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# Green Transformational Leadership, Green Entrepreneurial Orientation and Performance of SMEs: The Mediating Role of Green Product Innovation

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**Abstract:** Green practices are becoming increasingly important throughout the world. The performance of SMEs is becoming a crucial issue because of increasing awareness of consumers about environmentally friendly products; therefore, enterprises not following green practices may face a significant decline in performance. Therefore, the purpose of the study was to identify the mediating role of green product innovation between green entrepreneurial orientation, green transformational leadership, and the performance of SMEs. To meet the objectives of the study, structural equation modeling was applied to the data collected from 384 manufacturing SMEs operating in Amman, Jordan, using systematic sampling. The findings revealed that the mediating role of green product innovation was insignificant at the 5% level of significance but significant at the 10% level of significance. All other relationships were significant at the 5% level of significance. This study provides theoretical support for investing more resources in green product innovation to gain sustainability.

**Keywords:** green transformational leadership; green entrepreneurial orientation; green product innovation; performance of SMEs



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## 1. Introduction

In the last few years, ecological problems have worsened, leading to environmental disasters. Developing countries are more prone to this challenge because multinationals owned by the businesspeople in the developed countries have shifted their production units to developing countries [1]. Hence, it is becoming important to raise awareness regarding green practices [2]. The common issues faced by the world include global warming, acidification of seawater, biodiversity issues, pollution, deforestation, and adverse weather conditions. These issues are becoming prominent and the challenges they present are compounding [3]. Considering that developing countries all over the world are facing these issues, Jordan is no exception, and the country is facing a majority of the environmental issues [4].

With the passage of time, environmental activism is gaining popularity because of global warming and extreme weather conditions [5]. Considering these issues, enterprises, regardless of size, in developing countries have started paying attention to green practices [6]; however, the major responsibility lies with the leadership of the enterprise. Enterprises are forced to adopt green practices because now the consumers are also demanding environmentally friendly produced products [7]. In particular, they are focusing on green innovative products, which help them gain a competitive advantage, which enhances their performance [8,9].

This type of innovation, which is market driven, is also referred to as open innovation and is becoming crucial to improving performance [10]. Enterprises, especially SMEs because of their nature of attracting trend followers, are implementing green practices to enhance their image through sustainable innovation to gain a competitive advantage [11,12]. Green innovation can help SMEs in gaining a competitive advantage, as consumers are nowadays becoming overly concerned about green products [13]. In the current era, enterprises can gain a competitive advantage by differentiating themselves from competitors as they address the issue of environmental concerns [3].

Thus, it would not be wrong to say that transformational leaders can develop an inspiring vision, which may help their followers to perform their tasks in sustainable ways to compete in the market [14]. Furthermore, a transformational leader can support the innovative ideas of their employees within their enterprises, where these actions can become role models and can be the enhancing forces for green innovation and creativity [15]; hence, transformational leadership has a key role to play in promoting green innovation.

Along with green transformational leadership, which has a key role in the performance of SMEs, green entrepreneurial orientation plays a significant role in promoting green innovative products, which also leads to the performance of SMEs [16]. In comparison to green transformational leadership, green entrepreneurial orientation [17] provides a culture of green product innovation [18], which is supplemented by green transformational leadership [19]. A green entrepreneurial orientation develops initiative-taking behavior among enterprises to get involved in green practices proactively and leaders of enterprises allow risk-taking toward green product innovation [20]. A green entrepreneurial orientation develops dynamic capabilities, which helps enterprises to gain the competencies required to cope with the changing business scenario immediately [21].

Likewise, a green entrepreneurial orientation, undergirded by green innovation, proactiveness, and risk-taking behavior, leads to success in the market because of having a competitive advantage [22]. Hence, green entrepreneurial orientation being the notion of dynamic capabilities helps enterprises in developing economies, which are more turbulent when it comes to attracting more customers that enhance their overall performance [23]. However, how it happens still needs clarification [24].

Several authors claimed that green entrepreneurial orientation has a significant impact [1,16,22,25]; likewise, researchers also claimed that green transformational leadership and performance provide a significant impact [26–28], but how green entrepreneurial orientation influence organizational practices (such as green product innovation [29]) to achieve performance has not gained much attention by the researchers, especially in the developing world. Hence, this shows that there is a missing link between green transformational leadership, green entrepreneurial orientation, and the performance of SMEs. Therefore, identifying the influence of green transformational leadership and green entrepreneurial orientation, which lead to green product innovation and consequently the performance of SMEs, is crucial.

This research aimed to contribute to the body of knowledge through various perspectives. It is the first of its kind in the Arab world, as researchers chose Jordan for the study, which is an attractive location for SMEs but is facing significant environmental issues. Furthermore, it is the very first study that identified the combined effect of green transformational leadership and green entrepreneurial orientation on the performance of SMEs with the mediating role of green product innovation.

## 2. Review of Literature Theoretical Framework and Hypothesis Development

Entrepreneurial orientation is a critical resource for the success of enterprises. Similarly, transformational leadership is also crucial. When it comes to green practices, green entrepreneurial orientation and green transformational leadership are both critical for success and superior performance [30–32]. It is transformational leadership that allows employees the opportunity for experimentation and to get involved in innovative product development [33].

Likewise, when the leadership is committed to green practices, they will encourage their employees to get involved in green practices and will provide an opportunity for experimentation of green product innovation [34]. Green entrepreneurial orientation supplements the role of green transformational leadership, as it allows for experimentation for green innovativeness and leads the enterprise toward success because of initiative-taking decision-making [35]. Hence, in our view, entrepreneurial leadership is such a critical factor that serves as a major resource for enterprises for the development of innovation behavior, which leads to product innovation [36], which ultimately leads to the elite performance of SMEs [37]. Furthermore, adding the mediating role of green innovation significantly influences performance because of its competitive advantage, which is achieved by the initiative-taking and risk-taking behavior of the enterprises [38]. The resource-based view initially proposed by Wernerfelt identifies the unique capabilities of the enterprises that provide a competitive advantage [39].

