The Moderating Effect of Data Mining on the Relationship Between Social Entrepreneurship and Sustainable Development. "Applied Study on Entrepreneurship Business Organizations in the Tabuk Region"

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Abstract

Social entrepreneurship primarily aims to serve the community and public interest, enhancing social and environmental objectives. Social entrepreneurs focus on creating societal capital. This study aimed to identify the moderating effect of data mining on the relationship between social entrepreneurship and sustainable development, an applied study on entrepreneurial business organizations in the Tabuk region. The researcher employed a descriptive analytical method and utilized a questionnaire as the tool for collecting data. A total of 250 questionnaires were distributed, and 220 were used for data analysis. The survey questionnaire was the main strategy for collecting and analyzing primary data to investigate the relationships between variables. The results indicate that data mining positively moderates relationship on the Relationship Between Social Entrepreneurship and Sustainable Development in Entrepreneurship Business Organizations , and ther are afect ocial Entrepreneurship and Sustainable Development on Entrepreneurship Business Organizations in the Tabuk. The results indicate that data mining positively moderates this relationship, supporting the hypothesis.in this study There were several suggestions made: Invest in Data Mining Technology: Organizations and social entrepreneurs in the Tabuk Region should give data mining technology top priority when making investments. By employing cutting-edge data analytic approaches to better understand market trends, community needs, and program efficacy, they can maximize their efforts toward sustainable development objectives.

Keywords: *Social Entrepreneurship, Data Mining, Sustainable Development, Entrepreneurship Business Organizations.*

INTRODUCTION

Sustainable development is considered as a basic motivator for the future of humanity, and as a concept that spread during the last years. Sustainable development is related to human beings, who are viewed as the basic pillar in constructing the developmental process and directing it towards satisfying their interest. This can be achieved based on the various activities that people manage as well as the economic, social and cultural reality within which they live. Indeed, sustainable development aims to achieve higher rates of development in the available resources that exceed the rates of population growth which, in turn, contributes to providing the needed resources for the next generation. Also, sustainable development aims at overcoming the problems of poverty and providing equal opportunities for everyone to obtain the needed resources based on good governance through which the political, social, economic, religious and cultural rights can be achieved; this will contribute to the achievement of required societal and developmental objectives Al-Qudah et al (2021).

It is believed that the goal of sustainable development is to make the most of organizational, physical, and human resources both now and in the future. In order to accomplish sustainable development, it is imperative that all public and civil community organizations work together, viewing it as a national goal that is shared by all. Experts and professionals from a variety of sectors work toward this objective. With a focus on people as the cornerstone of social service, professional interventions with clients whether they be individuals, groups, or communities align social service efforts with the goals of sustainable development in this setting.

These developmental entities, through their practices, activities, interventions, and community organization approaches, are essential to the achievement of local development. At the community and organizational levels, they serve as social service development tools on a local level. The emergence and application of sustainable development have brought about a profound change in our perception of the interplay between development and multidisciplinary issues. This change is a reaction to the increasing realization on a global scale that for growth to be successful, ethical,

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cultural, social, and multidisciplinary aspects must be taken into account. Developmental efforts may result in unfavorable outcomes, little advantages, or even total failure if these factors are ignored. Unsustainable development highlights the constraints of resources and ability to meet the needs of future generations, exacerbating already-existing Trans disciplinary challenges (H. 2019). Social entrepreneurship is important in this situation. The activity of social entrepreneurship is centered on coming up with novel ways to solve social issues and produce social value; this is strongly related to the ideas of sustainable development. Social entrepreneurs can make a major contribution to sustainable development by using entrepreneurial concepts to plan, organize, and launch initiatives. They achieve this by putting into action initiatives that stress social effect in addition to financial achievement, making sure that the advantages of progress are shared fairly. A more inclusive and sustainable future for all is promoted by the incorporation of social entrepreneurship into sustainable development initiatives, which strengthens the ability to handle difficult issues like poverty, inequality, and environmental degradation.

