


## Article

# Sustainability Orientation and Entrepreneurship Orientation: Is There a Tradeoff Relationship between Them?

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**Abstract:** Sustainability and entrepreneurship are often regarded as binary concepts that have a tradeoff relationship, meaning that the higher the social and environmental consideration, the lower the private and economic benefits. The purpose of this study is to investigate the effect of individual sustainability orientation on opportunity recognition and sustainable entrepreneurship intention, and examine whether it has a tradeoff relationship with entrepreneurship orientation. The result of this study shows that sustainability orientation has a positive relationship with opportunity recognition and entrepreneurship intention related to sustainability. Analysis of the moderating effects of entrepreneurship orientation reveals the positive effect with sustainability orientation but negative effect with opportunity recognition on sustainable entrepreneurship intention. This study would suggest implications to entrepreneurs on how to balance sustainability and entrepreneurship and promote sustainability entrepreneurship.

**Keywords:** sustainability orientation; entrepreneurial orientation; opportunity recognition; sustainable entrepreneurship

## 1. Introduction

As global environmental destruction and social issues became serious, academics began to worry about how to approach these problems. As a way to solve the problems, sustainable entrepreneurship has attracted attention, contending that entrepreneurs can contribute to solving problems caused by environmental degradation by creating new, sustainable products and services. Recently, studies have emerged that link entrepreneurship to sustainability and cover the broad concept of sustainable entrepreneurship, including economic, environmental and social values [1]. For entrepreneurs, environmental and social problems such as climate change and environmental pollution can create another entrepreneurial opportunity to solve the problem. Socially, new inventions of entrepreneurs can be tools for solving environmental and social problems, and sustainable enterprise and society can be realized.

However, traditionally, entrepreneurship is recognized as an important pathway to creating products and processes that address increasing social and environmental problems and is considered profit-centered with economic and financial performance [2]. Entrepreneurial action develops economic, environmental and social issues, together seeking opportunities to generate profits in environmental degradation and social problems [3,4]. For example, some entrepreneurial actions can damage the environment or social cohesion. This damage itself is an opportunity to generate profits. In other words, sustainable entrepreneurship can be seen as a combination of two key concepts, sustainability and entrepreneurship, and often viewed as a binary concept of business vs.

sustainability [5]. In the same vein, entrepreneurs often can face the tradeoff situation of whether to pursue profit first (entrepreneurship) or to prioritize social benefits such as environmental and social contributions (sustainability). Of course, achieving both profit and social benefits could be the best scenario. However, this situation has rarely happened in the real world and is difficult to grasp in research because the concept of sustainable entrepreneurship is multidimensional, including social, environmental and economic dimensions. Moreover, studies examining personal inclination toward sustainability, such as social and environmental concerns, still show conflicting results on the entrepreneurial intention and performance [6,7]. Some argue that Environmental and sustainability concerns and inclination promote discovery of relevant opportunities and encourage sustainable entrepreneurship activities [4]. On the other hand, others contend that entrepreneurs basically consider an entrepreneurial orientation as a pursuit of profit and a sustainable inclination as a pursuit of social and environmental benefits [5], showing that sustainability and entrepreneurship are often regarded as in a tradeoff relationship. Such binary concerns on sustainability entrepreneurship raised the following research questions: “Can sustainability orientation foster opportunity recognition and entrepreneurial intention?” and “Is there a trade-off between sustainability and entrepreneurship?” Although there are emerging numbers of researches on sustainability entrepreneurship, fewer scholars have explored sustainable orientations from an entrepreneurship orientation [1]. Furthermore, the research on sustainability within the entrepreneurship discipline remains limited [8].

Therefore, this study aims to examine the effect of sustainability orientations on the intention toward sustainable entrepreneurship and investigate the tradeoff relationship between sustainability and entrepreneurship by examining the moderating effects of the entrepreneurship orientation. This study would suggest meaningful implications for the entrepreneurs’ dilemma, such as trade-off between social/environmental benefits and economic benefits, as well as problems of their irresponsible entrepreneurship.

## 2. Literature Review and Hypotheses Development

### 2.1. Sustainable Entrepreneurship

Sustainable entrepreneurship is “an understanding how opportunities to bring into existence future goods and services are discovered, created, and exploited, by whom, and with what economic, psychological, social and environmental consequences” [3] (p.35). This is a definition combining the environmental consequences with the definition of entrepreneurship established by Venkataraman [9]. In defining sustainable entrepreneurship, Cohen and Winn [3] stressed that it includes consideration of the social, economic and environmental benefits drawn from environmental initiatives.

