correlation is Significant at the level of 0.01 (2-tailed)			

Green Organizational Culture

Descriptive Statistics			
	Mean	Std. Deviation	N
Green Organizational Culture	3.8585	.52037	136
Employee Green Behavior	3.9154	.47529	136

Correlations			
			Employee Green Behavior

Green Organizational Culture	Pearson Correlation	1	.619**
	Sig. (2-tailed)		.000
	N	136	136
Employee Green Behavior	Pearson Correlation	.619**	1
	Sig. (2-tailed)	.000	
	N	136	136
**. Correlation is Significant at the level of 0.01 (2-tailed)			

Appendix 4.4

Linear Regression Analysis (Hypothesis 1)

Relationship between Ethical Leadership and Green Organizational Culture in Logistics Operation

Descriptive Statistics			
	Mean	Std. Deviation	N
Avg_EL	3.8539	.53154	136
Avg_GOC	3.8585	.52037	136

Correlations			
		Avg_GOC	Avg_EL
Pearson Correlation	Avg_GOC	1.000	.628
	Avg_GOC	.628	1.000
Sig. (1-tailed)	Avg_GOC	.	.000
	Avg_GOC	.000	.
N	Avg_GOC	136	136
	Avg_EL	136	136

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.628[a]	.394	.389	.40662	.394	87.098	1	134	.000

a. Predictors: (Constant), Avg_EL

b. Dependent Variable: Avg_GOC

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.401	1	14.401	87.098	.000[b]
	Residual	22.156	134	.165		
	Total	36.557	135			

a. Dependent Variable: Avg_GOC

b. Predictors: (Constant), Avg_EL

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.490	.256		5.819	.000
	Avg_EL	.614	.066	.628	9.333	.000
a. Dependent Variable: Avg_GOC						

Appendix 4.5

Linear Regression Analysis (Hypothesis 2)

Relationship between Green Human Resource Management and Green Organizational Culture in Logistics Operation

Descriptive Statistics			
	Mean	Std. Deviation	N
Avg_GHRM	3.7169	.52037	136
Avg_GOC	3.8585	.52037	136

Correlations			
		Avg_GOC	Avg_GHRM
Pearson Correlation	Avg_GOC	1.000	.749
	Avg_GHRM	.749	1.000
Sig. (1-tailed)	Avg_GOC	.	.000
	Avg_GHRM	.000	.
N	Avg_GOC	136	136
	Avg_GHRM	136	136

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change

1	.749[a]	.562	.558	.34584	.562	171.638	1	134	.000

a. Predictors: (Constant), Avg_GHRM

b. Dependent Variable: Avg_GOC

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.529	1	20.529	171.638	.000[b]
	Residual	16.027	134	.120		
	Total	36.557	135			

a. Dependent Variable: Avg_GOC

b. Predictors: (Constant), Avg_GHRM

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.585	.176		9.005	.000
	Avg_EL	.612	.047	.749	13.101	.000

a. Dependent Variable: Avg_GOC

Appendix 4.6

Linear Regression Analysis (Hypothesis 5)

Relationship between Green Organizational Culture and Employee Green Behavior in Logistics Operation

Descriptive Statistics			
	Mean	Std. Deviation	N
Avg_EGB	3.9154	.47529	136
Avg_GOC	3.8585	.52037	136

Correlations			
		Avg_EGB	Avg_GOC
Pearson Correlation	Avg_EGB	1.000	.619
	Avg_GOC	.619	1.000

Sig. (1-tailed)	Avg_EGB	.	.000
	Avg_GOC	.000	.
N	Avg_EGB	136	136
	Avg_GOC	136	136

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.619[a]	.383	.379	.37466	.383	83.252	1	134	.000

a. Predictors: (Constant), Avg_GOC

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.686	1	11.686	83.252	.000[b]
	Residual	18.810	134	.140		
	Total	30.496	135			

a. Dependent Variable: Avg_EGB

b. Predictors: (Constant), Avg_GOC

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.734	.241		7.187	.000
	Avg_GOC	.565	.062	.619	9.124	.000

a. Dependent Variable: Avg_EGB

Appendix 4.7

Mediation Analysis (Hypothesis 3)

Green organizational culture mediates the relationship between Ethical Leadership and Employee Green Behavior in Logistics Operation

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************
```

```
          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**************************************************************************
Model  : 4
    Y  : Avg_EGB
    X  : Avg_EL
    M  : Avg_GOC

Sample
Size:  136

**************************************************************************
OUTCOME VARIABLE:
 Avg_GOC

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .6276      .3939      .1653    87.0984     1.0000   134.0000      .0000

Model
             coeff         se          t          p       LLCI       ULCI
constant     1.4904      .2561     5.8192      .0000      .9839     1.9970
Avg_EL        .6145      .0658     9.3327      .0000      .4842      .7447

Standardized coefficients
           coeff
Avg_EL      .6276

**************************************************************************
OUTCOME VARIABLE:
 Avg_EGB

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .6613      .4373      .1290    51.6882     2.0000   133.0000      .0000

Model
             coeff         se          t          p       LLCI       ULCI
constant     1.3650      .2532     5.3907      .0000      .8642     1.8659
Avg_EL        .2672      .0747     3.5771      .0005      .1195      .4150
Avg_GOC       .3941      .0763     5.1642      .0000      .2431      .5450

Standardized coefficients
            coeff
Avg_EL       .2989
Avg_GOC      .4315

************************** TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
 Avg_EGB

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .5697      .3245      .1537    64.3762     1.0000   134.0000      .0000

Model
             coeff         se          t          p       LLCI       ULCI
constant     1.9524      .2470     7.9055      .0000     1.4639     2.4408
Avg_EL        .5094      .0635     8.0235      .0000      .3838      .6349

Standardized coefficients
           coeff
Avg_EL      .5697


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

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c_cs
      .5094      .0635     8.0235      .0000      .3838      .6349      .5697

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c'_cs
```

```
      .2672      .0747     3.5771      .0005      .1195      .4150      .2989

Indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
Avg_GOC      .2421      .0529      .1428      .3490

Completely standardized indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
Avg_GOC      .2708      .0578      .1597      .3856

**************************************************************************
Bootstrap estimates were saved to a file

Map of column names to model coefficients:
          Conseqnt Antecdnt
 COL1     Avg_GOC  constant
 COL2     Avg_GOC  Avg_EL
 COL3     Avg_EGB  constant
 COL4     Avg_EGB  Avg_EL
 COL5     Avg_EGB  Avg_GOC

*********** BOOTSTRAP RESULTS FOR REGRESSION MODEL PARAMETERS ************

OUTCOME VARIABLE:
 Avg_GOC

              Coeff   BootMean     BootSE   BootLLCI   BootULCI
constant     1.4904     1.4827      .3436      .8701     2.2069
Avg_EL        .6145      .6164      .0855      .4366      .7688

----------

OUTCOME VARIABLE:
 Avg_EGB

              Coeff   BootMean     BootSE   BootLLCI   BootULCI
constant     1.3650     1.3625      .2736      .8228     1.8986
Avg_EL        .2672      .2695      .0764      .1303      .4325
Avg_GOC       .3941      .3920      .0790      .2287      .5404

