

# Effect of Development Passion on Environmental Sustainability: Augmenting the Process through Effectuation

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## Abstract

*This paper studies the effect of the development of passion on environmental sustainability and the effect of effectuation as a mediator. Effectuation is gaining popularity among the research community due to its practicality and effectiveness. The samples of 348 respondents were collected to measure the three variables and their relationship. The study uses a self-reported instrument to gauge the effect of Entrepreneurial passion on enterprise environmental sustainability and the impact of effectuation as a mediator. SPSS version 25 is used for statistical analysis, and the Hayes process is employed for obtaining the mediation results. The study finds a strong link between effectuation as a mediator on enterprise environmental sustainability and recommends using the model of effectuation as a process for sustainability outcomes. Enterprise sustainability, economic or environmental is not linear and hence needs passion and resilience. The Effectuation process assists the passionate entrepreneur in employing his/her available resources to enhance their outcomes to achieve enterprise environment sustainability. This research adds to the current literature on how effectuation can become a process of environmental sustainability. It is observed that little studies are found on development passion and this study will augment the literature on development passion and its impact on environmental sustainability. This research recommends the suggestions of the effectuation model which proposes that an entrepreneur needs to develop a network for environmental sustainability instead of trying to do everything by them self.*

**Keywords:** Entrepreneur Passion, Effectuation Process, Environmental Sustainability.

## Introduction

Business perspectives are developing and showing concerns about environmental degradation. Employees' green commitment plays a fundamental role in increasing firms' environmental performance Khan et al. (2024). Organizational economic outcomes come with a significant environmental cost, as these sectors frequently rely on resource-intensive practices and generate substantial waste. In light of escalating environmental concerns, there is a pressing need to advance sustainability within the creative industries Abulibdeh et al. (2024). Countries outside the northern hemisphere are the providers of cheap labor at the expense of their environment to produce inexpensive products for consumption Karami et al. (2024).

An increasing number of empirical researches consider that passion contributes a significant role in entrepreneurs' behavior and results Mol et al. (2020). Entrepreneurial passion is defined as an entrepreneur's strong emotional state accompanied by cognitive and behavioral demonstration of

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high individual worth. The ingenious problem-solving attitude of passionate entrepreneurs inspires him/her to engage in actions to find solutions to enterprise problems Yi et al. (2020). Resilient entrepreneurs are persistent in the face of hindrances or threats to engaging in entrepreneurial activities

Effectuation Logic in Green Entrepreneurial Opportunity Recognition: A principle of effectuation Frank (2024); Bird-in-hand Principle: Start with available means and resources, such as skills, knowledge, and networks, to create opportunities. Affordable Loss Principle: Focus on what the entrepreneur can afford to lose rather than expected returns, minimizing risks. Lemonade Principle: Embrace surprises and leverage unexpected events as opportunities to innovate and pivot. Patchwork Quilt Principle: Form partnerships and alliances to co-create opportunities and share risks. Pilot-in-the-plane Principle: Emphasize control over predicting the future; focus on actions within the entrepreneur's control to shape outcomes.

This study focuses on the following research questions: the impact of an entrepreneur's development passion on the enterprise's environmental sustainability, and the mediation of the process of effectuation on the relationship between entrepreneur development passion and enterprise environmental sustainability. The research objective of the study is to examine the impact of entrepreneur development passion on enterprise environmental sustainability, and the impact of mediation relationship.

There are not many investigations made to link entrepreneurial behaviors with effectuation and causation with sustainable entrepreneurship literature (Akemu et al., 2016; York & Venkataraman, 2010; Saravathy & Ramesh, 2019); on the other hand, these researches have not directly tested the correlation among these constructs, i.e. effectuation, causation, and sustainability orientation. The study by Kiani et al. (2022) uncovers the role of Entrepreneur Passion and encourages future studies to account for additional factors and consider their co-occurrence. This research gap is intriguing because the entrepreneur's passion is not studied earlier in the context of the effectuation process to bring environmental sustainability; hence this research has incorporated the suggestion put forth by the above author to study the impact of effectuation on the relationship of entrepreneur development passion and environmental sustainability.