Moreover, sustainable entrepreneurship can also be described as the Triple Bottom Line (TBL). TBL is a framework to estimate performance on three dimensions: economic, social, and environmental performance. It encourages firms to ensure economic, social and environmental values together [10]. A number of studies on sustainable entrepreneurship also argued that sustainable entrepreneurship can be explained with opportunity recognition and entrepreneurship [6,11]. Entrepreneurial opportunities related to environmental issues and sustainability enable promotion of entrepreneurial activities, and economic performance promotes enhancing sustainability [11]. Through this, it is possible to solve the problems arising from the environmental destruction by entrepreneurship, and to pursue economic benefits as well. Consequently, sustainability entrepreneurship could be a possible solution to sustainability issues through business activities and could form a sustainable entrepreneurial ecosystem. In a study of Soto-Acosta et al. [12], which analyzed the relationship between sustainable entrepreneurship and business performance, they found that sustainable entrepreneurship of small and medium-sized enterprises was associated with people (including community, partners, and workforce), and planet (including environment, resources, and technologies). They conclude, however, that sustainable entrepreneurship was not related to business performance, which represented that sustainable entrepreneurship could not be a profit-centered business activity.

Such an opposite result of sustainability and entrepreneurship is also found in the study of Wagner and Maximilians [7]. They found that sustainability-oriented students with business and managerial knowledge did not have a significant influence on the intention to start a business. That indicates sustainability is often considered as valuable in an organization, but not in entrepreneurial activities.

## 2.2. Sustainability Orientation and Sustainable Entrepreneurship Intention

Sustainability research at the individual level has been studied as a sustainability orientation that deals with social responsibility and personal traits on social and environmental issues. In the study of sustainable entrepreneurial orientation, it was shown that corporate social responsibility actions by a family firm has a positive effect on the firm performance, and thus entrepreneurial orientation is a good predictor of entrepreneurial success [13].

Sustainability orientation refers to the level of concern about the environmental protection and social responsibility of individuals, and consists of items that measure the underlying attitudes and personal traits on environmental protection and social responsibility [6]. It reflects personal convictions and attitudes on sustainable entrepreneurship, and its relationship with opportunity recognition and entrepreneurship intention is still being debated. Sustainability orientation can help to understand entrepreneurial intention, to some extent focusing on sustainable development [7] even though sustainability orientation and its positive impact of entrepreneurial intention tend to disappear with business experience. There is a study on the relationship between sustainability orientation and performance of new product development showing a positive relationship between them [14]. This study indicates that a high sustainability orientation enables the company to enhance operational efficiencies and cost savings. Dean and McMullen's [4] study also provides evidence that sustainability orientation is an antecedent of entrepreneurial intention, with opportunity discovery and exploitation drawn from environmental and market imperfection. Based on these theoretical considerations, the following hypothesis was set.

**Hypothesis 1 (H1).** *There is positive relationship between sustainability orientation and the intention toward sustainable entrepreneurship.*

## 2.3. Sustainability Orientation and Opportunity Recognition

Some scholars consider environmental issues as market opportunities and identify sustainability as "the process of discovering, evaluating and exploiting opportunities that are present in market failures which detract from sustainability" [4]. It is considered that the new opportunity for marketability can be drawn from environmental destruction resulting from the production process in a firm. Sustainability-oriented individuals then produce products that can take the opportunity without undermining the environment [15,16]. Environmental degradation deriving from market imperfection brings entrepreneurial opportunities, and entrepreneurs discover and pursue these opportunities. In addition, the social entrepreneurship literature emphasizes altruism and desire to help others as a driving force to recognize new opportunities [7,17]. For example, an individual who has altruistic motivation for reducing environmental pollution can recognize opportunities that help prevent health threats by developing related technologies. Dean and McMullen [4] argued that individuals with a higher level of sustainability orientation are likely to recognize entrepreneurial opportunities. In the same vein, Wagner and Maximilians's [7] research showed that there is a positive relationship between sustainability orientation and the discovery of entrepreneurial opportunities. Higher levels of sustainability orientation enable searching for opportunities drawn from environmental concerns for sustainability. In short, entrepreneurial opportunities related to sustainability can be recognized from the consideration of environment and sustainability. Based on the above literature, we set out the following hypothesis.

**Hypothesis 2 (H2).** *There is positive relationship between sustainability orientation and opportunity recognition.*

#### 2.4. The Opportunity Recognition and Sustainability Entrepreneurship Intention

Market imperfection and environmental degradation can provide significant opportunities for developing of innovative business model and radical technologies. These opportunities enable entrepreneurs to develop sustainable entrepreneurship that can improve environmental conditions and make economic benefits [3]. That is, the opportunity discovered in environmental destruction and market uncertainty can create the foundation to be able to start new entrepreneurship. Individuals who concern social issues and cares about environmental problems may recognize market segments that can address the problems and try to change environments to a more desired state. Martin and Osberg [18] indicated that social entrepreneurs tend to target market segments that have been neglected to shift them into entrepreneurial opportunities. They are also likely to identify important social issues and market distractions in their communities and initiate to find solving the problems [19,20]. Corner and Ho [21] also addressed that sustainable entrepreneurs tend to develop social issues into sustainable entrepreneurship opportunities in order to resolve the problems and change environments. Therefore, an individual with higher tendency of recognizing opportunities more likely to initiate sustainable entrepreneurship. Based on the previous studies, the following hypothesis was set.