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

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  10000

------ END MATRIX -----
```

Appendix 4.8

Mediation Analysis (Hypothesis 4)

Green Organizational Culture mediates the relationship between Green Human Resource Management and Employee Green Behavior in Logistics Operation

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3
```

```
**************************************************************************
Model  : 4
    Y  : Avg_EGB
    X  : Avg_GHRM
    M  : Avg_GOC

Sample
Size:  136

**************************************************************************
OUTCOME VARIABLE:
 Avg_GOC

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .7494      .5616      .1196   171.6380     1.0000   134.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     1.5852      .1760     9.0050      .0000     1.2370     1.9333
Avg_GHRM      .6116      .0467    13.1011      .0000      .5193      .7039

Standardized coefficients
              coeff
Avg_GHRM      .7494

**************************************************************************
OUTCOME VARIABLE:
 Avg_EGB

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .6510      .4237      .1321    48.8986     2.0000   133.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     1.6944      .2344     7.2283      .0000     1.2307     2.1581
Avg_GHRM      .2266      .0741     3.0585      .0027      .0801      .3732
Avg_GOC       .3573      .0908     3.9350      .0001      .1777      .5369

Standardized coefficients
              coeff
Avg_GHRM      .3041
Avg_GOC       .3912

************************** TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
 Avg_EGB

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .5972      .3566      .1464    74.2835     1.0000   134.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     2.2608      .1948    11.6077      .0000     1.8756     2.6460
Avg_GHRM      .4452      .0517     8.6188      .0000      .3430      .5473

Standardized coefficients
              coeff
Avg_GHRM      .5972


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

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c_cs
      .4452      .0517     8.6188      .0000      .3430      .5473      .5972

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c'_cs
      .2266      .0741     3.0585      .0027      .0801      .3732      .3041

Indirect effect(s) of X on Y:
```

```
            Effect     BootSE   BootLLCI   BootULCI
Avg_GOC      .2185      .0615      .0984      .3424

Completely standardized indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
Avg_GOC      .2931      .0849      .1295      .4633

************************************************************************
Bootstrap estimates were saved to a file

Map of column names to model coefficients:
          Conseqnt Antecdnt
 COL1     Avg_GOC  constant
 COL2     Avg_GOC  Avg_GHRM
 COL3     Avg_EGB  constant
 COL4     Avg_EGB  Avg_GHRM
 COL5     Avg_EGB  Avg_GOC

*********** BOOTSTRAP RESULTS FOR REGRESSION MODEL PARAMETERS ************

OUTCOME VARIABLE:
 Avg_GOC

              Coeff   BootMean     BootSE   BootLLCI   BootULCI
constant     1.5852     1.5734      .2017     1.1695     1.9549
Avg_GHRM      .6116      .6146      .0517      .5161      .7173

----------

OUTCOME VARIABLE:
 Avg_EGB

              Coeff   BootMean     BootSE   BootLLCI   BootULCI
constant     1.6944     1.6918      .2599     1.1924     2.2156
Avg_GHRM      .2266      .2290      .0920      .0496      .4132
Avg_GOC       .3573      .3555      .0995      .1587      .5514

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

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  10000

------ END MATRIX -----
```

Appendix 4.9

Sobel Test Result – Mediation

Ethical Leadership

To conduct the Sobel test

Details can be found in Baron and Kenny (1986), Sobel (1982), Goodman (1960), and MacKinnon, Warsi, and Dwyer (1995). Insert the *a*, *b*, s_a, and s_b into the cells below and this program will calculate the critical ratio as a test of whether the indirect effect of the IV on the DV via the mediator is significantly different from zero.

Input:			Test statistic:	Std. Error:	*p*-value:
a	.6145	Sobel test:	4.51988967	0.05357973	0.00000619
b	.3941	Aroian test:	4.50017683	0.05381443	0.00000679
s_a	.0658	Goodman test:	4.53986386	0.05334399	0.00000563
s_b	.0763	Reset all	Calculate		

Green Human Resources Management

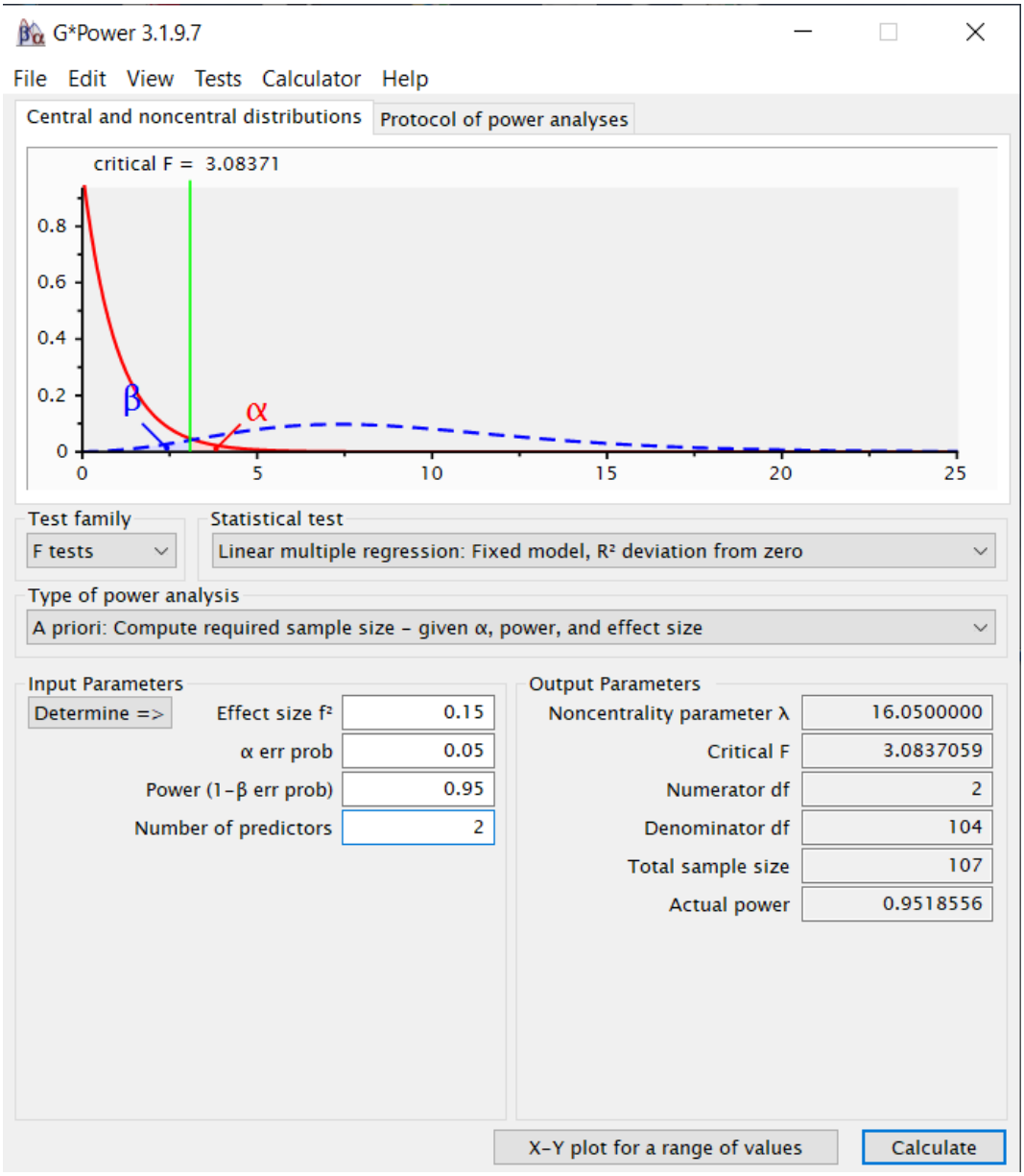
To conduct the Sobel test

Details can be found in Baron and Kenny (1986), Sobel (1982), Goodman (1960), and MacKinnon, Warsi, and Dwyer (1995). Insert the *a*, *b*, s_a, and s_b into the cells below and this program will calculate the critical ratio as a test of whether the indirect effect of the IV on the DV via the mediator is significantly different from zero.