Extracting data related to sustainable development can greatly enhance our understanding and implementation of these practices. By utilizing data extraction techniques, we can gather valuable insights from various sources, including environmental impact assessments, economic growth reports, and social welfare studies. This data-driven approach enables policymakers and stakeholders to make informed decisions that align with sustainable development goals. Furthermore, data extraction can help identify patterns and trends that may not be immediately visible, allowing for proactive measures to address potential challenges. When sustainable development aims at achieving community growth economically and socially, and satisfying the needed resources of the community members equally and sustainably without disrupting the interdisciplinary system at the local and international levels to achieve more developmental success—it becomes evident that it isn't an arbitrary construct. Rather, it is a methodology in which several professions, sciences, experts, professionals, and organizations cooperate at the individual, local, and international levels. Integrating data extraction into this methodology ensures that these collaborative efforts are grounded in accurate and comprehensive information, leading to more effective and sustainable outcomes. Mendez-Picazo, et al (2021). In fact, the way of organizing the community aims to contribute to satisfying the needs of community members and solving their problems; i.e. contributing to making the intended change in favor of the community members and improving their social and economic levels, where communities are viewed as the main component in this method. The developmental entities also aim to increase the performance and effectiveness of social organizations in the community by providing sufficient care services to customers. This situation is achieved by reformulating work programs which is considered as one of the organizational domains that mainly focuses on constructing the organization's internal administrative system in order to establish more coordination between its units, in addition to establishing the external coordination among organizations in the community, where social organizations are considered as the second main customer for the approach of community organization. Kabbaj et al (2016).

Research Problem

The goal of social entrepreneurship is to create financially independent organizations and developmental economic projects that guarantee sustainability and continuity. In contrast to commercial entrepreneurship, which is primarily focused on expanding markets and generating profits through product and service development, social entrepreneurship aims to meet community needs by offering goods and services that have a broad societal impact. Additionally, the primary commitment of commercial entrepreneurship is to investors, while that of social entrepreneurship is to community members. Therefore, we may state that social entrepreneurship builds ventures that seek to transform communities and generate income to be reinvested in sustainable development Sit Daleela Mohd Wahid et al. (2018), Ziaaldini, M., and Seyyed Ahmad, H. (2019). Despite being a relatively new concept and field, social entrepreneurship is gaining popularity worldwide, according to a number of studies. Based on the aforementioned, we have observed a rise in interest in social entrepreneurship research worldwide. The majority of these studies have focused on the relationship between social entrepreneurship and social services; no studies, however, have examined the relationship between data mining and social entrepreneurship and sustainable development. The researcher benefited from the previous studies in recognizing the development of the concept and activities of social entrepreneurship and making advantage of them as theoretical guidance either for citing the study problem, setting the objectives, or citing the questions. Devy M. Puspitasari (2018).

Since sustainable development, at the level of local communities, is viewed as the starting point of the globally-targeted sustainable development, employing social entrepreneurship and data mining as a creative mechanism in societal practices may achieve sustainable development for those local communities. The current study attempts to identify the impact of social entrepreneurship according to the way of organizing the community in social service based on the modern global developments, in addition to introducing social entrepreneurship as a creative mechanism which includes several elements that contribute to achieving sustainable development in local communities. Therefore, the problem of the current study was determined in identifying The Moderating Effect of Data Mining on the Relationship between Social Entrepreneurship and Sustainable Development. "Applied study on Entrepreneurship Business Organizations in the Tabuk.

Research Objectives

This study aims to this study aimed to identify The Moderating Effect of Data Mining on the Relationship between Social Entrepreneurship and Sustainable Development. "Applied study on Entrepreneurship Business Organizations in the Tabuk Region. To achieve the research aim, the current study seeks to accomplish the following specific objectives:

Identify the impact of Social Entrepreneurship on Sustainable Development in Entrepreneurship Business Organizations in the Tabuk Region.

Identify the impact of Data mining on Sustainable Development in Entrepreneurship Business Organizations in the Tabuk Region.

Identify the impact of Social Entrepreneurship on Data mining in Entrepreneurship Business Organizations in the Tabuk Region.

Identify the impact of Data mining as Moderating variable the relationship between Social Entrepreneurship and Sustainable Development in Entrepreneurship Business Organizations in the Tabuk Region.

Research Significance

 Generally, we can't succeed unless we have an obvious vision about the future manifestations, especially in the current time, where there has been an increased interest in social entrepreneurship and Data Mining due to the significant developments in the various life region. Indeed, this necessitates paying more attention to social entrepreneurship in order to determine the future vision that enables us to pursue the various changes, cope with them and achieve social entrepreneurship. The practical importance of the study also lies in the possible advantage that the various sectors can make from the results and recommendations of this study, where these results and recommendations are based on a field theoretical investigation that could be beneficial to the whole community.