The framework for this study was based on the underpinning support of an ability motivation opportunity (AMO) and the resource-based view (RBV) [40]. Green entrepreneurial orientation, as a major resource for the enterprise, is supported by the RBV because entrepreneurial orientation itself is a resource that can lead to a competitive advantage; however, adopting green entrepreneurial orientation in the current environmentally friendly era is a major indicator for performance [41]. Meanwhile, the catalytic role of green transformational leadership that provides motivation and courage to employees for experimentation is supported by an AMO. It is leadership that provides motivation and gives the ability to employees to get involved in green practices [42]. Both green entrepreneurial orientation and green transformational leadership provide room for green product innovation, which leads to superior performance, directly and indirectly. Thus, utilizing the underpinning support of an AMO and the RBV, the authors proposed the following framework in Figure 1 that was to be empirically evaluated.

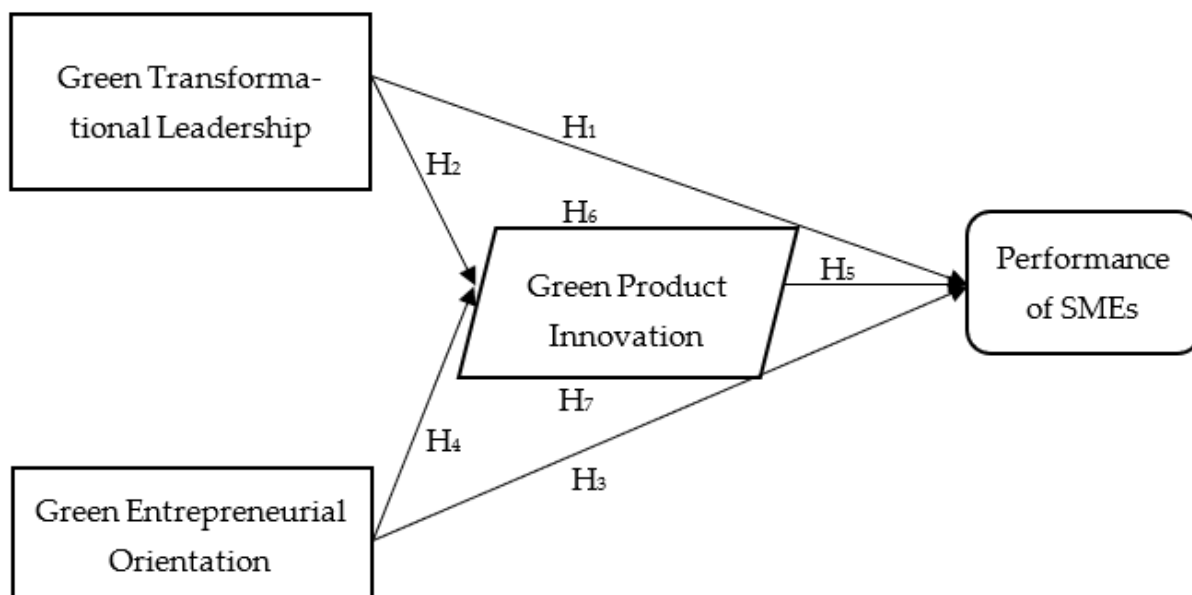


Figure 1. Research Framework.

### 2.1. Green Transformational Leadership and the Performance of SMEs

Green transformational leadership significantly influences the performance of SMEs in several ways [27] and it develops the attitude of employees toward green practices [28], which leads to sustainability and improves the financial health of the enterprise. Researchers claimed that green transformational leadership is beneficial because of characteristics like deviation toward green practices and sustainability [27], providing experimentation flexibility to the employees to make risky decisions, and employing green product

and process innovation leads to success [39]. Because of sustainable practices, consumers become attracted to these enterprises and it leads to financial success because of increased revenues [40], as in the current era, consumers are highly concerned about the environment and green practices [41]. Hence, based on the arguments built by various authors and researchers, we proposed the following hypothesis:

**H1.** *Green transformational leadership positively influences the performance of SMEs.*

## 2.2. Green Transformational Leadership and Green Product Innovation

Green product innovation is the adoption of production processes and the production of products that are environmentally friendly [42]. Green product innovation is the implementation of eco-friendly practices by an enterprise [43]. Such practices include decreasing emission levels, decreasing the usage of unsustainable materials, using recycled materials, and consuming less energy in the production process [44]. The proposition of an AMO is in line with the fact that it is the leadership of the enterprises that gives freedom to employees to promote innovation, which is also supported by the RBV in that it serves as a resource and green transformational leadership consequently promotes green product innovation [45]. Therefore, we proposed the following hypothesis:

**H2.** *Green transformational leadership positively influences green product innovation.*

## 2.3. Green Entrepreneurial Orientation and the Performance of SMEs

Green entrepreneurial orientation helps SMEs to detect capabilities, seek opportunities, and renovate activities in an environmentally friendly way [46]. Detecting the capabilities of green entrepreneurially oriented SMEs helps them to identify the technological opportunities that can meet the needs of consumers in an environmentally friendly way [47]. Opportunity seeking is the part of green entrepreneurially oriented SMEs that helps them to identify resource mobilization opportunities to fulfill the requirements and prospects in an environmentally friendly way [48]. Renovating capabilities is the initiative-taking dimension of the entrepreneurial orientation where SMEs keep their activities and operation up to date and kept on renewing their resources to gain a maximum share in the market, which consequently leads to greater performance [49].

Green entrepreneurial orientation leads SMEs to get involved in green innovation, proactive action plans, and risk-taking and vulnerability [22]. In the current competitive era of increasing awareness, SMEs must continue to explore opportunities and must act proactively to stay in the market [24]. Despite the fact that green entrepreneurship is not old, researchers have addressed green entrepreneurial orientation in diverse ways [46]. However, the core pivotal point of all the authors was toward profit-making via environmentally friendly methods and attracting consumers through the claim of environmentally friendly practices and environmentally friendly products and services [40]. Hence, we proposed the following hypothesis:

**H3.** *Green entrepreneurial orientation positively influences the performance of SMEs.*

## 2.4. Green Entrepreneurial Orientation and Green Product Innovation

Green entrepreneurial orientation as a strategic move includes social and innovative orientations [23]. Green entrepreneurial orientation facilitates SMEs to develop green innovative products, which enhances their sustainability [10]. Proper allocation of resources for green innovation saves costs and avoids hazardous impacts on society and the environment [21]. The central target of the green entrepreneurial orientation is the promotion of sustainable production processes to introduce green products and services, which provides sustainability and a competitive advantage to SMEs [17]. Green entrepreneurial orientation improves sustainability and accelerates green product innovation [50]. Based on the above arguments, we analyzed the following hypothesis:

**H4.** *Green entrepreneurial orientation positively influences green product innovation.*

### 2.5. Green Product Innovation and the Performance of SMEs

Nowadays, SMEs are striving their best to promote green innovation [6]. Along with sustainability and market reputation, enterprises also focus on economic elements [10]. Researchers tried to create a balance between the environmental and economic aspects of green innovation [3,45]; however, they claimed that enterprises that are involved in green innovative practices gain better financial and market performance [51,52]. The quality of environmentally friendly products and the production of these products through green processes enhances the market reputation of the enterprises, which gives enhanced market performance [53,54]. Recently, researchers have given special attention to knowledge management for promoting innovation and sustainable performance [55,56]. Green product innovation is a major resource and is supported by the RBV as a major source of gaining a competitive advantage [26].