Input:			Test statistic:	Std. Error:	*p*-value:
a	.6116	Sobel test:	3.76858295	0.0579859	0.00016418
b	.3573	Aroian test:	3.75854671	0.05814074	0.0001709
s_a	.0467	Goodman test:	3.77870002	0.05783065	0.00015765
s_b	.0908	Reset all	Calculate		

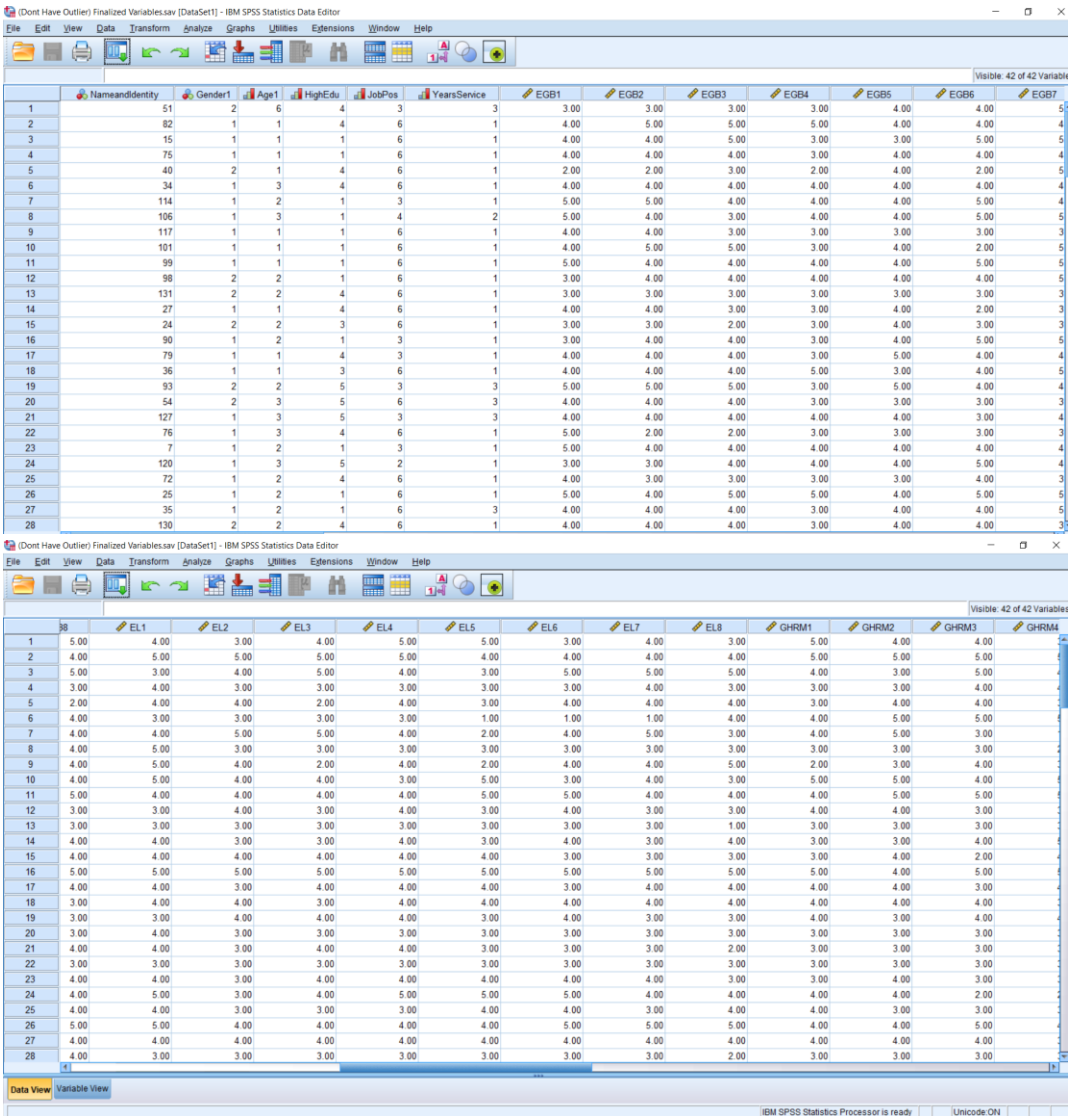
Appendix 4.10

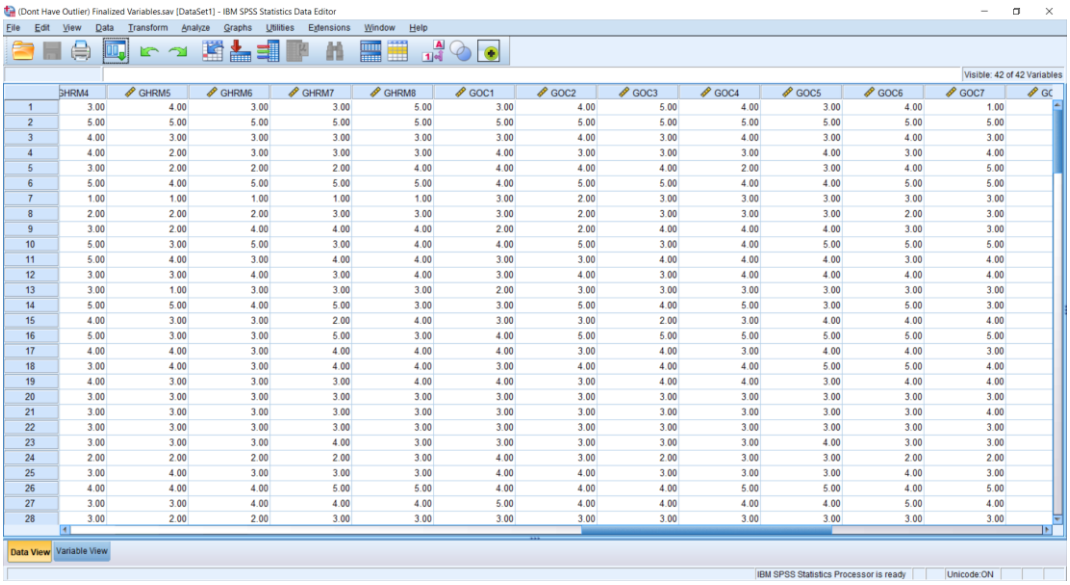
Number of Computed Sample Size



Appendix 4.11

Data and Variables View of Data Collected (Outliers are Removed)