The theory of effectuation has a special place in the environmental sustainability of new businesses with resource constraints and a high extent of uncertainty Berends et al. (2014). The research claims that effectuation is most suitable in uncertain conditions whereas, the response of entrepreneurs in these conditions at different levels of uncertainty needs to be investigated. Studies of behavioral decision-makers claim that in the event of an increase in ambiguity, behavioral decision-makers tend to keep the status quo instead of finding new ways to cope with the uncertainty Cowden et al. (2024).

Entrepreneur critical decision-making oscillates at the balance of causation an objective approach and effectuation accomplishment learning strategies. The researchers and practitioners of both approaches are on the same page to claim that the two decision making logic are at the center of organizational performance Jamin (2024). In situations where the future is ambiguous, the effectuation theory is most appropriate. It offers a useful guideline to the entrepreneur to act under uncertain conditions.

The theory of effectuation provides perceptual mapping to the entrepreneur to make a logical decision by sensing the ambiguity and visualize the prospect by interacting with the business environment of the means available instead of predicting the future. The effectual judgment of control facilitates the entrepreneur to depend on their individual and group means, such as who I am, what I know, and whom I know. They then reinstate the objective problem of what the

opportunity will appear like and how to deal with the environmental ambiguity Karami et al. (2024).

Effectuation theory has developed for the reason it has been widely discussed in entrepreneurship research from diverse perspectives since early 2000. The effectuation process is the beacon and symbolizes a pragmatic shift to understanding entrepreneurship. Nevertheless, few studies attempted to test it empirically. Many startups are unable to survive in the long run because of economic turbulence. To survive in difficult situations there is broad empirical evidence supporting the theory of effectuation to achieve sustainable firm performance, Lomberg (2013). This study will be underpinned by the theory of effectuation developed by Sarasvathy (2009) the study will extend the theory of effectuation to enrich the literature with the findings of this study on effectuation-sustainability link. This study sets out to unravel the nexus that connects these factors, to discover the mechanisms, relationships, and revolutionary potential they possess within entrepreneurial enterprises. There are research gaps that exist around the use of experiments as a tool for sustainability Sarasvathy (2009).

## **Literature Review and Hypotheses Development**

### **Entrepreneur Development Passions**

Passion refers to intense positive feelings that are consciously accessible Cardon et al. (2009). There is a positive correlation between passion for developing (PD) and passion for inventing (PI) in SMEs' retail performance and these associations are well-built in industrialized countries compared with developing countries Zhang et al. (2024), it is vital to nurture entrepreneurial passion for the growth of new SMEs Dinibutun (2024). The entrepreneurship and psychology literature is extended for passion; aiding entrepreneur's capacities to lead more entrepreneurial and passionate lives Schulte-Holthaus and Kuckertz (2024).

The Top Management team's (TMT) passion if separated will lead to lower innovation performance of the organization Kyriakopoulos et al. (2024) and hence reduce the chances of achieving organization objectives. Studies conducted on entrepreneurial passion exhibit the positive and direct effect of it on entrepreneurial intentions. The high team entrepreneurial passion (TEP) reduces the negative effect of entrepreneurial intention, whereas high TEP focus variety exaggerates the same negative effect of entrepreneurial intention Su et al. (2024).

### **Environmental Sustainability**

Green entrepreneurship refers to business activities that focus on environmental sustainability and ecological innovations. These ventures aim to solve environmental problems or offer products and services that are environmentally friendly Frank (2024). Developing countries are marred with their national issues of hunger, poverty, and economic development hence they usually discount the initiatives of environmental sustainability Li et al. (2024).