Green product innovation has a significant positive impact on financial performance, as identified by researchers, refuting the claim that green practices are a burden on businesses [51,55]. Similarly, enterprises that engage in green practices usually follow cost-saving tactics to save resources, which leads to cost efficiency and boosts the performance of SMEs [56]. Cost efficiency also increases market positioning, as observed in improved feedback from consumers, suppliers, and the government [16]. Energy saving, as part of green product innovation, reduces the costs and results in declined discharge waste, which positively affects the costs of the enterprises [45]. Based on the above discussion, it would be right to hypothesize that green product innovation enhances performance; therefore, we evaluated the following hypothesis:

**H5.** *Green product innovation positively influences the performance of SMEs.*

### 2.6. Mediating Role of Green Product Innovation between Green Transformational Leadership and the Performance of SMEs

Green transformational leadership encourages employees to perform experimentation, which leads to green product innovation [57,58]. The literature on green innovation and performance is abundant [56]. However, a noteworthy point is that without the support of transformational leadership, employees cannot get involved in green product innovation, as it requires resources [45]. The deployment of resources leads to the superior performance of SMEs because of the cost-saving and environmentally friendly practices [34]. Green transformation leadership is beneficial because of its vision to promote green practices by recruiting employees who have the capability and environmental beliefs and values that are required for developing green products [43]. Green transformational leadership provides green training and development and considers compensation for getting involved in green practices as a core requirement to motivate their workforce for influential environmental benefits [28]. This enhances the market reputation of enterprises and, as a result, enterprises gain more clientele [7], which increases their revenues, and at the same time, because green product and process innovation costs are reduced, this creates a synergetic effect in boosting the overall performance of SMEs [59]. Green product and process innovation significantly offsets the negative influence of enterprises on the environment and improves their reputation and performance because of decreased costs, use of time, and other resources [51]. Based on the above discussion, we evaluated the following hypothesis:

**H6.** *Green product innovation mediates the relationship between green transformational leadership and the performance of SMEs.*



### *2.7. Mediating Role of Green Product Innovation between Entrepreneurial Orientation and the Performance of SMEs*

Nowadays, getting involved in green practices is becoming necessary for the survival of enterprises. Enterprises are focusing on green entrepreneurial orientation to develop green innovative products to sustain their businesses and to earn better profits by increasing their value in the view of consumers [58]. Researchers claimed that SMEs that engage in green practices can uplift their performance through their innovative strategies for saving costs and producing environmentally friendly products [59]. Green entrepreneurial orientation enables SMEs to act effectively and efficiently, which is crucial for sustainability in the current competitive era [17]. Researchers identified the importance of a green entrepreneurial orientation for promoting performance [60] through green product innovation [41]. Hence, based on the above discussion, it would be right to claim that green entrepreneurial orientation promotes green product innovation, which leads to superior performance. Therefore, we evaluated the following hypothesis:

**H7.** *Green product innovation mediates the relationship between green entrepreneurial orientation and the performance of SMEs.*

## **3. Materials and Methods**

The purpose of this research was to identify the mediating role of green product innovation between green transformational leadership, green entrepreneurial orientation, and the performance of SMEs. For the said purpose, we collected data from small and medium manufacturing sector enterprises operating in Jordan. A self-administered questionnaire was employed for the data collection from sample firms by applying a systematic sampling technique. The questionnaire was designed in English and the items were chosen from prior studies. All items were measured using a five-point Likert scale, ranging from '1' representing strongly disagree to '5' representing strongly agree [61]. Five items for GEO were chosen from Jiang, Chai, Shao, and Feng [22]; six items for GTL and five items for green product innovation were chosen from Singh, Giudice, Chierici, and Graziano [45]; three items for green product innovation were adopted from Xie, Huo, and Zou [51]; and finally, nine items for the performance of SMEs were chosen from Asad, Asif, Bakar, and Altaf [62]. The reason behind using questionnaires to measure the performance of SMEs was the informal record keeping by SMEs in developing countries [54]. Researchers collected data from the employees who were actively involved in adopting green practices. These manufacturing sector SMEs were chosen by adding a filter question regarding the use of green practices. All those respondents who responded yes were included in the survey and other responses were discarded. A total of 384 SMEs completed the survey; for the social sciences research, 384 is an appropriate sample size [61,63]. For data collection, we adopted an instrument from prior studies while ensuring the reliability and validity of the instrument. The researchers analyzed the data using SMART PLS 3 to evaluate the hypotheses after ensuring the reliability and validity of the outer model.

## **4. Results and Discussion**

This analysis started with measuring the individual item loadings for all the variables to keep those items in the analysis that had an item loading value above 0.7 [64]. Table 1 illustrates the item loadings for all the items of the instrument. Therefore, all item loading indications had specific values ranging from a lower bound of 0.77 to a higher bound of 0.941, as shown in Table 1.

**Table 1.** Item loadings.

Item Loadings	Green Entrepreneurial Orientation	Green Product Innovation	Green Transformational Leadership	Performance of SMEs
GEO 1	0.815			
GEO 2	0.820			
GEO 3	0.826			
GEO 4	0.778			
GEO 5	0.829			
GPI 1		0.816		
GPI 2		0.949		
GPI 3		0.933		
GTL 1			0.920	
GTL 2			0.910	
GTL 3			0.907	
GTL 4			0.867	
GTL 5			0.908	
GTL 6			0.886	
PSMEs 1				0.834
PSMEs 2				0.920
PSMEs 3				0.865
PSMEs 4				0.941
PSMEs 5				0.803
PSMEs 7				0.823

Furthermore, all the results of the item loadings in Table 1 confirmed that all these items should be retained in the model since the item loading values were greater than 0.7. Likewise, for further analysis, we removed items that had loading values less than 0.7, which were less than 10% of the total items in the model. Thus, even after the elimination of items with outer loading values less than 0.7, a suitable number of items remained. Moreover, by removing less than 10% of the items, the reliability of the scale remained appropriate, and the scale was still usable.