**Hypothesis 3 (H3).** *There is positive relationship between opportunity recognition and intention toward sustainable entrepreneurship.*

#### 2.5. The Moderating Effect of Entrepreneurial Orientation

Sustainable entrepreneurship is defined as a combination of the environmental consequences with the entrepreneurship, including the consideration of both social and economic factors drawn from environmental initiatives [3]. Schaltegger and Wagner [5] also argued that sustainable entrepreneurship is a combination of two key dimensions, sustainability and entrepreneurship, and these dimensions have to be interrelated to pursue entrepreneurial activities. Moreover, Gagnon et al. [22] revealed that the positive interactive effect of entrepreneurial orientation and sustainability orientation on information processing. They explained that sustainability orientation alone has no effect on performance, but when entrepreneurial orientation is related, the effect on performance turns to be positive. Recent studies on sustainable entrepreneurial orientation have analyzed empirically that entrepreneurial orientation has a moderating effect on corporate social responsibility (CSR) and performance, indicating that sustainable firms must consider the entrepreneurial orientation into their business for success [13]. The study of Soto-Acosta et al. [12], which analyzed the relationship between sustainable entrepreneurship and business performance, also showed that sustainability, such as environmental awareness, does not directly affect the performance of the company. In short, sustainability-oriented individuals with entrepreneurial orientation are not likely to take an action for starting a business if entrepreneurial and financial benefits are seldom achieved. Therefore, the impact of sustainability orientation on sustainable entrepreneurial intention will be dependent on entrepreneurship orientation.

Another study, however, often considers sustainability orientation with entrepreneurial intention assuming that there is tradeoff relationship between them [23]. Sustainable entrepreneurs are often perceived as social entrepreneurs who are more interested in environmental and social issues than in economic profit making. As revealed in the study showing that sustainability orientation had a negative effect on entrepreneurial intention for business students [7], many entrepreneurs think that considering social and environment factors in their business may reduce private benefit. Nascent entrepreneurs tend to view sustainability orientation for social and environmental benefit as a tradeoff relationship with entrepreneurship orientation for profit [2,24]. Nascent entrepreneurs may take

making private benefit through relatively entrepreneurial actions into more serious consideration than social and environmental benefits through sustainability. That is, when nascent entrepreneurs see new opportunities in markets and environments, they can interpret and understand opportunities from a realistic point of view, such as feasibility or profit creation, rather than an altruistic view that considers environment and sustainability. This is because, for an entrepreneur, profit is related to the survival and sustainability of the enterprise. Therefore, entrepreneurial orientation can make it difficult to start a business even if there are good opportunities in the market. Our understanding of the moderating effect of entrepreneurship orientation in the relationship between sustainability orientation and opportunity discovery is based on the study by Patzelt and Shepherd [25]. They found that knowledge of the natural and communal environment had positive effects on recognition of sustainable development opportunities and that entrepreneurial knowledge had a positive moderating effect in this relationship. Hall et al. [1] also suggested that proactive entrepreneurs are better able to be alert to market imperfections and actively involved in allocating environmental resources to capture new opportunity. Based on the above literature, we set the negative moderating effects on the relationship between sustainability orientation and sustainable entrepreneurship intention.

**Hypothesis 4a (H4a).** *The level of entrepreneurship orientation positively moderates the relationship between sustainability orientation and sustainable entrepreneurship intention.*

**Hypothesis 4b (H4b).** *The level of entrepreneurship orientation negatively moderates the relationship between opportunity recognition and sustainable entrepreneurship intention.*

**Hypothesis 4c (H4c).** *The level of entrepreneurship orientation positively moderates the relationship between sustainability orientation and opportunity recognition.*

Based on the theoretical research, we proposed a research model as shown in Figure 1. In this model, we examined the research questions of whether sustainable entrepreneurship can influence entrepreneurial intention and what factors motivate sustainability orientation to enhance entrepreneurial intention.