Social Entrepreneurs look for different and unique business ideas which are connected closely with society and provide cultural and social solutions. And social entrepreneurship is one of the hottest business choices for booming entrepreneurs as entrepreneurs make the use of these issues to establish their business.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Concepts About Social Entrepreneurship

Even though the concept of entrepreneurship is related to several domains, it has become a concept that is closely related to social life since the late 1990s in the United States of America and the United Kingdom. Prior to that, entrepreneurship was more focused in the sectors of trade and industry that mainly focus on wealth and profit (Drayton, (2002). Social entrepreneurship doesn't mainly aim to earn an make money, but it mainly concentrate on serving the community and public interest as well as enhancing the social and environmental objectives, where the social entrepreneurs pay more attention to creating societal capital (Al-Shomaimari, et al., (2014).

Social entrepreneurship can be defined as "the processes and activities that are implemented in order to determine and exploit opportunities in an attempt to promote the social wealth; this can be achieved by establishing new projects

or managing organizations in a creative way. The definition of social wealth extends to include economy, community, health, and the environmental domains of the human welfare (Zahra, et al., 2008).

George Dees- a professor of social entrepreneurship and a founder of the Center for Social Entrepreneurship Development in Fuqua School of Business at Duke University- suggested that social entrepreneurship is a mixture of social message, business science, innovation and commitment towards social needs. Also, Paul C. Light- the professor of Business Administration at New York university and the writer of the book " The Search for Social Entrepreneurship" – suggested that social entrepreneurship refers to the individual and organized efforts to create large-scale sustainable changes in order to solve social problems. He suggested that long-term entrepreneurial projects should be committed to achieving the required change, in addition to the possibility of having the ability to determine the existing opportunities that can be exploited creatively to achieve the required change Ipangui, R. N. (2017). Bill Daryton, the founder of Ashoka organization, suggested that social entrepreneurs are viewed as the basic corrective power, who change the system deeply by being committed to things which are beneficial to all people Ashoka, (2018). However, the Non-profit Enterprise Network (NVN) defined it as "a commercial activity that is started by a non- profit organization in order to apply market-based solutions, support the organization's task, generate more income and satisfy social needs Duncan, (2008). Entrepreneurship, in its general concept, is related to maximizing wealth and profits in a creative way; this doesn't mean that this is its only objective, since entrepreneurship enhances individuals' self-efficacy, and thus improves the efficiency of the whole community. According to Schumpeter's perspective, entrepreneurship develops the sense of adventure and risk-taking among people, and motivates the superego for independency at work. Additionally, entrepreneurship enhances the principle of trust and the individuals' attempt to accomplish business in non-traditional ways Shin, C. (2018).

EMPIRICAL REVIEW

Ibarra-Vazquez et al., (2023). This paper examines the variables that affect an exploratory pilot study's social entrepreneurship development. The variable under analysis was the impact of prior family business experiences on the development of sophisticated thinking. The findings supported the theory that developing complex-thinking sub-competencies is influenced by prior family entrepreneurship experiences and social entrepreneurship training. The group with only one family background experience either employee or entrepreneur perceived equivalent entrepreneurial competency overall, despite the fact that students with family backgrounds in both employment and entrepreneurship tend to rate their talents better. On the other hand, we discovered that every sub-competency perception distribution had a unique property. The group where none of these family backgrounds applied, on the other hand, tended to respond consistently and felt less competent as entrepreneurs. Maftah, j., et al., (2023). According to the study, applying data mining techniques can significantly enhance community dynamics and social entrepreneurship, especially in the Fez-Meknes region. The study's findings unequivocally demonstrated the advantages of data processing settings and the results of this study clearly identified the benefits of data processing conditions and the simplification of decisions to be made. (In 2020, Paweloszek, I., and Bajdor, P). The main goal of the project was to find a data mining approach for sustainable entrepreneurship evaluation. The study aimed to isolate the distinctive attitudes of firms in the implementation of social and environmental goals. A method for analyzing survey data using the clustering method and visualization in the form of tables and charts was proposed. The data gathered point to region where their tactics for putting the notion of sustainable entrepreneurship's tenets into practice should be improved.

A study named "Social Entrepreneurship in the Conduct of Responsible Innovation: Analysis Cluster in Mexican SMEs" was carried out in 2019 by Alverez, Pozo, and Cruze. The goal of the study was to determine which organizational models encourage SMEs to produce and advance the necessary innovations. The study identified four organizational models: the scientific-technical organization, the social-technical organization, the social-capitalist organization, and the capitalist organization. These models are based on the degree of intentions associated with social entrepreneurship. The findings showed that corporate actions aimed at resolving high-priority issues are not significantly impacted by the social effect. The study put forth the scientific-technical model, which it shown has a greater capacity to endure and thrive (for 50% of SMEs).