(Dont Have Outlier) Finalized Variables.sav [DataSet1] - IBM SPSS Statistics Data Editor
File Edit View Data Transform Analyze Graphs Utilities Extensions Window Help
Visible: 42 of 42 Variables
GHRM4 GHRM5 GHRM6 GHRM7 GHRM8 GOC1 GOC2 GOC3 GOC4 GOC5 GOC6 GOC7 GC
1 3.00 4.00 3.00 3.00 5.00 3.00 4.00 5.00 4.00 3.00 4.00 1.00
2 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00
3 4.00 3.00 3.00 3.00 3.00 3.00 4.00 3.00 4.00 3.00 4.00 3.00
4 4.00 2.00 3.00 3.00 3.00 4.00 3.00 3.00 3.00 4.00 3.00 4.00
5 3.00 2.00 2.00 2.00 4.00 4.00 4.00 4.00 2.00 3.00 4.00 5.00
6 5.00 4.00 5.00 5.00 5.00 4.00 5.00 5.00 4.00 4.00 5.00 5.00
7 1.00 1.00 1.00 1.00 1.00 3.00 2.00 3.00 3.00 3.00 3.00 3.00
8 2.00 2.00 2.00 3.00 3.00 3.00 2.00 3.00 3.00 3.00 2.00 3.00