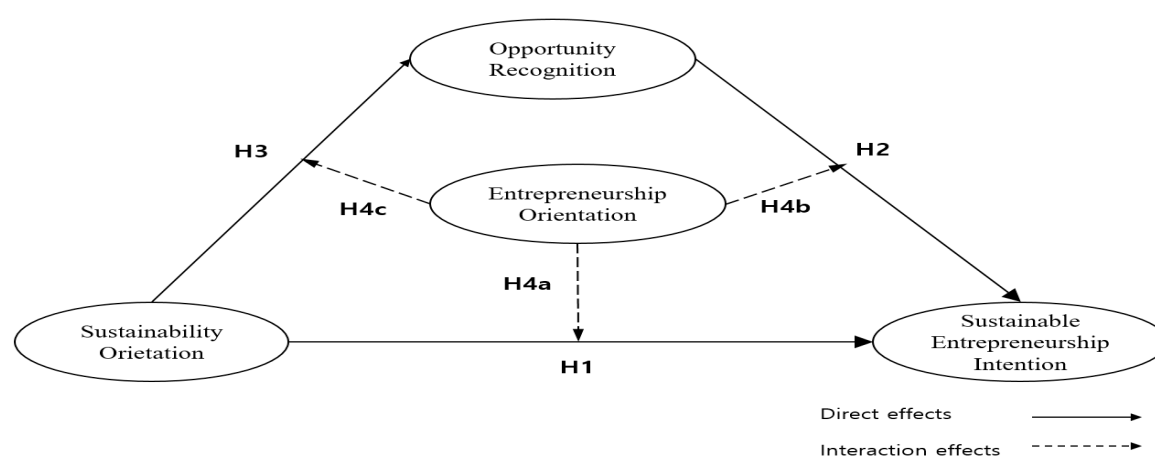


Figure 1. Research model.

### 3. Methodology

#### 3.1. Measurement

The variables used in this study were measured at the individual level. The definitions and items of each variable are described as follows. Survey items were adopted from previous research and measured with a 7-point Likert scale.



*Sustainability Orientation* reflects underlying attitudes and personal traits of environmental protection and social responsibility. It is measured with items developed by Kuckertz and Wagner [6] including statements like “firms should take an internationally leading role in the field of environmental protection”; “The environmental performance of a company will in future be considered more and more by financial institutions”; “I think that environmental problems are one of the biggest challenges for our society”; and “I think that entrepreneurs and companies need to take on a larger social responsibility”.

*Entrepreneurial orientation* was measured at the individual level. Research of entrepreneurship at the individual level has been studied as an activity to become an entrepreneur, and personal traits and attitudes related to the success of these activities [26–28]. Many insisted that individual entrepreneurial orientation is important to build up the research on the impact of personal entrepreneurial traits on entrepreneurial intention and performance [29]. We used the measurement scale developed by Bolton and Lane [28], consisting of individual traits of entrepreneurial orientation including innovativeness (4 items), proactiveness (3 items), and risk taking (3 items). Risk taking items asked “I like to take bold action by venturing into the unknown” “I tend to act boldly in situations where risk is involved”. Innovativeness items included such questions as “I tend to try new and unusual activities that are not typical but not necessarily risky” and “I prefer to try my own unique way when learning new things rather than doing it like everyone else does”. Proactiveness involved items like “I usually act in anticipation of future problems, needs or changes”, and “I tend to plan ahead on projects”.

*Opportunity recognition* refers to the process by which entrepreneurs seek out or create something that provides potential market value and benefit. We measured opportunity recognition, including opportunity discovery and creation perspectives. Opportunity discovery is to recognize and identify sustainable new business opportunities in existing markets and environments, and opportunity creation involves creating new business opportunities through new ideas and redesigning the market structure. We adopted survey items developed by Craig and Johnson [30], asking about whether they are likely to identify entrepreneurial opportunities in the existing market or create new opportunities with perceptions of social responsibility and sustainability. The questions include “I discover previously unnoticed entrepreneurial opportunities” and “I am excited by the knowledge that there are many unexploited entrepreneurial opportunities”.

*Intention toward sustainable entrepreneurship* refers to an individual’s willingness to become a sustainability-oriented entrepreneur and an intent to start a business considering sustainability and environmental issues. Adopting from entrepreneurship intention items developed by Liñán and Chen [31], we have modified them into the intention toward sustainable entrepreneurship, such as “My professional goal is to become a sustainable entrepreneur”, “I am ready to do anything to be a sustainable entrepreneur”. In addition, we adopted items from previous research on sustainable entrepreneurship asking “I feel enthusiastic to be sustainable entrepreneur”, and “Sustainable entrepreneurship is a challenging but interesting task.” [32,33].