Shin, (2019) conducted a study entitled **"How Social Entrepreneurs Affect Performance of Social Enterprises in Korea: The Mediating Effect of innovativeness".** In this study, the researcher suggested that despite the governmental

support, the social organizations in Korea didn't succeed, especially during the times of social and economic fluctuations. The results revealed that both openness and innovation have a direct significant effect on the social and economic performance and that openness and innovation are viewed as mediating variables for economic and social performance. Nga et al., (2018**)** conducted a study entitled **"**Personality Traits and Social Entrepreneurship Dimensions in Peru and Argentina **"** The study aimed to investigate the impact of the main personal traits on the dimensions of social entrepreneurship, represented by (social vision, sustainability, social network, innovation, financial revenues) in the social organizations in Peru. Results revealed that awareness is considered as the most influential personal trait on the dimensions of social entrepreneurship, and that openness has a significant positive effect on social network and innovation.

 (Mohammad, 2017) conducted a study entitled "social entrepreneurship as one of the mechanisms for achieving sustainable development in the local communities: an applied study on social entrepreneurs in the city of Aswan". The study aimed at identifying the role of social entrepreneurship as one of the mechanisms for achieving sustainable development in the local communities in Aswan. The results also revealed that innovation is considered as a basic condition within the domain of social entrepreneurship, and that the projects of social entrepreneurship mainly target local sustainable development.

 Barhoom, (2015) conducted a study entitled " the role of business and technology incubators in solving the problem of unemployment among entrepreneurs in Gaza Strip- a case study on the projects of business incubators in the Islamic University in Gaza (initiatives- Spark). The results revealed that the level of the offered services by business and technology incubators was medium, and that investment in the sector of information technology is considered as the best method, given the closure imposed on Gaza.

 Eida, (2013) conducted a study entitled " the role of the state in providing a suitable environment for social entrepreneurship: a case study of the Palestinian authority, Palestine". The study aimed to identify the role of the state in providing a suitable environment for social entrepreneurship based on the legal and institutional frames of social entrepreneurship. the results revealed that the role of the Palestinian national authority with regard to saving a legal and institutional frame for social entrepreneurship wasn't sufficient to establish the suitable environment for that.
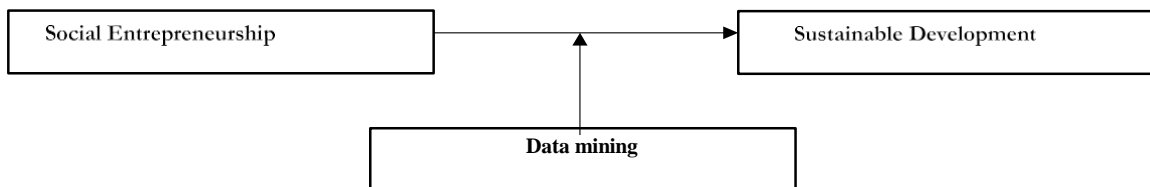
Research Model

Fig. 1. The research model

Research Hypotheses

H1: Social Entrepreneurship have a positive effect on Sustainable Development in Entrepreneurship Business Organizations in the Tabuk Region.

H2: Data mining has a positive effect on Sustainable Development in Entrepreneurship Business Organizations in the Tabuk Region.

H3: Social Entrepreneurship have a positive effect on Data mining in Entrepreneurship Business Organizations in the Tabuk Region.

H4: Data mining positively moderates the relationship between Social Entrepreneurship and Sustainable Development. in Entrepreneurship Business Organizations in the Tabuk Region

RESEARCH METHODOLOGY

Research methodology the way the research is conducted and the way it relates to the knowledge that results from the research." In addition, Collis and Hussey (2003) defined research methodology as "a comprehensive approach to

the research process, from theoretical foundations to data collection and analysis. When examining and researching a social problem, the theory is tested empirically and the data are analyzed statistically, so the study is quantitative. While understanding social phenomena by building a comprehensive theory that relies on the opinions of the participants, the study is qualitative. According to the assumption

Punch, (1998) the quantitative approach uses numerical data. The qualitative approach uses data that does not include numerical measurements.

Data Collection

The phase of gathering the available data and information on the research problem begins when the researcher accurately and clearly defines the research challenge. Since the procedure of gathering data from research sources serves as the foundation for furthering the overall building of the study, the researcher must give it particular attention. was employed in the creation of a questionnaire designed to assess the research variables that were adopted from previous studies. The competencies of social entrepreneurship were assessed using a six-item measure. Data mining was measured with a six-item scale. A scale consisting of eight items was created to assess sustainable development.