#### 4.1. Construct Reliability and Validity

In this study, after analyzing the item loadings, we analyzed Cronbach’s alpha, the composite reliability, and the average variance extracted (AVE) to ensure the reliability of the green entrepreneurial orientation, green product innovation, green transformational leadership, and performance of SMEs. All Cronbach’s alpha variable values should be greater than the threshold level of 0.7 [65]. Moreover, we also analyzed the indicator reliability and internal consistency using composite reliability. Initially, internal consistency mostly calculates the consistency findings between the items of the same test. Hair, Ringle, and Sarstedt [65] illustrated that calculations of the anticipated items should be utilized to examine the variable to generate a comparable finding. Consequently, the composite reliability differs between 0 and 1, and the value must not be less than 0.60 [66]; however, values that are 0.70 or higher are highly recommended [67]. Composite reliability values between 0.6 and 0.7 reveal an average internal consistency. Likewise, in the present study, we measured the convergent validity using the average variance extracted (AVE). Henseler, Ringle, and Sinkovics [66] stated that convergent validity is assessed using the calculations of the same variable that have a theoretical relationship. Similarly, we analyzed the AVE using a threshold level of 0.50 [66,67]. The calculated values of AVE for all the variables were above 0.5, confirming significant validity. The findings of Cronbach’s alpha, the composite reliability, and the average variance extracted (AVE) of all the constructs are mentioned in Table 2.

**Table 2.** Reliability and validity.

Variables	Cronbach’s Alpha	Composite Reliability	Average Variance Extracted
Green Entrepreneurial Orientation	0.874	0.907	0.662
Green Product Innovation	0.876	0.916	0.732
Green Transformational Leadership	0.953	0.962	0.81
Performance of SMEs	0.932	0.947	0.75

The calculated values for green entrepreneurial orientation, green product innovation, green transformational leadership, and performance of SMEs were 0.874, 0.876, 0.953, and 0.932, respectively, which were greater than the threshold value of 0.7 [65]. Moreover, composite reliability values for green entrepreneurial orientation, green product innovation, green transformational leadership, and performance of SMEs were 0.907, 0.916, 0.962, and 0.947, respectively. Likewise, the AVE values were 0.662, 0.732, 0.81, and 0.75, which were greater than the threshold level of 0.50.

4.2. Discriminant Validity

We also confirmed the discriminant validity, which is the extent to which a construct varies from another construct. The Fornell–Larcker criterion is the most standard technique used when analyzing discriminant validity [67]. When the square root value of the average variance extracted (AVE) of every variable is greater than any other latent variable [66], the issue of discriminant validity is immaterial [68]. Therefore, we applied the same approach to analyze discriminant validity. Table 3 shows the measured values of discriminant validity for all the constructs.

**Table 3.** Discriminant validity.

Variables	Green Entrepreneurial Orientation	Green Product Innovation	Green Transformational Leadership	Performance of SMEs
Green Entrepreneurial Orientation	0.814			
Green Product Innovation	0.4	0.855		
Green Transformational Leadership	0.553	0.438	0.9	
Performance of SMEs	0.588	0.527	0.537	0.866

After ensuring that the outer model was reliable and valid, the researchers performed structural equation modeling to analyze the direct and indirect effects.

4.3. Direct Effects

This study involved a systematic analysis of the hypothesis. The structural model provided a comprehensive picture of the findings of the direct effects. The initial stage of evaluating the inner model was analyzing the direct effects of independent variables on the dependent variable. In the model, green transformational leadership and green entrepreneurial orientation were the independent variables, whereas green product innovation was the mediating variable, and the performance of SMEs was the dependent variable. Initially, the direct effects relationship between green entrepreneurial orientation and green product innovation was insignificant at the 5% level of significance ( $\beta = 0.227$ ,  $t = 1.606$ ,  $p = 0.109$ ); however, the same relationship was significant at the 10% significance level ( $\beta = 0.227$ ,  $t = 1.654$ ,  $p = 0.099$ ). Furthermore, there was a significant relationship between the green entrepreneurial orientation and the performance of SMEs at the 5% significance of level ( $\beta = 0.353$ ,  $t = 2.679$ ,  $p = 0.008$ ). Moreover, there was a significant relationship between green product innovation and the performance of SMEs at the 5% level of sig-



nificance ( $\beta = 0.293, t = 2.595, p = 0.01$ ). Furthermore, there was a significant relationship between green transformational leadership and green product innovation at the 5% level of significance ( $\beta = 0.312, t = 2.396, p = 0.017$ ), whereas there was an insignificant relationship between green transformational leadership and the performance of SMEs at the 5% significance level ( $\beta = 0.213, t = 1.891, p = 0.059$ ); however, the relationship between green transformational leadership and the performance of SMEs was significant at the 10% level of significance ( $\beta = 0.213, t = 1.843, p = 0.066$ ). The results of the direct effects for all the relationships are mentioned in Table 4.

**Table 4.** Direct effects.

Path Coefficients	Original Sample	Sample Mean	Standard Deviation	T-Statistics	p-Values	Sig. Level	Result
Green Entrepreneurial Orientation→Green Product Innovation	0.227	0.233	0.142	1.606	0.109	5%	Insig.
Green Entrepreneurial Orientation→Green Product Innovation	0.227	0.221	0.137	1.654	0.099	10%	Sig.
Green Entrepreneurial Orientation→Performance of SMEs	0.353	0.366	0.132	2.679	0.008	5%	Sig.
Green Product Innovation→Performance of SMEs	0.293	0.276	0.113	2.595	0.01	5%	Sig.
Green Transformational Leadership→Green Product Innovation	0.312	0.302	0.13	2.396	0.017	5%	Sig.
Green Transformational Leadership→Performance of SMEs	0.213	0.213	0.113	1.891	0.059	5%	Insig.
Green Transformational Leadership→Performance of SMEs	0.213	0.216	0.116	1.843	0.066	10%	Sig.