### 3.2. Participants and Data Collection

Data was collected from nascent entrepreneurs who have specific intentions to engage in entrepreneurial activities like start-ups. Since the intention toward sustainability entrepreneurship is important in deciding entrepreneurship processes and goals, nascent entrepreneurs are appropriate to our study. A questionnaire was distributed to early stage entrepreneurs residing in Rohobot business centers, which provide incubating and networking services. The questionnaires were also given to the nascent entrepreneurs who started their business through the university’s entrepreneurship services. Of the total 242 retrieved questionnaires, 215 were used in the final analysis, eliminating questionnaires with missing data and improper answers. The demographic characteristics of the sample are as follows. The gender ratio was 78.6% for male, 21.4% for female. CEOs were the majority, making up 63.7% of this sample. The ages less than 25 were 27% and ages ranged from 31 to 40 years were 25.2%. Since this sample was targeted to nascent entrepreneurs, most firms were aged less than 3 years (73.5%). Table 1 shows the demographic distribution of the samples used in this study.

**Table 1.** Demographic characteristics.

		Frequency (N)	Percentage (%)
Gender	male	169	78.6
	female	46	21.4
Age	≤25	58	27
	26–30	28	13
	31–40	54	25.2
	41–50	52	24.2
	≥51	23	10.6
Position	CEO	137	63.7
	Team Leader	56	26.1
	employees	22	10.2
Industry	Manufacturing	47	21.9
	SW, Technology	59	27.3
	Services	81	37.6
	others	28	13.2
Firm-age	<1 years	62	28.8
	1–3 years	96	44.7
	4–6 years	32	14.9
	>7 years	25	11.6
Sum		215	100

### 3.3. Measurement Analysis

This study tested hypotheses with Partial Least Squares (PLS) path modeling using SmartPLS 2.0 developed by Ringle et al. [34]. PLS method provides both measurement and structural modelling simultaneously to estimate the complex cause-effect relationship model. The measurement model represents the relationships between the observed data and the latent variables, while the structural model represents the relationships between the latent variables. Moreover, PLS is known to suit exploratory and predictive research, such as emerging themes of sustainable entrepreneurship research [35]. Since the purpose of this study is to predict causal relationships between variables rather than theoretical tests, it is appropriate to use PLS path modeling. Before testing the structural model, we analyzed the measurement model of each variable used in this study. To measure the validity of the measurement scale, the cross loading values of latent variables were examined. As shown in Table 2, measurement variables that measure specific latent variables have relatively high loading values compared to their latent variables and relatively low loading values with other latent variables. We, therefore, conclude that the items were reliable.

To measure the validity of internal consistency, convergent and discriminant validity were examined as shown in Table 3. Internal consistency was examined with the value of Cronbach's Alpha, representing all variables greater than 0.8 acceptable thresholds. Convergent validity was examined to see whether the average variance extracted (AVE) values were greater than 0.5 and composite reliabilities were greater than 0.7 [36]. AVEs of latent variables in our study show greater than 0.5 and composite reliabilities are greater than 0.7, showing acceptable thresholds. The square root of the AVE values for each construct should be greater than 0.7 and higher than the off-diagonal correlations [37], thus all variables in this study met the requirements.

**Table 2.** Cross loading values for latent variables.

	SO	Opp	EO	SI
SO1	0.81	0.28	0.25	0.55
SO2	0.85	0.43	0.32	0.58
SO3	0.87	0.43	0.42	0.66
SO4	0.84	0.33	0.33	0.56
SO5	0.84	0.42	0.33	0.55
Opp1	0.30	0.79	0.63	0.38
Opp2	0.33	0.70	0.46	0.46
Opp3	0.33	0.77	0.54	0.57
Opp4	0.48	0.76	0.53	0.49
Opp5	0.43	0.87	0.56	0.54
Opp6	0.32	0.80	0.50	0.45
Opp7	0.27	0.85	0.59	0.47
Opp8	0.42	0.88	0.67	0.57
Opp9	0.44	0.84	0.64	0.62
Opp10	0.30	0.77	0.58	0.44
EO1	0.44	0.65	0.79	0.45
EO2	0.28	0.54	0.80	0.38
EO3	0.32	0.56	0.84	0.33
EO4	0.23	0.51	0.70	0.27
EO5	0.24	0.48	0.73	0.33
SI1	0.62	0.57	0.42	0.90
SI2	0.57	0.57	0.41	0.86
SI3	0.64	0.52	0.38	0.83
SI4	0.64	0.61	0.46	0.92
SI5	0.54	0.46	0.36	0.86

**Table 3.** Internal consistency and discriminant validity.

	Mean	S.D.	Communality	Cronach's Alpha	Composite Reliability	AVE	Correlation of Constructs			
							1	2	3	4
1. Sustainability Orientation (SO)	5.37	1.07	0.71	0.89	0.92	0.71	0.84			
2. Opportunity Recognition (OR)	5.53	0.99	0.64	0.94	0.95	0.64	0.45	0.8		
3. Entrepreneurship Orientation (EO)	5.22	0.92	0.6	0.83	0.88	0.6	0.39	0.71	0.77	
4. Sustainability Entrepreneurship Intention (SEI)	5.75	1.13	0.71	0.92	0.94	0.77	0.68	0.46	0.46	0.88