The Study Population And Sample

The Saudi entrepreneurial business organizations for the year (1445 H), or 2023 AD, made up the study population. The goal of the study was to gather as much data as possible from these organizations, which are home to a large number of experienced and successful entrepreneurs. Owing to the researches narrow scope, he mostly concentrated on Tabuk entrepreneurial business groups, of which there are 287 total, based on yearly data from the Saudi National Entrepreneurship Institute. A suitable representation of the study population was obtained by using the basic random sample procedure in this investigation. 250 questionnaires in all were distributed. Only 220 surveys, however, were used to analyze the data. Consequently, 220 is the size used in this investigation.

Reliability And Validity

We conducted a number of tests to make sure the study instrument was valid and reliable. We evaluated internal consistency using Cronbach's alpha, convergent validity using the average extracted variance, and discriminant validity using the Fornell-Larcker criterion. The test findings, which are displayed in tables (2 & 3), demonstrate that the study instrument has satisfactory reliability because the Cronbach's alpha values are higher than 0.70. Furthermore, the study tool exhibits discriminant validity when the "square root of the average variance extracted by a construct is greater than the correlation between the construct and any other construct" and convergent validity when the average extracted variance values are above 0.50. (Hair and others, 2021).

Table)1(Instrument reliability and convergent validity

Construct	No. of items	Cronbach's alpha	Average Extracted Variance (AVE)
Social Entrepreneurship	8	0.875	0.64
Data mining	6	0.859	0.69
Sustainable Development	8	0.822	0.72

Table (2)   instrument discriminant validity

Construct	Social Entrepreneurship	Data mining	Sustainable Development
Social Entrepreneurship	**0.794**		
Data mining	0.777	**0.835**	
Sustainable Development	0.606	0.733	**0.845**

FINDINGS AND DISCUSSION

Descriptive Statistics

Table 4 presents the descriptive statistics for the data collected from the respondents on their Saudi entrepreneurial business organizations' Social Entrepreneurship, Data mining, and Sustainable Development. The mean score for

capabilities of Social Entrepreneurship is 3.92, with a standard deviation of 0.842, indicating that the utilization of Social Entrepreneurship in Saudi entrepreneurial business organizations is generally very high. The mean score for Data mining is 3.89, with a standard deviation of 0.75, indicating that the Saudi entrepreneurial business organizations typically apply Data mining highly. The mean score for Sustainable Development is 3.90, with a standard deviation of 0.69, which means that the Saudi entrepreneurial business organizations commonly employ Sustainable Development approach widely.

Table (2) Descriptive Statistics for Social Entrepreneurship, Data mining, and Sustainable Development

Measure	Mean	Standard Deviation
Social Entrepreneurship	3.92	0.84
Data mining	3.89	0.75
Sustainable Development	3.90	0.69

Hypothesis Testing

We extensively checked the data to ensure that it was normally distributed before evaluating our study's assumptions. Skewness and Kurtosis values were utilized to evaluate the normal distribution. We found that the "Skewness and Kurtosis values were within the range of -2 and + 2, indicating a normal distribution," as table (5) illustrates (Sekaran & Bougie, 2016).

Table (3) Results of normal distribution

Construct	Skewness	Kurtosis
Social Entrepreneurship	- 0.81	0.23
Data mining	- 0.74	0.21
Sustainable Development	- 1.31	2.20

To test hypotheses H1, H2, and H3, simple linear regression was performed using SPSS v. 28 software once the data's normal distribution was confirmed. Table 6 presents the findings of a statistical analysis that looks at the link between the dependent variable, sustainable development, and the independent variable, social entrepreneurship. A moderately positive correlation (0.604) between the two variables is indicated by the R and R-squared values, with Social Entrepreneurship accounting for 36.5% of the variation in Sustainable Development.

The model is statistically significant according to the significance level ($p = 0.00$) and F-value (0.603). According to the beta coefficient (0.603), t-value (8.082), and significance level ($p = 0.00$), there is a statistically significant positive correlation between social entrepreneurship and sustainable development, meaning that more social entrepreneurship is linked to more sustainable development. Thus, the hypothesis that "Social Entrepreneurship have a positive effect on Sustainable Development" is supported by these findings.

the findings of a statistical analysis that looks at the link between the independent variable, social entrepreneurship and the dependent variable, sustainable development, A moderately positive correlation (0.731) between the two variables is indicated by the R and R-squared values, with Social Entrepreneurship accounting for 53.3% of the variation in Sustainable Development. The model is statistically significant according to the significance level ($p = 0.00$) and F-value (129.98). According to the beta coefficient (0.731), t-value (4.681), and significance level ($p = 0.00$), there is a statistically significant positive correlation between Data mining and sustainable development, meaning that more Data mining is linked to more sustainable development. Thus, the hypothesis that "Data mining has a positive effect on Sustainable Development" is supported by these findings.