#### 4.4. Mediating Effects

This study also involved the analysis of indirect effects, i.e., the mediation effect of green product innovation. The path coefficients of indirect effects of green product innovation showed an insignificant mediating effect between green entrepreneurial orientation and the performance of SMEs at the 5% level of significance ( $\beta = 0.067, t = 1.533, p = 0.126$ ); however, at the 10% level of significance, the mediating effect of product innovation between green entrepreneurial orientation and performance of SMEs was significant ( $\beta = 0.067, t = 1.675, p = 0.099$ ). Likewise, the mediating effect of green product innovation is insignificant between green transformational leadership and the performance of SMEs at the 5% level of significance ( $\beta = 0.091, t = 1.621, p = 0.106$ ), whereas at the 10% level of significance, the mediating effect of green product innovation was significant between green transformational leadership and the performance of SMEs ( $\beta = 0.091, t = 1.655, p = 0.099$ ). Table 5 shows the results of the indirect effects.

**Table 5.** Indirect effects.

Path Coefficients Indirect	Original Sample	Sample Mean	Standard Deviation	T-Statistics	p-Values	Sig. Level	Results
Green Entrepreneurial Orientation→Green Product Innovation→ Performance of SMEs	0.067	0.059	0.043	1.533	0.126	5%	Insig.
Green Entrepreneurial Orientation→Green Product Innovation → Performance of SMEs	0.067	0.055	0.04	1.675	0.099	10%	Sig.

**Table 5.** *Cont.*

Path Coefficients Indirect	Original Sample	Sample Mean	Standard Deviation	T-Statistics	p-Values	Sig. Level	Results
Green Transformational Leadership→Green Product Innovation →Performance of SMEs	0.091	0.089	0.056	1.621	0.106	5%	Insig.
Green Transformational Leadership→Green Product Innovation →Performance of SMEs	0.091	0.092	0.055	1.655	0.099	10%	Sig.

After analyzing the direct and indirect effects, another valuable tool to ensure the predictive relevance of the model is measuring the construct cross-validated redundancy. We applied a blindfolding process to analyze the construct cross-validated redundancy. The analysis used the Stone–Geisser test to calculate the  $Q^2$  of the endogenous latent construct. If the calculated value of  $Q^2$  is above zero, it shows that the model has sufficient predictive relevance [65]. The results of the Stone–Geisser test are given in Table 6.

**Table 6.** Construct cross-validated redundancy.

Blindfolding	SSO	SSE	$Q^2 (= 1 - SSE/SSO)$
Green Product Innovation	600	415.977	0.307
Performance of SMEs	300	258.939	0.137

To further ensure the importance of the mediating effect of green product innovation, we calculated the effect size. The smallest values of  $f^2$  show the effect of the mediator [68,69]. If the calculated value of  $f^2$  is equal to or above 0.15, it is suggested that the effect is moderate; however, a value above 0.35 shows a large effect size. We calculated the value of  $f^2$  using the formula given by Cohen [70–73]:

$$\begin{aligned} \text{Effect Size } f^2 &= \frac{R2 \text{ included} - R2 \text{ excluded}}{1 - R2 \text{ included}} \\ f^2 &= \frac{0.476 - 0.411}{1 - 0.476} \\ f^2 &= 0.119 \end{aligned}$$

The calculated value of  $f^2$  shows that the mediation was significant; however, the mediator had a moderate mediating effect.

### 5. Conclusions

The purpose of this study was to determine the mediating role of green product innovation between green transformational leadership, green entrepreneurial orientation, and the performance of small and medium enterprises operating in Jordan. To meet the objective of this study, we collected data from 384 small- and medium-sized enterprises from the manufacturing sector. The main purpose was to address green practices because of increasing environmental concerns throughout the world. In the past, researchers have addressed various variables that influence the performance of SMEs; however, linking the environment and green practices has gained little attention from researchers, especially in developing countries like Jordan.

The findings were not only interesting but may act as an eye-opener for SMEs, especially those who are not yet heading toward green practices. The findings confirmed the need and benefits of green practices, and when leadership is transformational, then it motivates task transformation; however, in the current era when sustainability challenges are at their peak for any country, the importance of such leadership is further enhanced. Likewise, green entrepreneurial orientation, which means acting toward green practices

in innovation, risk-taking, and proactiveness, produces a self-reinforcing benefit since using green practices not only reduces costs by using fewer resources but also increases revenue through a better reputation. The findings and the combination of variables in the framework highly support the implementation of green practices, which, as per the study findings, will eventually lead to the increased performance of SMEs in Jordan.

From the theoretical perspective, this study contributed to the body of knowledge by analyzing the importance of green product innovation as a mediator between green transformational leadership, green entrepreneurial orientation, and the performance of SMEs by invoking environmental concerns and linking them with the performance of SMEs. Likewise, analyzing the synergetic impact of green transformational leadership and green entrepreneurial orientation while assessing the mediating role of green product innovation is another major theoretical contribution. Similarly, the measurement approach that was applied when investigating the impact of societal concerns in terms of green entrepreneurial orientation, green transformational leadership, and green product innovation would be an additional benefit in the existing literature.

Finally, the significance of green product innovation as a mediator at the 10% level of significance ensured that in developing countries, there is a need to further stress the importance of green product innovation by researchers and especially policymakers. Thus, it would be right to say that the contemporary research that is significantly concentrating on the performance of SMEs is successful in linking environmental concerns with the same SME practices. The findings are equally useful for the practitioners, as they need to focus on green product innovation, which has significant potential for developing a positive image of the enterprises, as the consumers in developing countries are also becoming environmentally concerned individuals. By adopting green practices and innovating green products, enterprises can outperform competitors. For the successful implementation of green practices, the mindset of entrepreneurs and leadership is necessary. The firms' green transformational leadership develops an environment in which the workers can experiment with green practices to achieve better performance.

Practically, this research is very important for practitioners. Entrepreneurs can now seek guidance from the study, which showed that green practices are important and the demand for green practices is increasing with the increase in awareness of the consumers. Green product innovation is not highly practiced in Jordan, but it is significant at the 10% level of significance. Moreover, green transformational leadership and green entrepreneurial orientation are significant, directly and indirectly, for green product innovation; however, as SMEs in Jordan are currently in the incubation stage of green practices, the direct impact on performance was significant at the 10% level rather than the 5% level.