### **Effectuation**

Effectuation provides the framework to connect entrepreneurial alertness to market prospects and SMEs' performance Karami and Hossain (2024), effectuation is an approach for pursuing opportunities during uncertainty to remain competitive Egbetale, et al. (2024). Effectuation provides a liaison between the entrepreneur and the network community to create opportunities instead of finding them Read et al. (2009). The research claims that effectuation is most suitable in uncertain conditions whereas, the response of entrepreneurs in these conditions at different levels of uncertainty needs to be investigated. Studies of behavioral decision-makers claim that in

the event of an increase in ambiguity, the behavioral decision-makers tend to keep the status quo instead of finding new ways to cope with the uncertainty Cowden et al. (2024) this stagnation in action can be overcome by using the philosophy of effectuation.

### **Entrepreneur Development Passion and Environmental Sustainability**

Sustainability issues are gaining significance in research it is being prioritized by both social and academic researchers as being important because it connects the two constructs Kamaludin et al. (2024). Sustainability issues are more intriguing now than ever, and the link between social entrepreneurship and sustainability is gaining significance due to its connection Kamaludin et al. (2024). Understanding needs to be developed on the factors to achieve sustainability of social entrepreneurs.

Making a profit is a secondary objective in social enterprise its social mission is at the heart of Seanor and Meaton (2007). Only a passionate entrepreneur ensures the management of natural resources for long-term sustainability in social entrepreneurship which can be delivered through community-driven initiatives and improvement of operational efficiencies Rajput and Chopra (2014)

H1: Entrepreneur Development passion has a positive relationship with environmental sustainability.

### **Entrepreneur Development Passion and Effectuation**

Entrepreneurial passion encourages special actions required to gear up resources to initiate new ventures. The intense feelings as described by research increase emotional traits that drive the entrepreneurs to achieve their goals Mohammadi (2021). Obtaining resources brought many insights about the vision of entrepreneurs and how they have utilized their resources to produce more with the least resources, yet these scholarships are concentrated predominantly on resource accumulation ignoring the effectuation process of strategic alliances which can bring resources and positively influence venture growth and sustainable outcomes Moss (2022).

H2: Entrepreneur Development passion has a positive relationship with effectuation.

### **Effectuation and Environmental Sustainability**

Effectuation emphasizes leveraging available means and forming partnerships to co-create new opportunities Frank (2024). In the face of technological, market, and institutional uncertainties, effectuation enables green entrepreneurs to creatively recombine resources and form stakeholder networks to uncover new venturing possibilities. Green entrepreneurship refers to business activities that focus on environmental sustainability and ecological innovations.

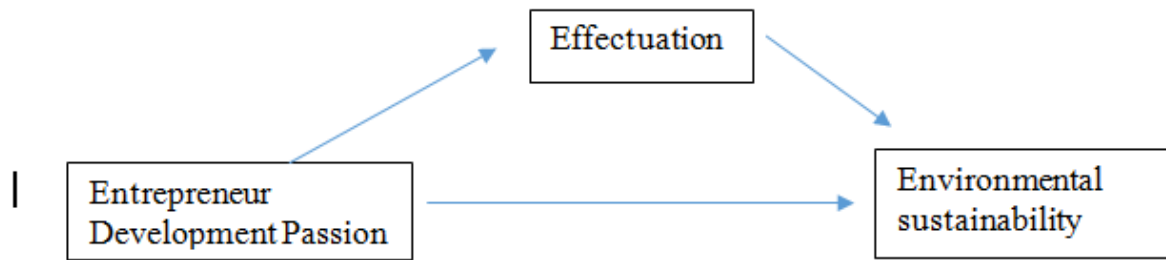
These ventures aim to solve environmental problems or offer products and services that are environmentally friendly Frank (2024), application of Effectuation Logic in Green Opportunity Recognition; Leveraging Affordable Resources, and Utilize existing resources creatively to explore green business opportunities without significant initial investments. Embracing Uncertainty and Experimentation: test and experiment with new ideas and adapt based on feedback and changing circumstances. Forming Strategic Partnerships: Collaborate with other stakeholders, such as NGOs, government agencies, and other businesses, to enhance resources and capabilities. Focusing on Controllable Aspects: Concentrate on actions and decisions that are within the entrepreneur's control to influence outcomes positively. Effectuation assumes that the future is unpredictable and emphasizes transforming a current set of means into convergent new goals and co-creating new opportunities Wang et al. (2024).