the findings of a statistical analysis that looks at the link between the independent variable, social entrepreneurship and the dependent variable, Data mining, a moderately positive correlation (0.776) between the two variables is indicated by the R and R-squared values, with Social Entrepreneurship accounting for 56.6% of the variation in Data mining. The model is statistically significant according to the significance level ($p = 0.00$) and F-value (172.38). According to the beta coefficient (0.776), t-value (15.361), and significance level ($p = 0.00$), there is a statistically significant positive correlation between sustainable development and Data mining and, meaning that more sustainable development is linked to more Data mining. Thus, the hypothesis that "Social Entrepreneurship have a positive effect on Data mining" is supported by these findings.

Table (4) Results of Hypothesis testing

Hypothesis testing				
H1: Social Entrepreneurship have a positive effect on Sustainable Development				
R	R-sq	t-value	F	Sig.
0.603	0.365	8.082	65.30	0.00
H2: Data mining has a positive effect on Sustainable Development				
R	R-sq	t-value	F	0.00
0.731	0.533	4.681	129.98	0.00
H3: Social Entrepreneurship have a positive effect on Data mining				
R	R-sq	t-value	F	Sig
0.776	0.565	15.361	172.38	0.00

Moderation Analysis

A moderation analysis was conducted using the PROCESS v3.5 macro by Andrew F. Hayes, specifically utilizing model number 1, in order to test the fourth hypothesis. Table 5 presents the results of a statistical analysis that examines the moderating effect of Data mining on the relationship between Social Entrepreneurship and Sustainable Development. The analysis reveals that there is an interaction effect between Social Entrepreneurship and Data mining on Sustainable Development, with the effect of Entrepreneurship increasing as Data mining increases. The table also presents the conditional effects of Social Entrepreneurship on Sustainable Development at various levels of Data mining, indicating that as the level of Data mining increases, the effect of Social Entrepreneurship on Sustainable Development also increases. In summary, the results demonstrate that the relationship between Social Entrepreneurship and Sustainable Development is moderated by Data mining, thus supporting the hypothesis that "Data mining positively moderates the relationship between Social Entrepreneurship and Sustainable Development."

Table (5) Moderation analysis

Outcome variable: Sustainable Development						
Model Summary						
R	R-sq	MSE	F	df1	df2	P
0.61	0.41	0.042	24.92	3.00	113.00	0.00
Model						
	Coeff	Se	T	P	LLCI	ULCI
Constant	0.16	1.03	0.30	0.92	-1.94	1.34
Social Entrepreneurship	1.03	0.24	3.42	0.00	0.33	1.06
Data mining	1.08	0.25	3.72	0.00	0.42	1.08
Social Entrepreneurship X Data mining	0.61	0.25	2.57	0.01	0.12	1.09
"Conditional effects of the focal predictor at values of the moderator (s)":						
Data mining	Effect	Se	t	P	LLCI	ULCI
3.50	0.19	0.11	3.70	0.003	0.20	0.67
3.68	0.26	0.03	4.89	0.001	0.15	0.38
4.222	0.46	0.05	5.721	0.000	0.19	0.33

The current study investigates how data mining influences the relationship between social entrepreneurship and sustainable development. The results indicate that data mining positively moderates this relationship, supporting the hypothesis that integrating data mining techniques can enhance the impact of social entrepreneurship on achieving sustainable development goals.

Results Discussion

Integration with Previous Studies

Barra-Vazquez et al (2023): This study emphasizes the role of family business experiences and social entrepreneurship training in developing complex-thinking skills crucial for entrepreneurship. The current study aligns with these findings by showing that sophisticated data analysis through data mining can further support social entrepreneurship, enhancing its effectiveness in achieving sustainable development. Maftah et al. (2023): This research highlights how data mining significantly improves community dynamics and social entrepreneurship in the Fez-Meknes region. The present study corroborates these findings by demonstrating

that data mining enhances the relationship between social entrepreneurship and sustainable development, suggesting that these benefits are applicable across different regions. Paweloszek and Bajdor (2020): Their project utilized data mining to evaluate sustainable entrepreneurship, identifying region for improvement in implementing social and environmental goals. The current study builds on this by showing that data mining not only evaluates but also positively moderates the effectiveness of social entrepreneurship in achieving sustainable development.