Despite the significant contributions made by this study, this study also had certain limitations. Initially, the researchers collected the data from only one city in one developing country, i.e., Amman, Jordan. Thus, we recommend applying the same model to other developing countries. Furthermore, conducting a qualitative study to unveil the reasons why SMEs are reluctant to implement green practices needs to be conducted. Likewise, adding knowledge management might be very critical in the model because knowledge management is supposed to be a major contribution that might produce strong results. Another important concern is that the business environment may play a significant influence, and thus, adding the business environment as a moderator can be a good contribution to the study since a supportive business environment might have a major influence.

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## References

- Habib, M.A.; Bao, Y.; Ilmudeen, A.; Soobaroyen, T. The impact of green entrepreneurial orientation, market orientation and green supply chain management practices on sustainable firm performance. *Cogent Bus. Manag.* **2020**, *7*, 1743616. [\[CrossRef\]](#)
- Chen, Y.-S.; Chang, T.-W.; Lin, C.-Y.; Lai, P.-Y.; Wang, K.-H. The influence of proactive green innovation and reactive green innovation on green product development performance: The mediation role of green creativity. *Sustainability* **2016**, *8*, 966. [\[CrossRef\]](#)
- Sun, X.; Askary, A.E.; Meo, M.S.; Zafar, N.U.A.; Hussain, B. Green transformational leadership and environmental performance in small and medium enterprises. *Econ. Res.* **2022**, *35*, 5273–5291. [\[CrossRef\]](#)
- Jum'a, L.; Ikram, M.; Alkalha, Z.; Alaraj, M. Factors affecting managers' intention to adopt green supply chain management practices: Evidence from manufacturing firms in Jordan. *Environ. Sci. Pollut. Res.* **2022**, *29*, 5605–5621. [\[CrossRef\]](#) [\[PubMed\]](#)
- Abbas, J. Impact of total quality management on corporate green performance through the mediating role of corporate social responsibility. *J. Clean. Prod.* **2020**, *242*, 118458. [\[CrossRef\]](#)
- Aboelmaged, M.; Hashem, G. Absorptive capacity and green innovation adoption in SMEs: The mediating effects of sustainable organisational capabilities. *J. Clean. Prod.* **2019**, *220*, 853–863. [\[CrossRef\]](#)
- Chen, J.; Liu, L. Customer participation, and green product innovation in SMEs: The mediating role of opportunity recognition and exploitation. *J. Bus. Res.* **2020**, *119*, 151–162. [\[CrossRef\]](#)
- Tjahjadi, B.; Soewarno, N.; Hariyati, H.; Nafidah, L.N.; Kustiningsih, N.; Nadyaningrum, V. The role of green innovation between green market orientation and business performance: Its implication for open innovation. *J. Open Innov. Technol. Mark. Complex.* **2020**, *6*, 173. [\[CrossRef\]](#)
- Asad, M.; Kashif, M. Unveiling success factors for small and medium enterprises during COVID-19 pandemic. *Arab. J. Basic Appl. Sci.* **2021**, *28*, 187–194. [\[CrossRef\]](#)
- Barrett, G.; Dooley, L.; Bogue, J. Open innovation within high-tech SMEs: A study of the entrepreneurial founder's influence on open innovation practices. *Technovation* **2021**, *103*, 102232. [\[CrossRef\]](#)
- Asad, M.; Shabbir, M.S.; Salman, R.; Haider, S.H.; Ahmad, I. Do entrepreneurial orientation and size of enterprise influence the performance of micro and small enterprises? A study on mediating role of innovation. *Manag. Sci. Lett.* **2018**, *8*, 1015–1026. [\[CrossRef\]](#)
- Khan, A.; Asad, M.; Khan, G.U.H.; Asif, M.U.; Aftab, U. Sequential mediation of innovativeness and competitive advantage between resources for business model innovation and SMEs performance. In Proceedings of the 2021 International Conference on Decision Aid Sciences and Application (DASA), Online, 7–8 December 2021.
- Razzaq, A.; Ajaz, T.; Li, J.C.; Irfan, M.; Suksatan, W. Investigating the asymmetric linkages between infrastructure development, green innovation and consumption-based material footprint: Novel empirical estimations from highly resource-consuming economies. *Resour. Policy* **2021**, *74*, 102302. [\[CrossRef\]](#)
- Allam, Z.; Asad, M.; Ali, N.; Malik, A. Bibliometric analysis of research visualizations of knowledge aspects on burnout among teachers from 2012 to January 2022. In Proceedings of the 3rd International Conference on Decision Aid Sciences and Applications (DASA), Chiangrai, Thailand, 23–25 March 2022.
- Mansoor, A.; Farrukh, M.; Lee, J.-K.; Jahan, S. Stimulation of employees' green creativity through green transformational leadership and management initiatives. *Sustainability* **2021**, *13*, 7844. [\[CrossRef\]](#)
- Muangmee, C.; Dacko-Pikiewicz, Z.; Meekaewkunchorn, N.; Kassakorn, N.; Khalid, B. Green entrepreneurial orientation and green innovation in small and medium-sized enterprises (SMEs). *Soc. Sci.* **2021**, *10*, 136. [\[CrossRef\]](#)
- Pratono, H.; Darmasetiawan, N.K.; Yudianto, A.; Jeong, B.G. Achieving sustainable competitive advantage through green entrepreneurial orientation and market orientation: The role of inter-organizational learning. *Bottom Line* **2019**, *32*, 2–15. [\[CrossRef\]](#)
- Li, W.; Bhutto, T.A.; Xuhui, W.; Maitlo, Q.; Zafar, A.U.; Bhutto, N.A. Unlocking employees' green creativity: The effects of green transformational leadership, green intrinsic and extrinsic motivation. *J. Clean. Prod.* **2020**, *255*, 120229. [\[CrossRef\]](#)
- Wang, C.-H. How organizational green culture influences green performance and competitive advantage: The mediating role of green innovation. *J. Manuf. Technol. Manag.* **2019**, *30*, 666–683. [\[CrossRef\]](#)