H3: Effectuation has a positive relationship with environmental sustainability.

H4 Effectuation mediates the relationship between Entrepreneur Development passion and environmental sustainability

## Theoretical Framework & Conceptual Diagram

Figure 1: Theoretical framework



## Methodology

### Research Design

This is a quantitative study; causal and cross-sectional. The survey method is employed in non-contrived settings to collect data to find the relationship between entrepreneur development passion for environmental sustainability and the mediating role of effectuation.

### Sample and Data Collection

The study involves MSME's of Pakistan. The owner and main employee who is involved in decision-making in MSMEs is the unit of a sample of this research. The data from 348 respondents were collected using an online questionnaire that was sent to the owners or experts employed in MSMEs and technology firms located in the Islamabad region of Pakistan. The samples were chosen by using the purposive convenience sampling technique as suggested by Sivathanu and Pillai (2019). The samples were collected both online and through field visits to several business centers of Rawalpindi and Islamabad region. The respondents were considered appropriate for the study as they were the principal staff members, owners, or decision-makers of the MSME.

### Research Instrument

#### Entrepreneur Development Passion

Entrepreneur development passion was measured using the scale adapted from Cardon et al. (2013). To measure entrepreneurs' development passion only one construct of the scale has been selected to precisely know the outcome of the variable of interest. Reliability statistics of entrepreneur passion - Owning my own company energizes me ( $\alpha = 0.733$ ) on 4 items of the scale.

#### Effectuation

To study the contribution of effectuation as a mediator on enterprise environment sustainability, existing measures of constructs were used and effectuation was measured by using a scale adopted from Chandler et al. (2011). Reliability Statistics of Effectuation are measured by 15 items of effectuation. Reliability of fifteen-item scale of effectuation ( $\alpha = 0.859$ ).

### Environmental sustainability

To investigate the variable environmental sustainability guidelines has been taken from the scale used by Sivathanu and Pillai's (2019) research. This study has bifurcated the instrument used in the previous study and used the environmental and social sustainability leaving the economic sustainability which is much studied in the literature. The reliability of the environmental sustainability ( $\alpha = 0.854$ ).

**Table 1: Cronbach's Alpha**

Entrepreneur development passion	0.733
Effectuation	0.859
Environmental sustainability	0.854

### Data Analysis

#### Descriptive Statistics

Table 2 shows the study demographics. Most of the respondents were male and fell within the age brackets of 18-35. Further, the respondents were either owners of the MSMEs or executive-level employees who better understood the business operations. Gender composition of respondents: female twenty percent and eighty percent of the respondents were male whereas sixty-eight percent of the respondents were single.

**Table 2: Demographic Statistics**

Variable	Range	Frequency	Per cent
Gender	Female	70.00	20.11
	Male	278.00	100.00
Age	18 to 25	178.00	51.15
	26 to 35	130.00	88.51
	36 to 45	16.00	93.10
	46 to 55	21.00	99.14
	55 or above	3.00	100.00
Marital Status	Single	239.00	68.68
	Married	109.00	100.00
Designation	Owner	158.00	45.40
	EL	57.00	61.78
	GM	71.00	82.18
	FM	35.00	92.24
	FILM	27.00	100.00

\*Note: EL (executive level), GM (General Manager), FM (Functional Manager), FLM (Front Liner Manager)

Table 3 depicts the value of skewness and kurtosis. The value of skewness is within the range of -3 to +3 which shows data is asymmetrical. Whereas, the values of gender show a negative sign which shows it is negatively skewed; because more than 75 percent of the respondents were male. Kurtosis is the measure of the degree of reaching the peak of the frequency distribution. The results of kurtosis are also within the range and asymmetrical at the level of three. More than +3 signifies positive kurtosis and less than -3 negative kurtosis. All the values of the items are within range



besides education which is 18.65 which indicates that most of the educated are at the level of graduate.