9 3.00 2.00 4.00 4.00 4.00 2.00 2.00 4.00 4.00 4.00 3.00 3.00
10 5.00 3.00 5.00 3.00 4.00 4.00 5.00 3.00 4.00 5.00 5.00 5.00
11 5.00 4.00 3.00 4.00 4.00 3.00 3.00 4.00 4.00 4.00 3.00 4.00
12 3.00 3.00 4.00 3.00 4.00 3.00 4.00 3.00 4.00 4.00 4.00 4.00
13 3.00 1.00 3.00 3.00 3.00 2.00 3.00 3.00 3.00 3.00 3.00 3.00
14 5.00 5.00 4.00 5.00 3.00 3.00 5.00 4.00 5.00 3.00 5.00 3.00
15 4.00 3.00 3.00 2.00 4.00 3.00 3.00 2.00 3.00 4.00 4.00 4.00
16 5.00 3.00 3.00 5.00 3.00 4.00 5.00 5.00 5.00 5.00 5.00 5.00
17 4.00 4.00 3.00 4.00 4.00 4.00 3.00 4.00 3.00 4.00 4.00 3.00
18 3.00 4.00 3.00 4.00 4.00 3.00 4.00 4.00 4.00 5.00 5.00 4.00
19 4.00 3.00 3.00 3.00 4.00 4.00 3.00 4.00 4.00 3.00 4.00 4.00