Alverez, Pozo, and Cruze 2019: This study identified organizational models in Mexican SMEs that promote innovation, finding that scientific-technical organizations thrive better. The current study suggests that integrating data mining into social entrepreneurship can serve as a technological enhancement, potentially aligning with the scientific-technical model for better sustainability outcomes. Shin (2019): Shin's research on social enterprises in Korea highlighted the importance of innovation for performance. The current study complements these findings by indicating that data mining, a tool for fostering innovation, enhances the relationship between social entrepreneurship and sustainable development. Nga et al. (2018): This study explored the impact of personality traits on social entrepreneurship dimensions, emphasizing awareness and openness. The current study aligns with these results by suggesting that data mining, which requires openness to new technologies, can amplify the positive impact of social entrepreneurship on sustainable Development.

Mohammad (2017): This study emphasized innovation as a key condition for social entrepreneurship to achieve local sustainable development in Aswan. The current study supports this by demonstrating that data mining, a tool for innovation, enhances the relationship between social entrepreneurship and sustainable development. Barhoom :)2015 (this study highlighted the role of business and technology incubators in Gaza, finding that investing in information technology can solve unemployment issues. The current study parallels this by indicating that data mining, a technological tool, can enhance the effectiveness of social entrepreneurship, potentially addressing broader economic issues. Eida (2013): Eida's research focused on the role of the state in providing a conducive environment for social entrepreneurship in Palestine. The current study suggests that beyond institutional support, technological tools like data mining are crucial in maximizing the impact of social entrepreneurship on sustainable development.

CONCLUSION

The current study enriches the existing literature by demonstrating that data mining is a powerful moderator in the relationship between social entrepreneurship and sustainable development. This finding aligns with and extends the insights from previous research, highlighting the importance of technology and innovation in enhancing the effectiveness of social entrepreneurship initiatives. Through the integration of data mining techniques, social entrepreneurship can be more effective in achieving sustainable development goals, underscoring the crucial role of technological advancements in this field.

RECOMMENDATIONS

This study offers recommendations based on its findings for integrating data mining into social entrepreneurship to improve its influence on sustainable development:

Invest in Data Mining Technology: When making investments, organizations and social entrepreneurs in the Tabuk Region should place a high premium on data mining technology. They may optimize their efforts toward sustainable development objectives by using state-of-the-art data analytic techniques to gain a better understanding of market trends, community needs, and the effectiveness of their programs.

Training & Capacity Building: Provide data mining techniques training to social entrepreneurs in the Tabuk Region. They may come up with original ideas, make wise decisions, and ascertain the real effects of their activities by honing their data analysis skills. This is in line with the results of other studies that emphasize the importance of technological openness and the ability to think critically.

Collaborate with Technological Partners: Encourage collaborative efforts between tech corporations or research institutions and social entrepreneurs in the Tabuk Region. Through the provision of access to cutting-

edge data mining technology and expertise, these partnerships can enhance the efficacy and scalability of social entrepreneurship programs while fostering creativity.

Policy and Support Systems: Promote laws that make it easier to incorporate data mining into social entrepreneurship. Governments and development organizations can foster favorable conditions by providing infrastructure, finance, and incentives to social entrepreneurs in the Tabuk Region so they may use data mining for sustainable development. This strengthens the function of government assistance that was noted in past research.

Continuous Monitoring and Evaluation: To follow the development and results of social entrepreneurship in the Tabuk Region projects, put in place mechanisms for continuous monitoring and evaluation that make use of data mining tools. This methodology guarantees social entrepreneurs to modify and enhance their tactics through real-time data analysis, resulting in more efficient and long-lasting consequences. This suggestion expands on the idea presented in earlier study on the use of data mining for assessment and development.

By utilizing data mining, these recommendations can assist social entrepreneurship initiatives in the Tabuk Region in achieving more successful and sustainable development objectives.

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REFERENCES

Ali al-qudah, A., Al-okaily, M., & Alqudah, H. (2021). The relationship between social entrepreneurship and sustainable development from economic growth perspective: 15 'Rcep' countries. Journal of Sustainable Finance & Investment.

Al-Shomaimari, A., Al-Mobairik, W. (2019). Entrepreneurship. Riyadh: Obeikan for Publishing.

Al-Shomaimari, A., et al. (2014). The principles of business administration: Basics and modern attitudes. Riyadh: Obeikan for Publishing.

Alverez, I. L., Pozo, E. C., & Cruz, A. D. (2019). Social entrepreneurship in the conduct of responsible innovation: Analysis cluster in Mexican SMEs. Sustainability Journal (Published Thesis).