### 3.4. Structural Analysis

The Structural model was measured to test the proposed hypotheses. PLS provides the significance of path coefficients and the explanatory power of the model with the  $R^2$  value [37]. In PLS analysis, the  $R^2$  value represents the explanatory power of the endogenous variable and can estimate the fitness of the model. In this model,  $R^2$  is 0.61 for the sustainable entrepreneurship intention and 0.56 for opportunity recognition, representing exploratory power of 61% and 56% respectively in the relationship. The model fit can also be defined by multiplying the mean value of all the dependent variables by the average value of the communality and then again the square root value. And, if the square root value is greater than 0.36, it is determined that the model suitability is high [38]. The PLS path model of the study showed that the  $R^2$  mean of all dependent variables was 0.585, the communality mean value was 0.665, and the square root of the multiplied value appears to be 0.623, indicating that the overall fit of the model is very high.



The results of PLS path modeling for hypothesis testing are presented in Table 4. The result of structural analysis showed that the direct effect of sustainability orientation and sustainable entrepreneurship intention is significant, showing a path coefficient of 0.51 ( $p < 0.01$ ), consistent with previous research [6]. Therefore, the hypothesis H1 is supported. As expected, the impact of sustainability orientation on opportunity recognition is significant at 0.01 level, supporting H2. These results demonstrate that sustainability-oriented individuals are better aware of entrepreneurship opportunities for environmental and social issues. Consequently, higher opportunity recognition brings higher intention toward sustainability entrepreneurship, showing positive significance with a path coefficient of 0.18 ( $p < 0.01$ ). The interaction effect of entrepreneurship orientation varied upon each relationship of variables. The moderating effect of entrepreneurship orientation is positively significant at 0.05 level, supporting H3a. The moderating effect of entrepreneurship orientation on the relationship between opportunity recognition and sustainable entrepreneurship intention was negatively significant at the level of 0.01 (path coefficient =  $-0.19$ ), supporting H3b. The positive moderating effect on the relationship between sustainability orientation and opportunity recognition was negatively significant, not supporting H3c (path coefficient =  $-0.12$ ,  $p < 0.05$ ).

**Table 4.** The result of structural analysis.

Hypothesis	From	To	Path Coefficient	t-Value
H1	SO	SEI	0.51	7.41 **
H2	OR	SEI	0.41	4.91 **
H4a	SO * EO	SEI	0.14	1.83 *
H4b	OR * EO	SEI	$-0.19$	2.53 **
$R^2$			0.61	
H3	SO	OR	0.18	3.11 **
H4c	SO * EO	OR	$-0.12$	1.99 *
$R^2$			0.56	

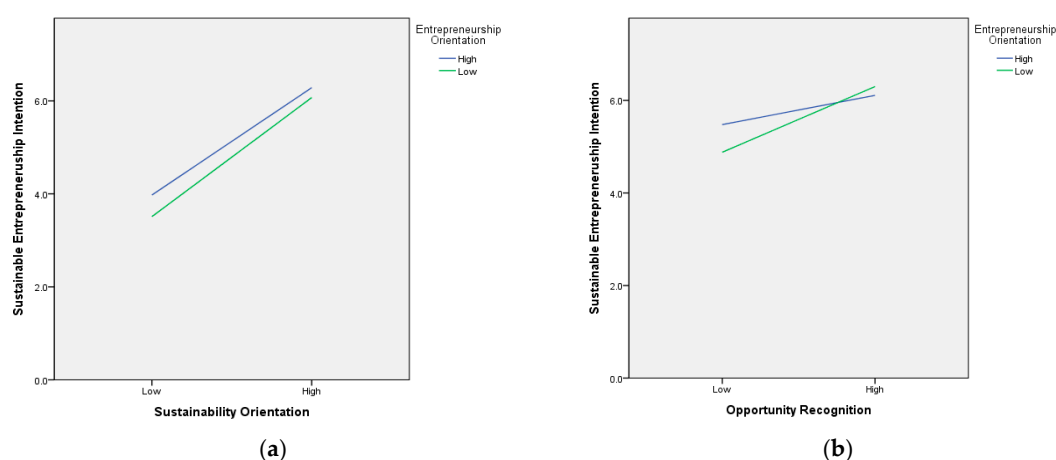
\*  $p < 0.05$ , \*\*  $p < 0.01$ .