20 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00
21 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 4.00
22 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00
23 3.00 3.00 3.00 4.00 3.00 3.00 3.00 3.00 3.00 4.00 3.00 3.00
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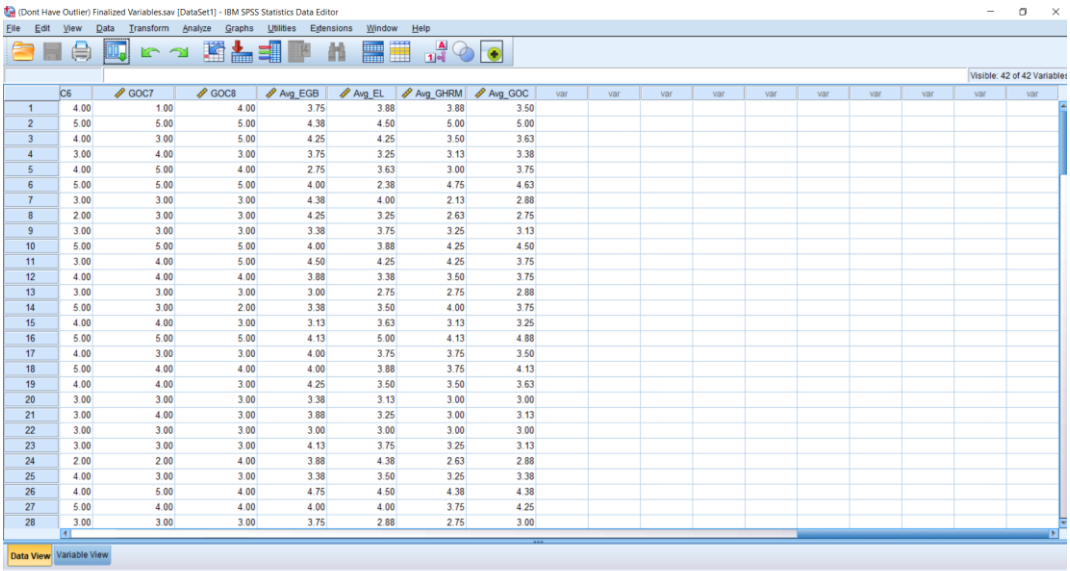
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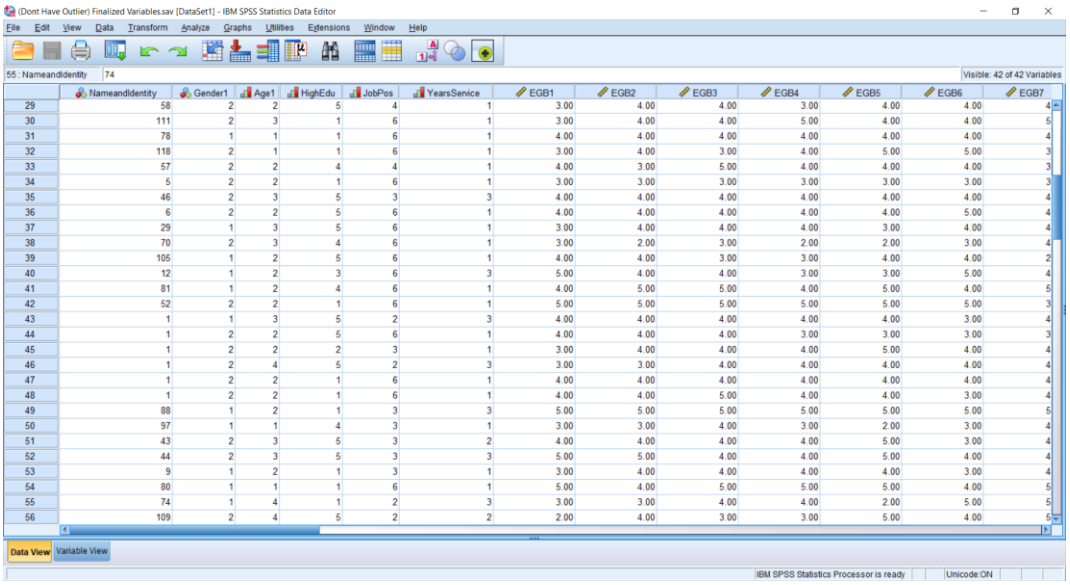
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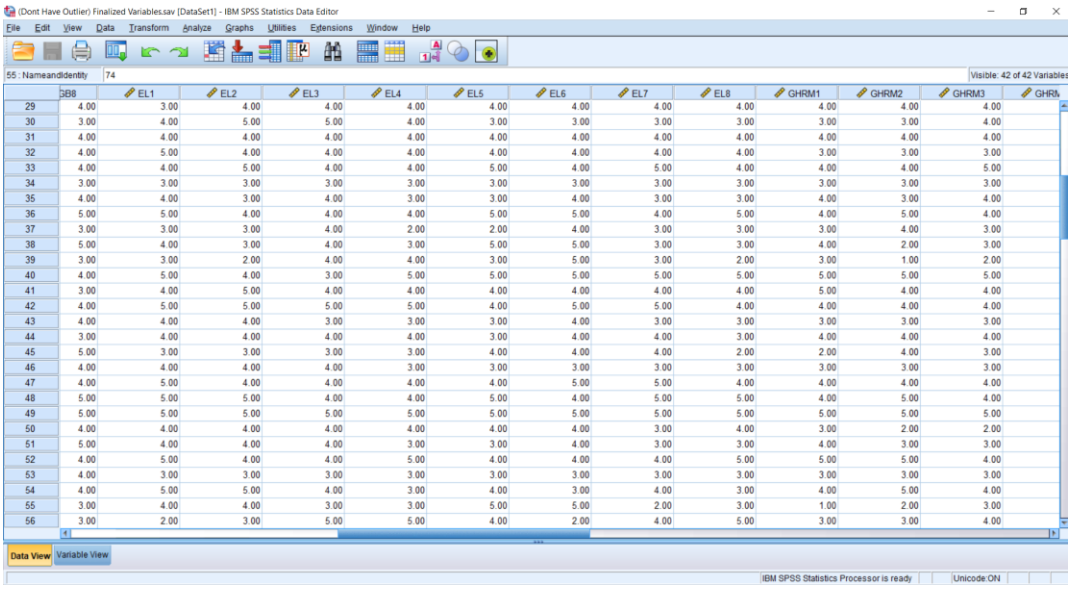
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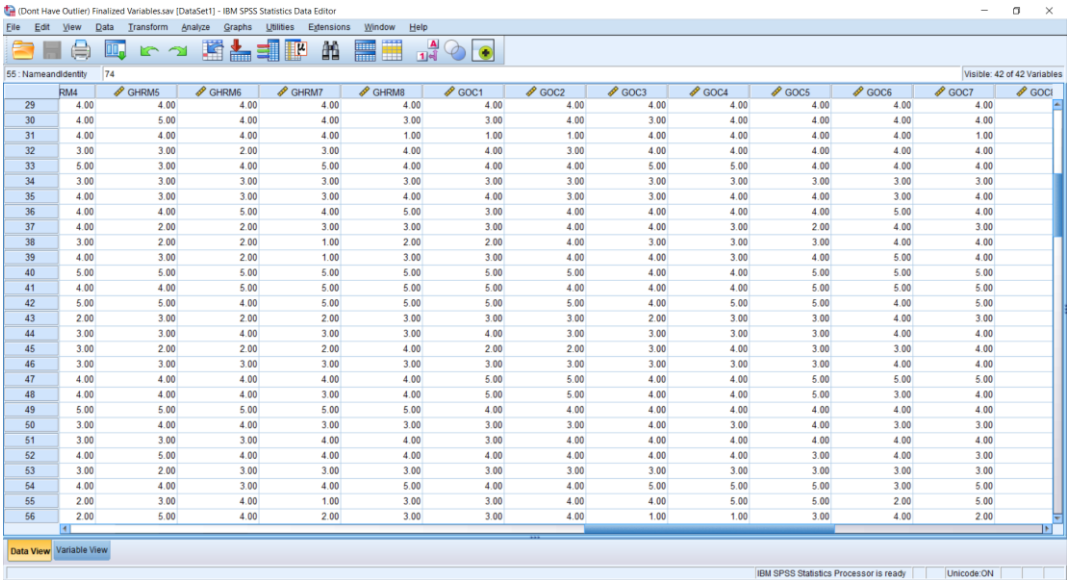
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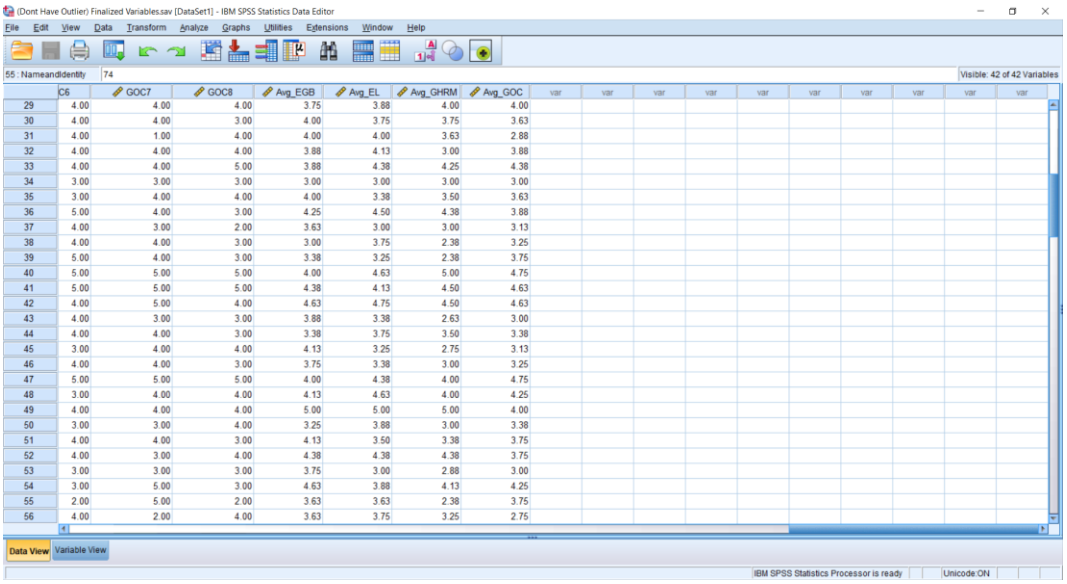