**Table 3: Statistic-- Skewness and Kurtosis**

	Skewness	Kurtosis
Education	3.188	18.654
Industry	1.312	.408
Designation	.750	-.654
Total Experience	.999	.096
Age	1.508	2.120
Gender	-1.498	.244
Marital Status	.809	-1.353

### Correlation

The correlation of the variables is illustrated in correlation table 4. The study independent variable entrepreneurs' Development passion has a positive and significant correlation with the dependent variable environmental sustainability at .395\*\*, and with the mediator effectuation.457\*\*. The dependent variable environmental sustainability has a positive and significant correlation with mediator effectuation at .414\*\*. The correlation results show that development passion is positively correlated with environmental sustainability and effectuation. Effectuation is also positively correlated with environmental sustainability.

**Table 4: Correlations**

	EP Dev	SEP Env	Effect
EP Development	1		
SEP Environment	.395**	1	
Effectuation	.457**	.414**	1

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

### Regression Analysis

#### Hypotheses Tests

This study used the Andrew Hays process model 4 to run the mediation analysis of independent variable entrepreneur development passion on dependent variable environmental sustainability, this process made it more effective than other software for mediation analysis.

Table 5 model summary, the model is significant at the P value is .000, the correlation R is .4573, and the change in the model R<sup>2</sup> is .2091 and positive which shows the model is bringing twenty-two percent change in the dependent variable; the model is fit for interpretation.

**Table 5: Model Summary IV-M Relationship**

R	R <sup>2</sup>	F	Df <sup>1</sup>	Df <sup>2</sup>	P
.4573	.2091	91.239	1.00	345.00	.0000

Table 6 IV Entrepreneurs' development passion relationship with Mediator effectuation is displayed. Data depicted strong effect of entrepreneurs' development passion on mediator

effectuation at thirty eight percent where T value is 9.5, P value is significant and upper level confidence level are in the same direction all these indicates model fitness to explain the IV-M strong relationship. This concludes to the acceptance of study second hypothesis H2: Entrepreneurs' development passion has a positive relationship with effectuation.

**Table 6: Model IV-M Relationship**

	Effect	SE	T	P	LLCI	ULCI
<u>EPDev</u>	.3780	.0396	9.552	.0000	.3002	.4559

Table 7 model summary, the model is significant at the P value is .000, the correlation R is .474, and the change in the model R<sup>2</sup> is .2252 and positive which shows the model is bringing twenty-two percent change in the dependent variable; the model is fit for interpretation.

**Table 7: Model Summary**

R	R <sup>2</sup>	F	Df <sup>1</sup>	Df <sup>2</sup>	P
0.4745	0.2252	49.979	2.000	344.000	0.000

Table 8 shows the direct, indirect, and total effects of the study variables. The direct effect of entrepreneurs' development passion on the dependent variable environmental sustainability shows an impact of .2712 on the dependent variable environmental sustainability and the results are significant, T value is 4.88 and upper-level and lower-level confidence interval are also in the same direction, hence it can be concluded that hypothesis H1: Entrepreneur development passion has a positive relationship with environmental sustainability.

The indirect effect or the mediation analysis shows mediation is occurring. The effect of the mediation is 0.1403 or 14 percent and the results are significant. The effect of the mediation increases the total effect to 14 percent which concludes that effectuation increases the effect of entrepreneur development passion for environmental sustainability. Hence it can be claimed that study hypothesis H3: Effectuation has a positive effect on environmental sustainability and H4: Effectuation mediates the relationship of entrepreneur development passion and environmental sustainability is accepted. The total effect also reflects that there is an increase of fourteen percent in the total effect which increases from twenty-seven to forty-one percent. The regression analysis confirms the hypotheses, showing that development passion has a significant positive relationship with environmental sustainability and effectuation and that effectuation mediates the relationship between development passion and environmental sustainability.