#### 4. Discussion and Implication

Environmental destruction can be viewed as one of the negative consequences of business activity. But on the other hand, this environmental destruction can be a new opportunity for business activities. Thus, there is growing interest in the role of entrepreneurs in solving environmental problems through sustainable entrepreneurship, and pursuing economic benefits through the process. However, these new practices are not fully accepted and exercised by many nascent entrepreneurs, and the understanding of sustainable entrepreneurship tends to diminish as the business grows. One reason for this is that sustainability orientation is often perceived as a trade-off relationship with entrepreneurship orientation [5,24]. Moreover, research on sustainable entrepreneurship is very rare in the literature, and the result of its impact is still in debate.

The purpose of this study is to examine the trade-off relationship between entrepreneurship and sustainability by investigating the moderating effect of entrepreneurial orientation, and to investigate whether sustainability-oriented entrepreneurial intention is fostered. Consistent with previous research on sustainable entrepreneurship, this study revealed that sustainability orientation positively influences opportunity recognition and sustainable entrepreneurship intention. That is, a sustainability-oriented individual would have a better chance to recognize entrepreneurial opportunities regarding the environment and sustainability and have a strong inclination toward sustainable entrepreneurship. The moderating effects of entrepreneurship orientation, to see its trade-off relationship with sustainability orientation on opportunity recognition and sustainable entrepreneurship, turned out different. As shown in the Figure 2a, entrepreneurship orientation has a positive effect on the sustainability orientation and sustainable entrepreneurship intention relationship. It means that higher sustainability-oriented individuals with higher levels of entrepreneurship

orientation would be likely to perform sustainable entrepreneurship. However, as for the relationship between opportunity recognition and sustainable entrepreneurship intention, the entrepreneurship orientation converted its relationship. Figure 2b showed that entrepreneurship orientation would foster sustainable entrepreneurship intention when the level of opportunity recognition is low, but it lowers the intention level of being sustainable entrepreneurship when the opportunity recognition is high. This result demonstrates that unlike the positive moderating effect of entrepreneurship with sustainability orientation, entrepreneurial mind may hinder the sustainable entrepreneurship activities even with recognizing the opportunities related to sustainability. It also can be explained that no matter how sustainable the business opportunity is, entrepreneurial aspects such as feasibility are examined, and thus entrepreneurship orientation may not easily lead to sustainable entrepreneurship intentions. This result is consistent with the research about sustainable entrepreneurship of the binary concept of entrepreneurship versus sustainability, noting that they are trade off relationship [5,22].



**Figure 2.** (a) The moderating effect of entrepreneurship orientation on the relationship between sustainability orientation and entrepreneurship intention; (b) The moderating effect of entrepreneurship orientation on the relationship between opportunity recognition and entrepreneurship intention.

This study has the following practical and academic implications. First, this study highlights sustainability at an individual level, to suggest the importance of sustainability orientation on sustainable entrepreneurship practices. Sustainable entrepreneurship becomes a good alternative to addressing environmental and sustainable ecosystem and market issues, thus suggesting that awareness and education related to sustainability is important. In our study, sustainability-oriented individuals tend to be better in recognizing business opportunities and running a business considering sustainability. Moreover, the sustainability orientation itself can have an influence on intention toward sustainable entrepreneurship. For scholars who want their academic contributions, sustainability orientation is also an important concept including theories, models, and policies. Sustainability-oriented entrepreneurship can be pursued by attitudes, values, and social perceptions of sustainability and sustainability orientation.

Second, reflecting on opportunities in the area of sustainability, we have presented a new perspective that focuses on discovering opportunities derived from environmental destruction. In order to apply marketing inquiry to sustainable entrepreneurship, we emphasized the role and importance of opportunity recognition in an uncertain environment. Sustainability orientation can therefore lead to entrepreneurs' intentions and activities when they have the ability to innovate, to be entrepreneurial with risk tolerance and agility in an uncertain environment, and to be able to recognize business opportunities in a disrupted environment. Accordingly, it is important to teach the understanding of market imperfection and uncertain environments in entrepreneurial courses and to introduce sustainable entrepreneurship along with marketing concepts. Academically, it is suggested that

entrepreneurship research considering social and environmental issues and socially-oriented practices can derive many significant findings and identify market segments that have not been discovered in relation to sustainable entrepreneurship.