Ashoka. (2018). Social entrepreneurship. Retrieved January 25, 2020, from Ashoka Palestine: https://www.ashoka.org/en/focus/social-entrepreneurship.

Barhoum, B. F. (2015). The role of business and technology incubators in solving the unemployment problem for entrepreneurs in the Gaza Strip: A case study of the business incubation projects of the Islamic University of Gaza (Initiative-Spark). Gaza: The Islamic University of Gaza (Unpublished Master Thesis).

Bajdor, P., & Pawełoszek, I. (2020). Data mining approach in evaluation of sustainable entrepreneurship. Procedia Computer Science, 176, 2725-2735.

Collins, J., & Hussey, R. (2003). Business research. A practical guide for undergraduate and postgraduate students. Polgrave Macmillan.

Dees, J. G. (2001). The meaning of social entrepreneurship. Duke University. Retrieved from https://centers.fuqua.duke.edu/case/wp-content/uploads/sites/7/2015/03/Article_Dees_MeaningofSocialEntrepreneurship_2001.pdf.

Duncan, E. L. (2008). A grounded theory study on social entrepreneurship. Phoenix: University of Phoenix.

Drayton, W. (2002). The citizen sector: Becoming as entrepreneurial and competitive as business. California Management Review, 44(3), 120-132. https://doi.org/10.2307/41166136.

Eida, S. (2013). The role of the state in providing an appropriate environment for social entrepreneurship: A case study on the Palestinian Authority - Palestine. Al-Quds University. Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Partial least squares structural equation modeling (PLS-SEM) using R: A workbook (p. 197). Springer Nature.

Gordillo-Rodriguez, M. T., Pineda, A., & Gómez, J. D. F. (2023). Brand Community and Symbolic Interactionism: A Literature Review. Review of Communication Research, Vol.11, pp.1-32.

H. (2019). The relationship between social entrepreneurship and sustainable development from the social experts' points of view. Quarterly Journal of Environmental Education and Sustainable Development.

Ipangui, R. N. (2017). The impact of social entrepreneurs on community development in the Cape Metropolitan area (Western Cape South Africa). Cape Peninsula University of Technology.

Kabbaj, M., & El Amrani, J. (2016). A study of the social entrepreneurship ecosystem: The case of Morocco. Journal of Developmental Entrepreneurship, 21. (4)

Kasasbeha, E. A., Alzureikat, K. K., Alroud, S. F., & Alkasassbeh, W. A. (2021). The moderating effect of entrepreneurial marketing in the relationship between business intelligence systems and competitive advantage in Jordanian commercial banks. Management Science Letters, 11, 983-992.

Maftah, J., Pheniq, Y., & Bourkkadi, S. (2023). The use of data mining to influence social entrepreneurship and territorial dynamics. E3S Web of Conferences, 412, 01104. Mendez-Picazo, M.-T., Galindo-Martín, M.-A., & Castano-Martínez, M.-S. (2021). Effects of sociocultural and economic factors on social entrepreneurship and sustainable development. Journal of Innovation & Knowledge. M.-S., & Méndez-Picazo, M.-T. (2020). The relationship between green innovation, social entrepreneurship, and sustainable development.

Nga, J., et al. (2018). Personality traits and social entrepreneurship dimensions in Peru and Argentina. Sunway University. Punch, K. F. (1998). Introduction to social research: Quantitative and qualitative approaches. Sage.

Seyyed Ahmad, H., & Ziaaldini, M. (2019). Social entrepreneurship and sustainable development. Science Arena Publications International Journal of Business Management. Shin, C. (2018). How social entrepreneurs affect performance of social enterprises in Korea: The mediating effect of innovativeness. Sustainability, 10(8), 2643. https://doi.org/10.3390/su10082643.

Shin, C. (2019). How social entrepreneurs affect performance of social enterprises in Korea: The mediating effect of innovativeness. Sustainability, 10(8), 2643. https://doi.org/10.3390/su10082643.

Sit, D. M. W., et al. (2018). The growing trend of social entrepreneurship among Malaysian undereducated students. International Journal of Academic Research in Business and Social Sciences, 8(9), 1035-1036.

Zahra, S., Rawhouser, H., Bhawe, N., Neubaum, D., & Hayton, J. (2008). Globalization of social entrepreneurship opportunities. Strategic Entrepreneurship Journal, 117. Ibarra-Vazquez, G., Ramírez-Montoya, M. S., & Miranda, J. (2023). Data analysis in factors of social entrepreneurship tools in complex th