20. Mao, H.; Wang, Z.; Yi, L. Does entrepreneurial orientation lead to successful sustainable innovation? The evidence from Chinese environmentally friendly companies. *Sustainability* **2021**, *13*, 10294. [[CrossRef](#)]
21. Shafique, I.; Kalyar, M.N.; Mehwish, N. Organizational ambidexterity, green entrepreneurial orientation and environmental performance in SMEs context: Examining the moderating role of perceived CSR. *Corp. Soc. Responsib. Environ. Manag.* **2021**, *28*, 446–456. [[CrossRef](#)]
22. Jiang, W.; Chai, H.; Shao, J.; Feng, T. Green entrepreneurial orientation for enhancing firm performance: A dynamic capability perspective. *J. Clean. Prod.* **2018**, *198*, 1311–1323. [[CrossRef](#)]
23. Ebrahimi, P.; Mirbargkar, S.M. Green entrepreneurship and green innovation for SME development in market turbulence. *Eurasian Bus. Rev.* **2017**, *7*, 203–228. [[CrossRef](#)]
24. Hughes, P.; Hodgkinson, I.R.; Hughes, M.; Arshad, D. Explaining the entrepreneurial orientation–performance relationship in emerging economies: The intermediate roles of absorptive capacity and improvisation. *Asia Pac. J. Manag.* **2018**, *35*, 1025–1053. [[CrossRef](#)]
25. Ibarra-Cisneros, M.-A.; Hernandez-Perlines, F. Entrepreneurial orientation, absorptive capacity and business performance in SMEs. *Meas. Bus. Excell.* **2020**, *24*, 417–429. [[CrossRef](#)]
26. Asad, M.; Asif, M.U.; Bakar, L.J.A.; Sheikh, U.A. Transformational leadership, sustainable human resource practices, sustainable innovation and performance of SMEs. In Proceedings of the 2021 International Conference on Decision Aid Sciences and Application (DASA), Online, 7–8 December 2021.
27. Kusi, M.; Zhao, F.; Sukamani, D. Impact of perceived organizational support and green transformational leadership on sustainable organizational performance: A SEM approach. *Bus. Process Manag. J.* **2021**, *27*, 1373–1390. [[CrossRef](#)]
28. Zhao, W.; Huang, L. The impact of green transformational leadership, green HRM, green innovation and organizational support on the sustainable business performance: Evidence from China. *Econ. Res.* **2022**. [[CrossRef](#)]
29. Chang, C.-H. The influence of corporate environmental ethics on competitive advantage: The mediation role of green innovation. *J. Bus. Ethics* **2011**, *104*, 361–370. [[CrossRef](#)]
30. Samad, S. The influence of innovation and transformational leadership on organizational performance. *Procedia-Soc. Behav. Sci.* **2012**, *57*, 486–493. [[CrossRef](#)]
31. Sawaeen, F.A.A.; Ali, K.A.M. The impact of entrepreneurial leadership and learning orientation on organizational performance of SMEs: The mediating role of innovation capacity. *Manag. Sci. Lett.* **2020**, *10*, 369–380. [[CrossRef](#)]
32. Asif, M.U.; Asad, M.; Bhutta, N.A.; Khan, S.N. Leadership behavior and sustainable leadership among higher education institutions of Pakistan. In Proceedings of the Sustainable Leadership and Academic Excellence International Conference (SLAE), Manama, Bahrain, 9–11 November 2021.
33. Matzler, K.; Schwarz, E.; Deutinger, N.; Harms, R. The relationship between transformational leadership, product innovation and performance in SMEs. *J. Small Bus. Entrep.* **2012**, *21*, 139–151. [[CrossRef](#)]
34. Chen, Y.-S.; Chang, C.-H. The determinants of green product development performance: Green dynamic capabilities, green transformational leadership and green creativity. *J. Bus. Ethics* **2013**, *116*, 107–119. [[CrossRef](#)]
35. Makhloufi, L.; Laghouag, A.A.; Meirun, T.; Belaid, F. Impact of green entrepreneurship orientation on environmental performance: The natural resource-based view and environmental policy perspective. *Bus. Strategy Environ.* **2021**, *31*, 425–444. [[CrossRef](#)]
36. Newman, A.; Tse, H.H.; Schwarz, G.; Nielsen, I. The effects of employees' creative self-efficacy on innovative behavior: The role of entrepreneurial leadership. *J. Bus. Res.* **2018**, *89*, 1–9. [[CrossRef](#)]
37. Hughes, M.; Hughes, P.; Hodgkinson, I.; Chan, Y.-Y.; Chang, C.-Y. Knowledge-based theory, entrepreneurial orientation, stakeholder engagement and firm performance. *Strateg. Entrep. J.* **2021**. [[CrossRef](#)]
38. Pucci, T.; Nosi, C.; Zanni, L. Firm capabilities, business model design and performance of SMEs. *J. Small Bus. Enterpr. Dev.* **2017**, *24*, 222–241. [[CrossRef](#)]
39. Wernerfelt, B. A resource-based view of the firm. *Strateg. Manag. J.* **1984**, *5*, 171–180. [[CrossRef](#)]
40. Maitlo, Q.; Wang, X.; Jingdong, Y.; Lashari, I.A.; Faraz, N.A.; Hajaro, N.H. Exploring green creativity: The effects of green transformational leadership, green innovation climate and green autonomy. *Front. Psychol.* **2022**, *13*, 686373. [[CrossRef](#)] [[PubMed](#)]
41. Sharma, A.; Foropon, C. Green product attributes and green purchase behavior: A theory of planned behavior perspective with implications for circular economy. *Manag. Decis.* **2019**, *57*, 1018–1042. [[CrossRef](#)]
42. Afum, E.; Sun, Z.; Agyabeng-Mensah, Y.; Baah, C. Lean production systems, social sustainability performance and green competitiveness: The mediating roles of green technology adoption and green product innovation. *J. Eng. Des. Technol.* **2021**. [[CrossRef](#)]
43. Andersén, J.; Jansson, C.; Ljungkvist, T. Can environmentally oriented CEOs and environmentally friendly suppliers boost the growth of small firms? *Bus. Strategy Environ.* **2020**, *29*, 325–334. [[CrossRef](#)]
44. Mittal, S.; Dhar, R.L. Effect of green transformational leadership on green creativity: A study of tourist hotels. *SwatiMittalRajib LochanDhar* **2016**, *57*, 118–127. [[CrossRef](#)]
45. Chege, S.M.; Wang, D. The influence of technology innovation on SME performance through environmental sustainability practices in Kenya. *Technol. Soc.* **2020**, *60*, 101210. [[CrossRef](#)]
46. Singh, S.K.; Giudice, M.D.; Chierici, R.; Graziano, D. Green innovation and environmental performance: The role of green transformational leadership and green human resource management. *Technol. Forecast. Soc. Chang.* **2020**, *150*, 119762. [[CrossRef](#)]