Third, this study shed light on sustainable entrepreneurship as a binary concept involving individual level of entrepreneurship and sustainability orientation to examine their tradeoff relationship. Although sustainability orientation is an important concept itself to deliver sustainable entrepreneurship practices, our study showed that there is probably the binary concept between sustainability and entrepreneurship as addressed in previous research [22]. Sustainable entrepreneurship is still regarded as a new practice in business, with the tradeoff of being profit-centered to sustainability-centered business. Similarly, nascent entrepreneurs tend to choose entrepreneurship for profit rather than sustainability for social and environmental benefits. Even though they are sustainability-oriented entrepreneurs, it is rare to solve environmental problems through entrepreneurship and at the same time pursue economic benefits. When compromising sustainability and entrepreneurship, entrepreneurs often face the choice of which one to prioritize, which to choose to pursue out of social or economic achievement. In this process, entrepreneurs experience various dilemmas due to uncertainty about new venture creation, risk taking, and whether their entrepreneurial innovation can be matched to the market situation. They also can be exposed to ethical situations they are reluctant to be in due to environmental changes and pressing financial resources. Specifically, small-scale individual entrepreneurs are likely to take irresponsible entrepreneurial actions when exposed to corruption, a weak regulatory environment, and poor economic conditions, at both national and individual levels. Therefore, in order to solve this entrepreneurs' dilemma, it is necessary to consider sustainability orientation combined with entrepreneurial orientation and market awareness.

However, sustainability orientation should be considered with entrepreneurial orientation to pursue sustainable performance and enterprise creation. Similarly, sustainability can lead to a positive entrepreneurial action, not only to solve social and environmental problems, but to generate economic value. Therefore, this study suggests that the entrepreneurs should strive to balance sustainability and entrepreneurship while contemplating how to solve social problems and pursue the interests of the company at the same time. Moreover, the results of this study suggest to the educators the role of universities in fostering entrepreneurial decisions about sustainability. In other words, entrepreneurship should be taught with consideration of sustainability and learning the market situation [39,40]. It also suggests that the design and operation of interdisciplinary courses linking between sustainability and entrepreneurship are important. Through such interdisciplinary programs in universities, actual entrepreneurship that could solve environmental problem as well as gain both social and economic benefits can be encouraged.

Overall, ideal sustainable entrepreneurship has moved beyond social and environmental consideration and shifted to effectiveness and economic value [41], and thus entrepreneurs should understand how to meet expectations regarding sustainability concerns from entrepreneurship perspectives. Sustainability-oriented individuals are able not only to recognize entrepreneurial opportunities from environmental destruction and social problems based on their knowledge of the market, but also generate profit through their entrepreneurial actions providing valuable products and services for sustainability.

## 5. Conclusions and Limitation

Sustainability is an important topic for understanding and developing our society, including business, government, and non-governmental organizations (NGOs). Especially in today's environment where environmental and social problems are serious, sustainable entrepreneurship is required to solve them effectively, and it is necessary to have an ability to seek opportunities in an uncertain environment and pursue social and economic wellbeing. Therefore, it is important for entrepreneurs to balance sustainability and entrepreneurship and to explore sustainability within

entrepreneurial process involving capabilities of exploration, reconfiguration and interpretation of environmental issues as entrepreneurial opportunities.

To this end, sustainability orientation should be further facilitated and strengthened through a variety of channels, including education and mentoring. However, most entrepreneurship education focuses on motivation to drive goals through progressive risk taking. Also, especially in the early start-ups, entrepreneurs tend to concentrate on innovation and business models to maximize profits, since there is a direct correlation between corporate profits and firm survival. Therefore, it should be noted that sustainability orientation is not limited to the viewpoint of environmental and social problem solving, but also has a considerable influence on entrepreneurial intentions and profit generation. It is also necessary to suggest that sustainability orientation can play a role in discovering and creating opportunities in a broader perspective than looking for opportunities that focus on profit. In the end, it is necessary to understand that the altruistic thoughts and actions of entrepreneurs can be a driving force to grow as a sustainable corporation that can promote profit generation through discovery of new opportunities, and at the same time consider the environment and society.

Despite the insights of this study, it has several limitations. First, this study examined sustainability orientation and entrepreneurship at the individual level, but it is necessary to study the relationship between sustainability orientation and corporate performance and sustainable innovation in the enterprise and organization level. Second, this study has limitations in cross-sectional research. Since sustainability orientation is an individual's social and environmental concern, it is necessary to understand the environmental factors faced by nascent entrepreneurs when interpreting the results of the research, because they are fully capable of environmental impact. Therefore, future research will require longitudinal research and an event study based on when social or environmental issues are raised. Third, it is also required to examine a multidisciplinary review of the sustainability-oriented nature of nascent entrepreneurs in future research. Moreover, it would be worth studying psychological perspectives for nascent entrepreneurs to investigate the conditions under which sustainability orientation positively affects intention and behavior. Finally, the empirical results of this study reflect the economic, social, and cultural environment of individual countries, and we should be careful in generalizing the results, especially those related to sustainability orientation which would vary by culture. Therefore, it is necessary to examine sustainable entrepreneurship in other countries or social settings in order to see the differences in other environments.

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