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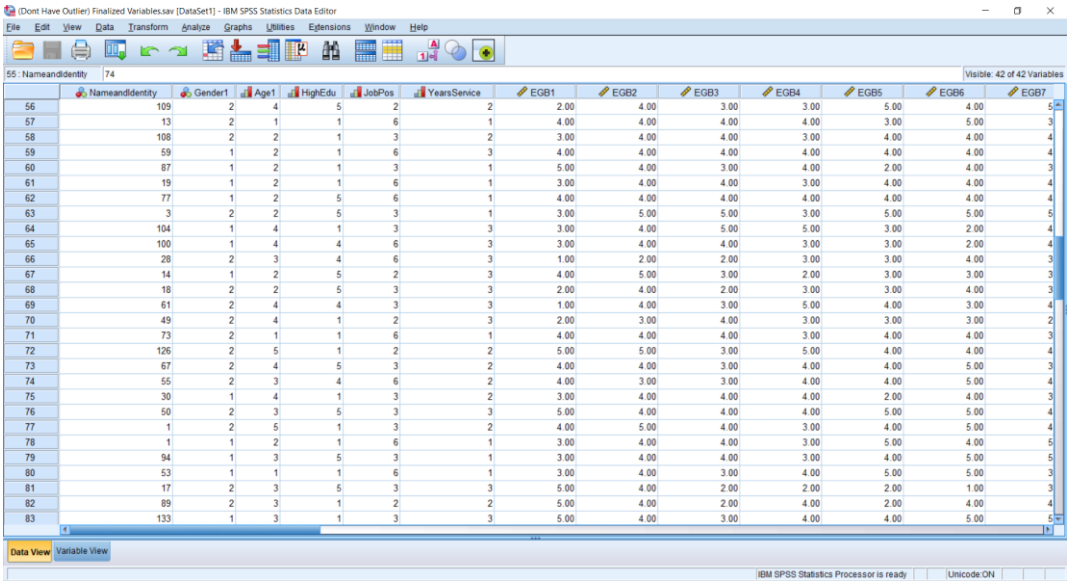
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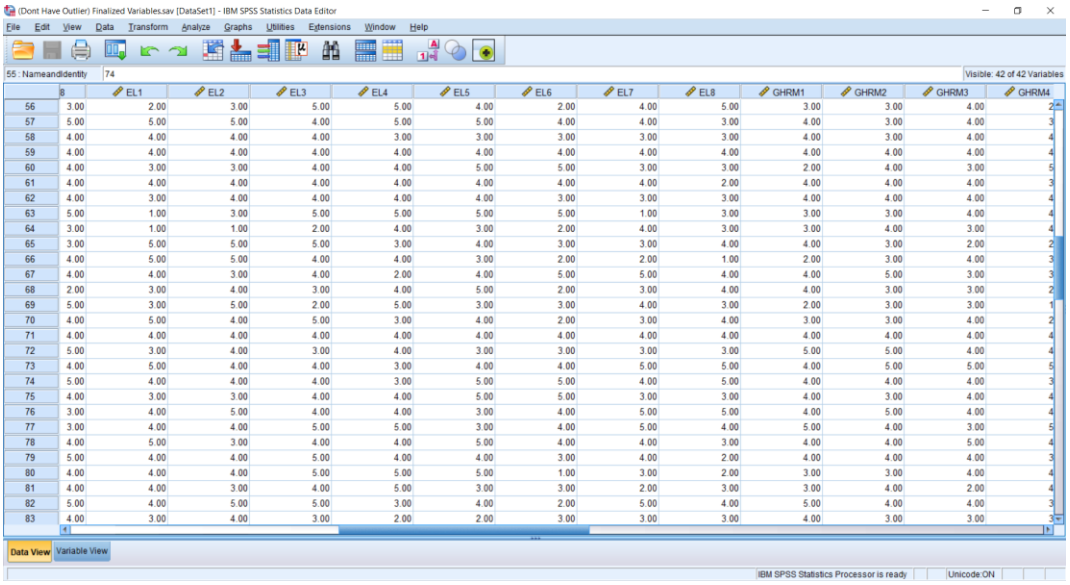
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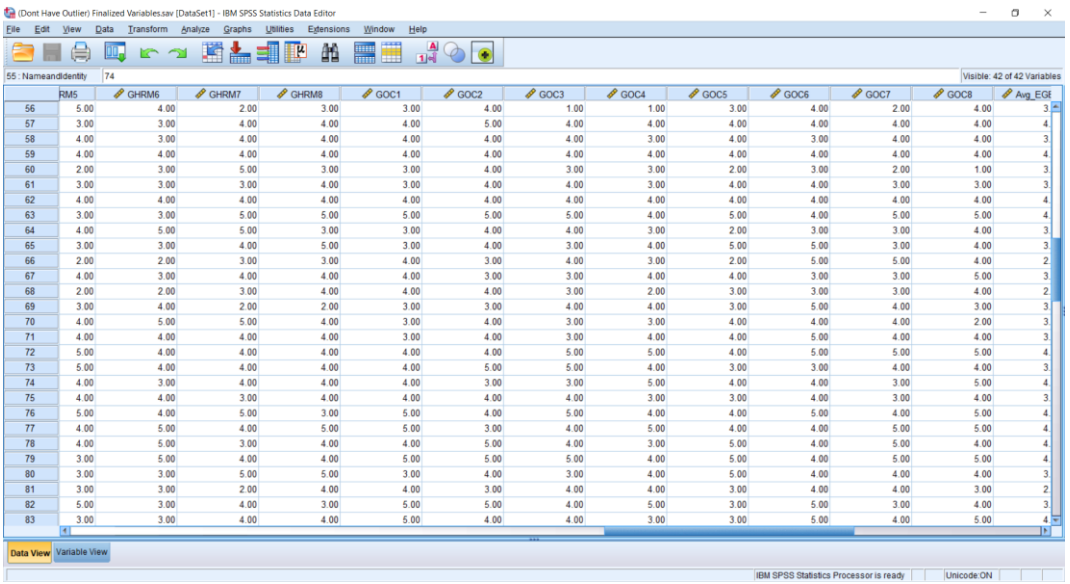
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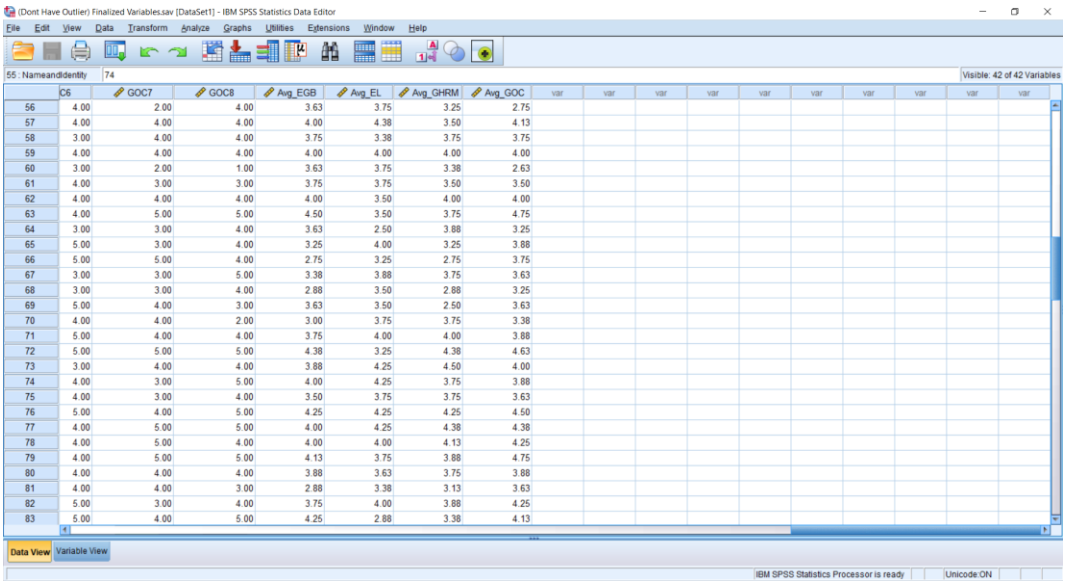
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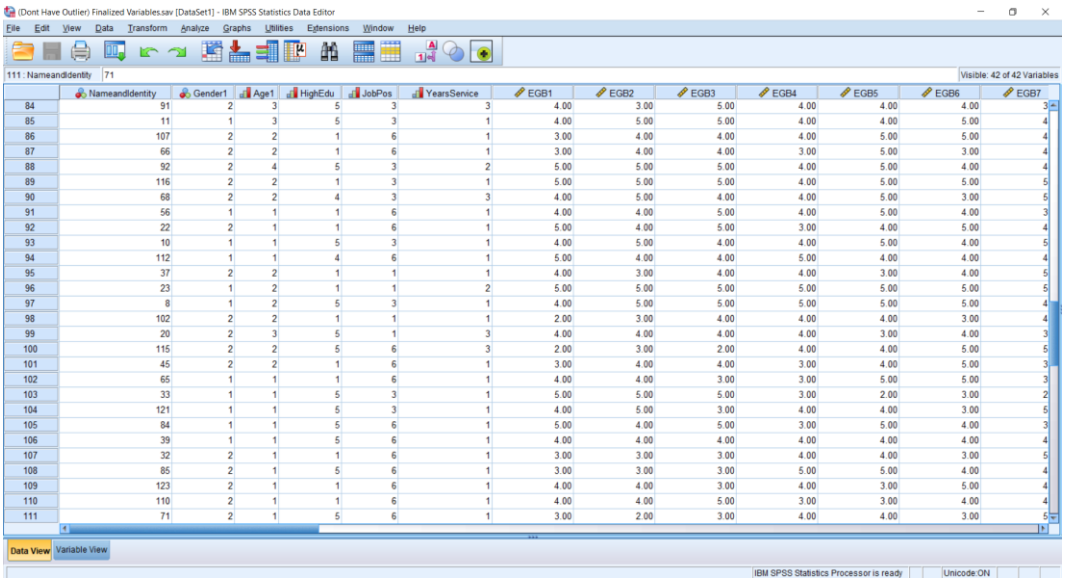
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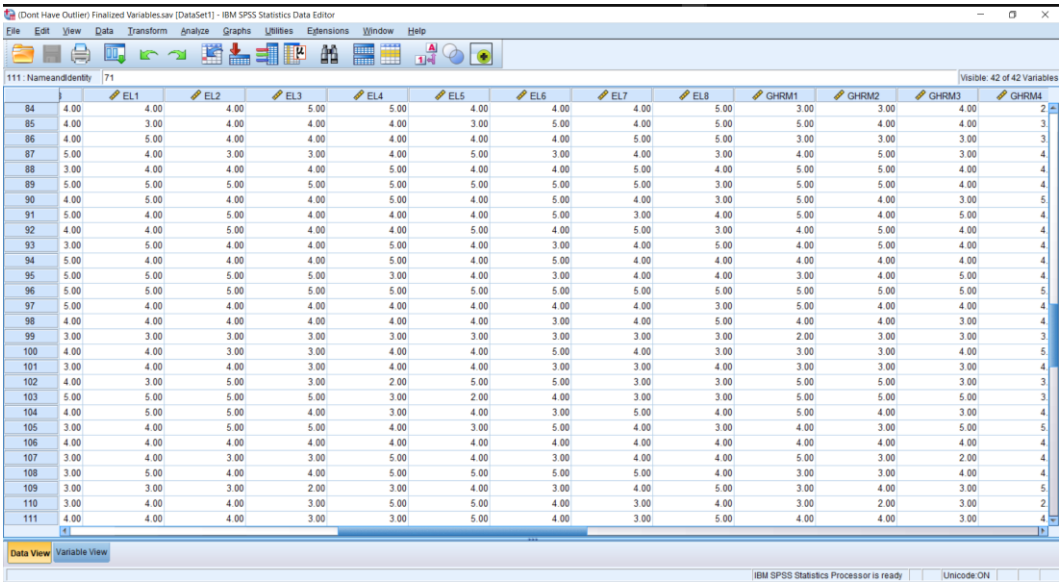
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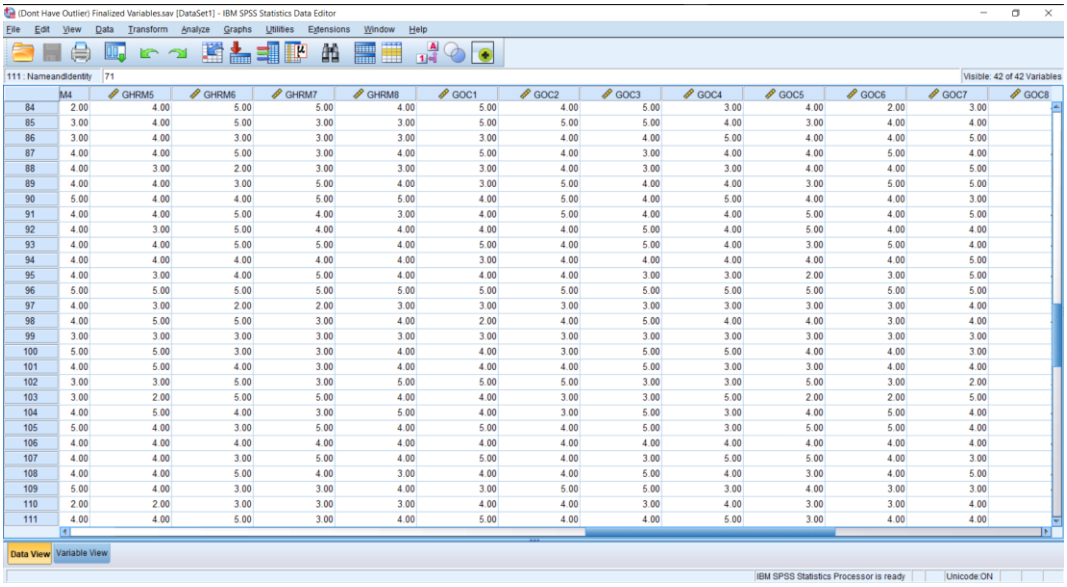
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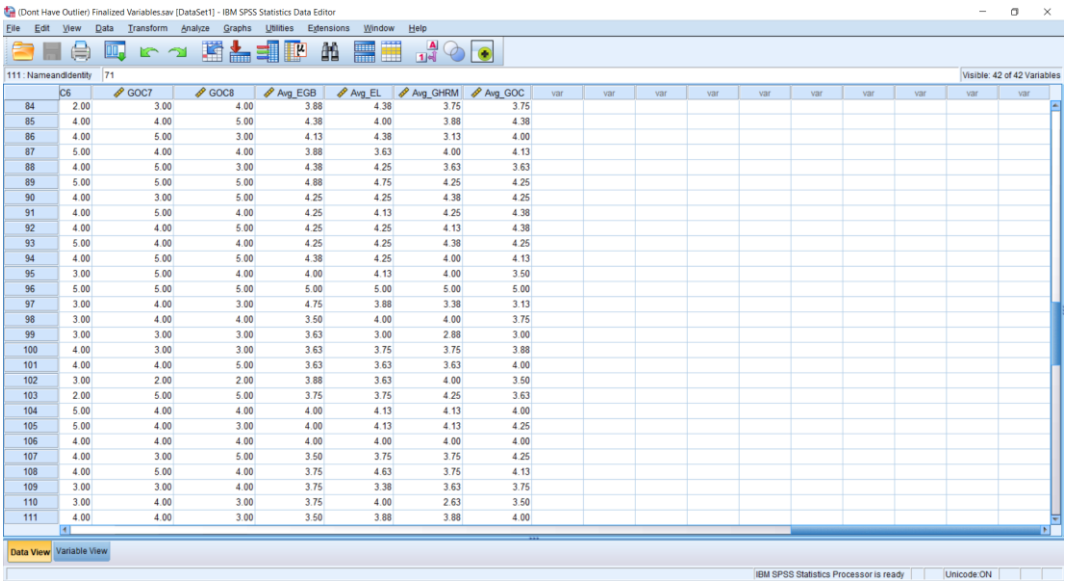