47. Ameer, F.; Khan, N.R. Green entrepreneurial orientation and corporate environmental performance: A systematic literature review. *Eur. Manag. J.* 2022, *in press*. [[CrossRef](#)]
48. Eikelenboom, M.; de Jong, G. The impact of dynamic capabilities on the sustainability performance of SMEs. *J. Clean. Prod.* **2019**, *235*, 1360–1370. [[CrossRef](#)]
49. Hernández-Linares, R.; Kellermanns, F.W.; López-Fernández, M.C. Dynamic capabilities and SME performance: The moderating effect of market orientation. *J. Small Bus. Manag.* **2021**, *59*, 162–195. [[CrossRef](#)]
50. Khalil, S.; Belitski, M. Dynamic capabilities for firm performance under the information technology governance framework. *Eur. Bus. Rev.* **2020**, *32*, 129–157. [[CrossRef](#)]
51. Lin, Y.-H.; Chen, H.-C. Critical factors for enhancing green service innovation: Linking green relationship quality and green entrepreneurial orientation. *J. Hosp. Tour. Technol.* **2018**, *9*, 188–203. [[CrossRef](#)]
52. Xie, X.; Huo, J.; Zou, H. Green process innovation, green product innovation and corporate financial performance: A content analysis method. *J. Bus. Res.* **2019**, *101*, 697–706. [[CrossRef](#)]
53. Wang, M.; Li, Y.; Li, J.; Wang, Z. Green process innovation, green product innovation and its economic performance improvement paths: A survey and structural model. *J. Environ. Manag.* **2021**, *297*, 113282. [[CrossRef](#)] [[PubMed](#)]
54. Yang, G.; Liu, B. Research on the impact of managers' green environmental awareness and strategic intelligence on corporate green product innovation strategic performance. *Ann. Oper. Res.* **2021**, 1–21. [[CrossRef](#)]
55. Asif, M.U.; Asad, M.; Kashif, M.; ul Haq, A. Knowledge exploitation and knowledge exploration for sustainable performance of SMEs. In Proceedings of the 2021 Third International Sustainability and Resilience Conference: Climate Change, Sakheer, Bahrain, 15–16 November 2021.
56. Yun, J.J.; Liu, Z.; Jeong, E.; Kim, S.; Kim, K. The difference in open innovation between open access and closed access, according to the change of collective intelligence and knowledge amount. *Sustainability* **2022**, *14*, 2574. [[CrossRef](#)]
57. Khan, S.J.; Dhir, A.; Parida, V.; Papa, A. Past, present and future of green product innovation. *Bus. Strategy Environ.* **2021**, *30*, 4081–4106. [[CrossRef](#)]
58. Ahmad, S.; Wong, K.Y.; Tseng, M.L.; Wong, W.P. Sustainable product design and development: A review of tools, applications and research prospects. *Resour. Conserv. Recycl.* **2018**, *132*, 49–61. [[CrossRef](#)]
59. Zhang, W.; Xu, F.; Wang, X. How green transformational leadership affects green creativity: Creative process engagement as intermediary bond and green innovation strategy as boundary spanner. *Sustainability* **2020**, *12*, 3841. [[CrossRef](#)]
60. Shin, K.; Kim, E.; Jeong, E. Structural relationship and influence between open innovation capacities and performances. *Sustainability* **2018**, *18*, 2787. [[CrossRef](#)]
61. Muñoz-Pascual, L.; Curado, C.; Galende, J. The triple bottom line on sustainable product innovation performance in SMEs: A mixed methods approach. *Sustainability* **2019**, *11*, 1689. [[CrossRef](#)]
62. Song, W.; Wang, G.-Z.; Ma, X. Environmental innovation practices and green product innovation performance: A perspective from organizational climate. *Sustain. Dev.* **2020**, *28*, 224–234. [[CrossRef](#)]
63. Migliori, S.; Pittino, D.; Consorti, A.; Lucianetti, L. The relationship between entrepreneurial orientation, market orientation and performance in university spin-offs. *Int. Entrep. Manag. J.* **2019**, *15*, 793–814. [[CrossRef](#)]
64. Zikmund, W.G.; Carr, J.C.; Griffin, M. *Business Research Methods*; Cengage Learning: London, UK, 2013.
65. Asad, M.; Asif, M.U.; Bakar, L.J.A.; Altaf, N. Entrepreneurial orientation, big data analytics and SMEs performance under the effects of environmental turbulence. In Proceedings of the 2021 International Conference on Data Analytics for Business and Industry (ICDABI), Sakheer, Bahrain, 25–26 October 2021.
66. Mendenhall, W.; Reinmuth, J.E.; Beaver, R.J. *Statistics for Management and Economics*; Duxbury Press: Belmont, CA, USA, 1993.
67. Hair, J.F.; Black, B.; Babin, B.; Anderson, R.E. *Multivariate Data Analysis*; Pearson Education International: New York, NY, USA, 2010.
68. Henseler, J.; Ringle, C.M.; Sarstedt, M. A new criterion for assessing discriminant validity in variance-based structural equation modeling. *J. Acad. Mark. Sci.* **2015**, *43*, 115–135. [[CrossRef](#)]
69. Henseler, J.; Ringle, C.M.; Sinkovics, R.R. The use of partial least squares path modeling in international marketing. *Adv. Int. Mark.* **2009**, *20*, 277–319.
70. Hair, J.F.; Ringle, C.M.; Sarstedt, M. Editorial-partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long Range Plan.* **2013**, *46*, 1–12. [[CrossRef](#)]
71. Vinzi, V.E.; Chin, W.W.; Henseler, J.; Wang, H. *Handbook of Partial Least Squares*; Springer: Berlin/Heidelberg, Germany, 2010; Volume 201.
72. Chin, W.W.; Marcolin, A.L.; Newsted, P.R. A partial least squares latent variable modeling approach for measuring interaction effects: Results from a monte carlo simulation study and an electronic-mail emotion/adoption study. *Inf. Syst. Res.* **2003**, *14*, 189–217. [[CrossRef](#)]
73. Cohen, J. *Statistical Power Analysis for the Behavioral Sciences*; Lawrence Erlbaum Associates Publishers: London, UK, 1988.