**Table 8: Direct, Indirect, and Total Effect of X on Y**

Direct, Indirect and Total effect					
	Effect	T	P	LLCI	ULCI
Direct effect	.2712	4.8829	0.0000	.1619	0.3804
Indirect effect	.1403			0.0662	0.2323
Total Effect	.4115	7.997	0.0000	.3103	0.5127



## Discussion

The purpose of the Study was to empirically examine our proposed mediation model of the link of development passion, enterprise environmental sustainability, and effectuation process. The study questions the impact of an entrepreneur's development passion on the enterprise's environmental sustainability and the mediation of the process of effectuation on the relationship between entrepreneur development passion and enterprise environmental sustainability are proved. This study is in line with the previous research of Abdullah et al. (2024) Entrepreneurial individuals typically possess a self-motivated and independent mindset, which is centered on innovation and hence can bring innovative practices to sustainability.

The study has found a strong relationship between the entrepreneur development passions with enterprise environmental sustainability. The direct effect where the impact of independent variable entrepreneur development passion was regressed on dependent variable enterprise environmental sustainability is found to be strong. The beta value is .2712 which shows there is a direct impact of twenty percent which shows the research model is fairly strong to bring 27 percent change in the dependent variable. The study further identified the mediation effect as fourteen percent which increases the total effect from twenty-seven to forty-one percent. The overall effect of the model is very strong, the study endorses previous authors Sarasvathy (2024) that the effectual process increases the probability of enterprise environmental sustainability; Xu et al. (2024) the entrepreneurial networks-effectuation-BMI association was more substantial in highly dynamic environments. Findings of the study Kendil and Chohra, (2024) state entrepreneurs face specific circumstances for green entrepreneurship in comparison to traditional ones which increases the uncertainty of environmental sustainability; hence this study endorses effectuation theory can enable an entrepreneur to overcome the uncertain conditions Kendil and Chohra, (2024) and enable the entrepreneur to achieve enterprises environmental sustainability.

The comparative results of causation and effectuation logic reveal that effectuation logic is positive and significant. Its influence on sustainability orientation Johnson and Hörisch (2022) is twenty-seven percent. The study endorses the past studies a coopetition connection between suppliers and manufacturers affects critical sustainability management practices. This study finds diverse implications on green management practices of coopetition links among suppliers and manufacturers of firms. We also have evidence that these relationships are moderated by effectuation Wu et al. (2024). Effectuation emphasizes leveraging available means and forming partnerships to co-create new opportunities to commercialize green innovations often face significant uncertainties and resource constraints Frank (2024).

## Managerial and Practical Implications

The findings of this study have significant implications for entrepreneurs and policy makers seeking to foster enterprise environmental sustainability. The study results suggest that cultivating the development of passion and engaging in the effectual behavior can lead to increased performance. The study also highlights the importance of experimentation and learning in the enterprise environmental sustainability process. Future research could be conducted on the ingrained dimensions of the effectuation i.e. how each dimension of the effectuation contributes to the enterprise environment sustainability. A qualitative study of the effectuation process can lead to better insights into the element of effectuation and what outcomes it can bring to environmental sustainability.

## Conclusion

This study contributes to our understanding of the complex relationships between development passion, effectuation, and enterprise environmental sustainability. The findings suggest that entrepreneurs should focus on cultivating their development passion and engaging in effectual behavior to increase enterprise environmental sustainability. Sustainability is the utmost problem of any enterprise and must be achieved with a framework provided by an effectuation framework and a resilient mindset through passion. This study adds to the development passion literature and its relationship with environmental sustainability and effectuation. The literature on development passion is scant and not diverse enough to use effectuation. Future research should continue to explore the nuances of these relationships and their implications for enterprise environmental sustainability and entrepreneurship.