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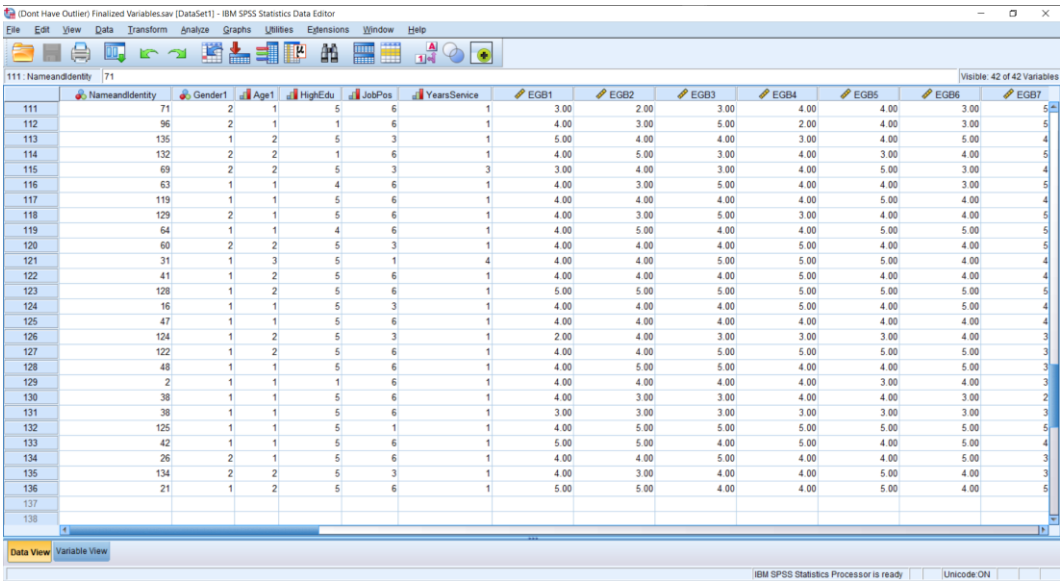
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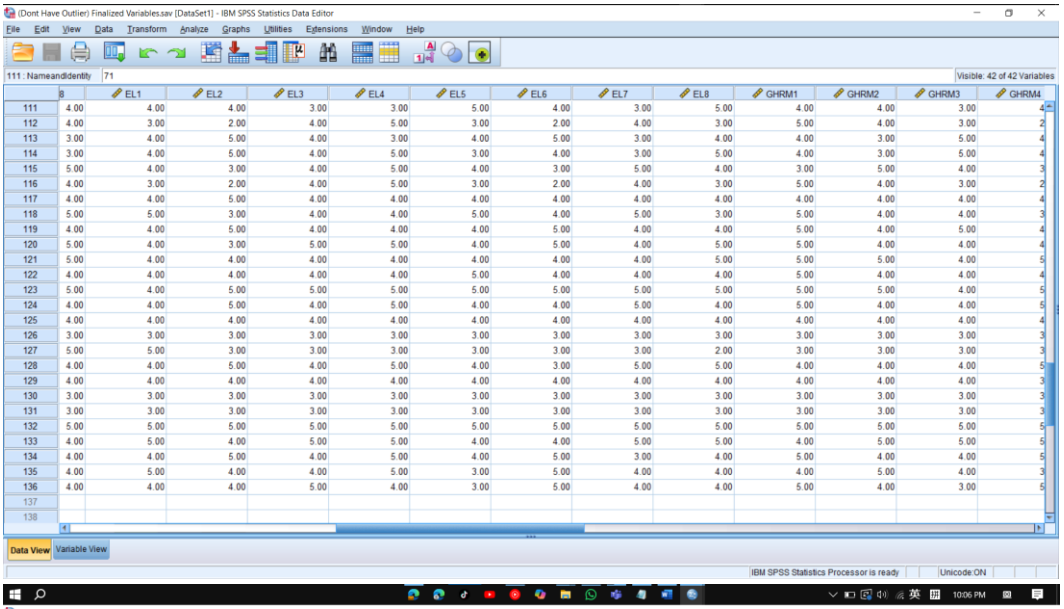
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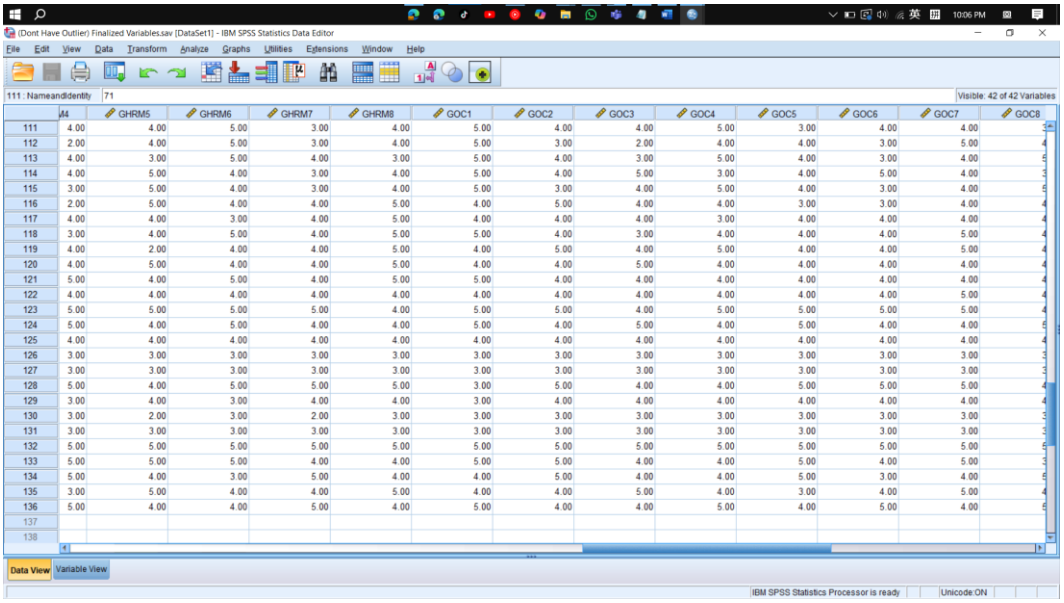
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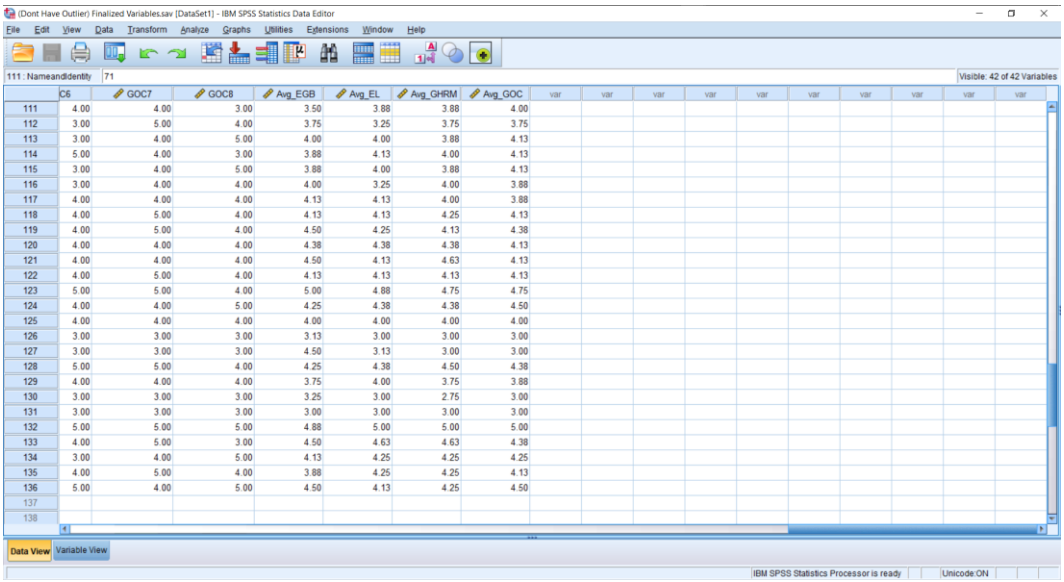
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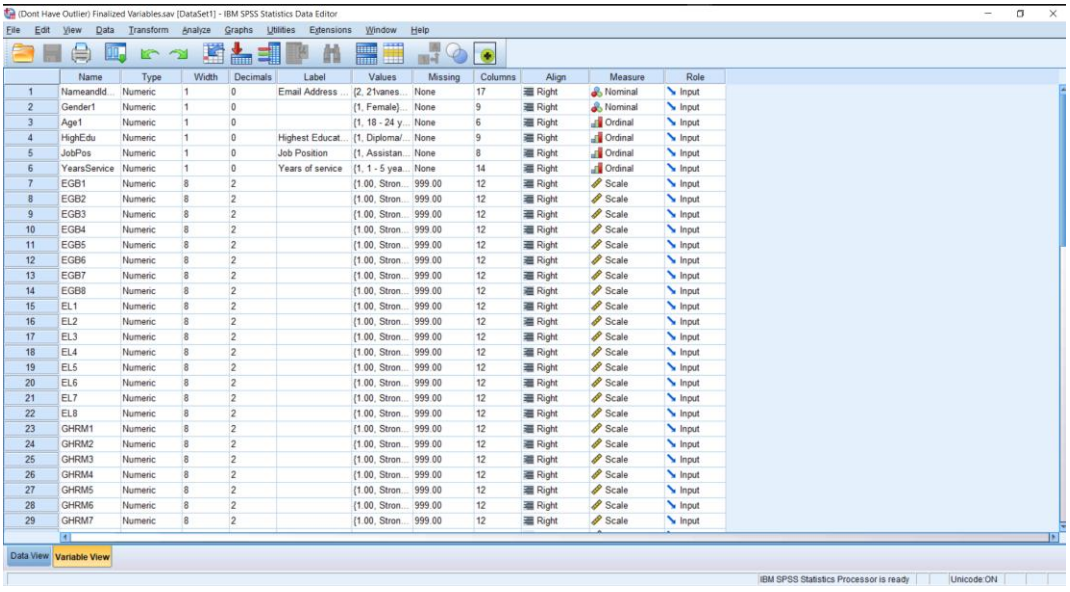
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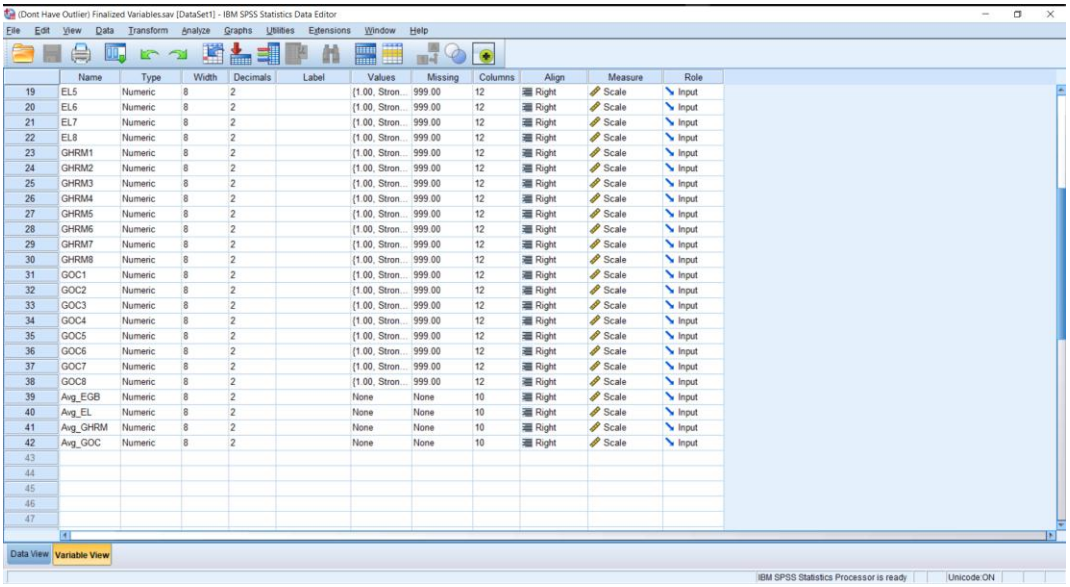
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IBM SPSS Statistics Processor is ready
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