## References

- Abulibdeh, A., Zaidan, E. and Abulibdeh, R., 2024. Navigating the confluence of artificial intelligence and education for sustainable development in the era of industry challenges, opportunities, and ethical dimensions. *Journal of Cleaner Production*, p.140527.
- Alam, M. N., Masroor, I., Nabi, M. N. U., & Dornberger, U. (2024). Unveiling the synergy: entrepreneurial effectuation and alliance-driven SME diversification. *Review of International Business and Strategy*.
- Berberoglu, A. (2018). Impact of organizational climate on organizational commitment and perceived organizational performance: empirical evidence from public hospitals. *BMC health services research*, 18, 1-9.
- Boğa, S. and Topcu, M., 2020. Creative economy: A literature review on relational dimensions, challenges, and Policy implications. *Economics*, 8(2), pp.149-169.
- Chiles, T.H., Gupta, V.K. and Bluedorn, A.C. (2008). On Lachmannian and effectual entrepreneurship: a rejoinder to Sarasvathy and Dew, *Organization Studies*, 29(2), pp. 247-253.
- Coviello, N. E. and Joseph, R. M. (2012). Creating major innovations with customers: insights from small and young technology firms. *Journal of Marketing*, 76(6), pp. 87-104.
- De Brito, R. P., & de Oliveira, L. B. (2016). The relationship between human resource management and organizational performance. *Brazilian Business Review*, 13(3), 90-110.
- Dinibutun, S. R. (2024). The impact of entrepreneurial passion on business model innovation on Turkish SMEs. *Cogent Business & Management*, 11(1), 2291864.
- Firdaus, D. (2023). *Manajemen Sumber Daya Manusia yang Berkelanjutan Tinjauan Sistematis Bidang yang Sedang Berkembang*, Universitas Muhammadiyah Malang. Universitas Muhammadiyah Malang, Malang.
- Fischer, E. and Reuber, R. (2011). Social interaction via new social media: (How) can interactions on Twitter affect effectual thinking and behavior? *Journal of Business Venturing*, 26(1), pp. 1-18.
- Fisher, G. (2012). Effectuation, causation, and bricolage: a behavioral comparison of emerging theories in entrepreneurship research. *Entrepreneurship Theory and Practice*, 36(5), pp. 1019-1051.
- Frank, L. (2024). Effectuation and causation logics in green entrepreneurial opportunity recognition.

- Garg, N. (2019). High-performance work practices and organizational performance-mediation analysis of explanatory theories. *International Journal of Productivity and Performance Management*, 68(4), 797-816., doi: 10.1108/IJPPM-03-2018-0092.
- Halkos, G. E., & Polemis, M. L. (2018). The impact of economic growth on environmental efficiency of the electricity sector: A hybrid window DEA methodology for the USA. *Journal of Environmental Management*, 211, 334-346.
- Howard, M. C., & Floyd, A. (2024). Reassessing passion and perseverance as dimensions of individual entrepreneurial orientation: A conceptual and empirical investigation into theory and measurement. *Entrepreneurship Research Journal*, 14(1), 89-120.
- Jamin, M. C. (2024). The Role of Business Incubation in Shaping Decision-Making Styles of Novice Entrepreneurs: A Study on Effectuation and Causation (Master's thesis, University of Twente).
- Johnson, M. P., & Hörisch, J. (2022). Reinforcing or counterproductive behaviors for sustainable entrepreneurship? The influence of causation and effectuation on sustainability orientation. *Business Strategy and the Environment*, 31(3), 908-920.
- Kamaludin, M. F., Xavier, J. A., & Amin, M. (2024). Social entrepreneurship and sustainability: A conceptual framework. *Journal of Social Entrepreneurship*, 15(1), 26-49.
- Kendil, H., & Chohra, M. (2024). The Impact of Public Policy on Perceived Environmental Uncertainty of Green Entrepreneurs in Developing Countries: Evidence from Algeria. *مجلة النمو الاقتصادي والمقاولاتية*, 6(4), 9-20.
- Khan, N. R., Siddiqui, A. H., Jafar, R. M. S., Khan, M. R., & Ahmad, W. (2024). Manager's Age, Employee Environmental Passion, and Employee Green Engagement: A Conceptual Framework. *Vision*, 09722629231206270.
- Kyriakopoulos, P., Herbert, K., & Piperopoulos, P. (2024). I am passionate therefore I am: The interplay between entrepreneurial passion, gender, culture and intentions. *Journal of Business Research*, 172, 114409.
- Latshaw, E. (2020). *Can a Personal Passion for the Environment Create a Shift in the Event Industry?* Accessed: Jan. 03, 2024. [Online]. Available: [https://digitalcommons.pace.edu/honorscollege\\_theses/318](https://digitalcommons.pace.edu/honorscollege_theses/318)
- Li, P., Abbas, J., Balsalobre-Lorente, D., Wang, Q., Zhang, Q., & Shah, S. A. R. (2024). Impact of sectoral mix on environmental sustainability: How is heterogeneity addressed? *Gondwana Research*, 128, 86-105.
- Lützkendorf, T. (2018). Assessing the environmental performance of buildings: Trends, lessons and tensions. *Building Research & Information*, 46(5), 594-614.
- Noor, Cetakan Pertama Jambi (2023). Human Resource Management (Management Sumber Daya Manusia). *Sonpedia Publishing Indonesia*.
- Pahl, S., & Wyles, K. J. (2017). The human dimension: how social and behavioural research methods can help address microplastics in the environment. *Analytical Methods*, 9(9), 1404-1411.
- Perry, J., Chandler, G. and Markova, G. (2012). Entrepreneurial effectuation: a review and suggestions for future research. *Entrepreneurship Theory and Practice*, 36(4), pp. 837-861.
- Sarasvathy, S. (2001). Causation and effectuation: toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26(2), pp. 243-263.

- Sarasvathy, S. (2008), *Effectuation – Elements of Entrepreneurial Expertise*, Edward Elgar, Cheltenham.
- Sarasvathy, S., & Dew, N. (2008a). Effectuation and over-trust: debating Goel and Karri. *Entrepreneurship: Theory and Practice*, 32(4), pp. 727-737.
- Sathasivam, K., Abu Bakar, R., & Che Hashim, R. (2021). Embracing organisational environmental sustainability: Experiences in green human resource management. *Business Strategy & Development*, 4(2), 123-135.
- Schulte-Holthaus, S., & Kuckertz, A. (2024). How life context affects entrepreneurs' passion and performance. *Review of Managerial Science*, 18(5), 1221-1251.
- Su, Q., Luo, L., Lau, D. C., & de Jong, B. (2024). United or divided? Entrepreneurial passion and fault lines in new venture teams. *Journal of Small Business Management*, 62(1), 175-208.
- Wu, L., Liu, H., & Liu, S. (2024). Coopetition relations, suppliers' effectuation, and manufacturers' green management: Evidence from China. *Corporate Social Responsibility and Environmental Management*, 31(2), 1303-1322.
- Yousefi, N., Lu, X., Elimelech, M., & Tufenkji, N. (2019). Environmental performance of graphene-based 3D macrostructures. *Nature Nanotechnology*, 14(2), 107-119.
- Yu, X., Zhao, W., Wang, X., Ma, X., & Cao, G. (2024). Striking the balance: Configurations of causation and effectuation principles for SME performance. *PloS one*, 19(6), e0302700.
- Zhang, J., Eid, R., Agag, G., Chen, C., & Fu, R. (2024). Exploring the link between entrepreneurial passion and SMEs retailers' performance: The role of exploration and exploitation under different cultural contexts. *Journal of Retailing and Consumer Services*, 78, 103744.
- Zhu, C., Liu, A., & Chen, G. (2018). High performance work systems and corporate performance: the influence of entrepreneurial orientation and organizational learning. *Frontiers of Business Research in China*, 12, 1-22.