Social capital, structural capital, human capital, spiritual capital, and cooperative performance: A path model

JR A. Mantog[1*] and Annie L. Deriada[2]

[1]*Faculty, Davao Oriental State University – Cateel Extension Campus*
[2]*Faculty, Central Mindanao University*

**Correspondence: jrmantog04@gmail.com*

Received: 07 Feb. 2023 || Revised: 09 May 2024 || Accepted: 11 Oct. 2024
Available Online: 14 Oct. 2024

ISSN: 1656-4707
E-ISSN: 2467-5903
Homepage: www.palawanscientist.org

How to cite:
Mantog JA and Deriada AL. 2025. Social capital, structural capital, human capital, spiritual capital and cooperative performance: A path model. The Palawan Scientist,17(1): 75-88. https://doi.org/10.69721/TPS.J.2025.17.1.09

ABSTRACT

Cooperatives were created to foster productivity, food security, and safety. However, the literature revealed a significant number of non-operating cooperatives. It can also be noted that cooperatives have weaknesses in terms of sustainability and are unable to account for the role of intangible resources in the organization. Thus, this study investigated the effect of social capital, human capital, structural capital, and spiritual capital on cooperative performance as the basis for the strategic priorities of the cooperatives. Survey questionnaires were distributed among 201 randomly selected officers and members of six farmers' and producers' cooperatives in District I, Davao Oriental. Multiple regression analysis was utilized to determine the most influencing factors that affect performance, while path analysis was employed to generate the best fit model. Based on the findings, this study proposed a best fit model for cooperative performance which is based on intangible assets. In the best fit model, structural capital (0.37), social capital (0.29), and spiritual capital (0.11) showed a direct effect on cooperative performance. The model also showed that structural capital and social capital have an indirect effect on cooperative performance through spiritual capital. The findings of this paper would guide the cooperative sector to improve its performance by taking into account the role of intangible assets like structural capital, social capital, human capital, and spiritual capital, which are found to have direct and indirect effects in improving cooperative performance, thus helping the government in realizing its national economic goals.

Keywords: cooperative performance, human capital, social capital, spiritual capital, structural capital

INTRODUCTION

The cooperative sector has been found to play a significant role in the economic development of society through the creation and provision of employment opportunities, thus reducing the rate of poverty in the country (Hammad Ahmad Khan et al. 2016). The establishment of cooperatives will bring benefits and improve the standard of living in society, especially among low- and middle-income households.

Additionally, government servants, who are the majority members of the cooperative, can benefit by borrowing money from the cooperative in times of need (Hammad Ahmad Khan et al. 2016). A cooperative is an independent and properly recorded group of individuals with a common bond of interest. They voluntarily join together to realize their private, economic, and cultural needs and expectations by making equal contributions to the capital required and patronizing their products and services. Members embrace a good share of the risks and benefits of the undertaking following universally accepted cooperative principles (Republic Act 9520 2009).

In 2013, it was reported that there were more than 10,000 cooperative organizations in Malaysia, but their contribution to economic growth was relatively low and failed to achieve the goals set in the National Cooperative Policy. The weak performance of the cooperative sector has raised concerns about the factors affecting the cooperative's ability to overcome its shortcomings through effective policy implementation. In the master list of registered cooperatives of the Cooperative Development Authority (CDA) in the Philippines, as of 31 December 2016, approximately 38% of registered cooperatives in District 1 Davao Oriental had been dissolved. The reason for dissolution has not been studied. In the Davao Region, the number of cooperatives facing bankruptcy has soared. From 2012 to 2016, over 500 out of 4,000 cooperatives declared bankruptcy. This has raised the highest concern for financial institutions, which now prioritize reducing the risk of loan defaults (Cruz and Sabado 2022). The study by Masuku et al. (2016) concluded that the cooperatives were not performing well financially, as they were making losses. On the other hand, many cooperatives are performing well in terms of their financial performance. They are managed effectively and efficiently. The study by Castillo (2003) revealed that profitability, liquidity, and solvent operations were evident in the top four cooperatives in Region IX, which had been in operation for 25 years or longer, making them mature and solid. Assets and net surplus were in the millions of peso range, and the company's product lines had grown from feed milling to service provision, such as extension services, veterinary care, marketing, banking, production credit, meat processing, among other things. Despite the potential growth of cooperatives, the study by Deriada (2005) found that cooperative weaknesses in the identified important core organizational capacity indicators were savings mobilization, sufficient budget, innovativeness and skill development in entrepreneurship, participation of members, and continuous training and education. There has been limited study on cooperatives in Davao Oriental, specifically on the factors affecting the dissolution and failure of cooperative operations.

In the context of cooperatives, social capital, human capital, and structural capital are considered important resources that can affect their performance. Social capital refers to the network of relationships among individuals, organizations, and institutions, which can create norms of reciprocity and trust that enable collective action (Adler and Kwon 2002). Human capital refers to the knowledge, skills, and abilities of individuals that contribute to their productivity and creativity (Khalique et al. 2013). Structural capital refers to the organizational and technological infrastructure that supports knowledge sharing and innovation (Khalique et al. 2013). Nakhata (2018) defines spiritual capital as the spiritual strength (power) that controls and encourages people to act in any situation.

Several studies have explored the relationship between these forms of capital and cooperative performance. For example, some studies have found that social capital can facilitate information sharing and coordination among cooperative members, which can lead to better performance (Liang et al. 2018). Other studies have found that human capital, such as education and training, can improve the skills and productivity of cooperative members, which can also enhance performance (Hammad Ahmad Khan et al. 2016). Finally, some studies have examined the role of structural capital, such as technology and communication systems, in enabling cooperative members to share knowledge and collaborate effectively (Lv and Han 2015, Li et al. 2019).

The study by Hammad Ahmad Khan et al. (2016) also revealed that structural capital has a significant relationship with cooperative performance while human capital has been found to have a negative relationship. The study conducted by Ariyanto and Chalil (2017) revealed that human capital, structural capital, relational capital, and spiritual capital have a positive and significant impact on organizational performance. In addition, Hashim et al. (2015) found that intellectual capital, which consists of human capital, customer capital, structural capital, social capital, technological capital, and spiritual capital, has a significant influence on organizational performance.

The researcher has not come across published studies on path analysis regarding the effect of intangible resources on cooperative performance conducted in Davao Oriental, looking into the variables that contribute to cooperative performance and that will become the basis for strategic improvement for planners in maintaining the

economic growth and stability of the cooperative. Thus, this study would fill this gap.

This study investigates the relationship between social capital, human capital, structural capital, and spiritual capital on cooperative performance and aims to identify what are the most influencing factor of cooperative performance. Additionally, it seeks to determine the best fit model that significantly influences cooperative performance.

METHODS

Research Design

The study utilized a descriptive–correlational and causal-comparative research design which aimed to examine the causal relationships between a dependent variable, which is cooperative performance and four independent variables: social capital, human capital, structural capital, and spiritual capital (Maheshwari 2018). The survey approach was applied in this study. According to Ardales (2008), the survey is used when a researcher wants to collect data from a large population particularly those that cannot be directly observed. Its focus encompasses any measurement procedure wherein the researcher selects a sample of respondents from a population and administers a questionnaire to them.

The theoretical framework of this study is anchored in the resource-based view (RBV) theory. The RBV analyzes and interprets internal resources of organizations, emphasizing the importance of resources and capabilities in formulating strategies to achieve sustainable competitive advantages. According to RBV, an organization that possesses strategic resources has the potential to develop a competitive edge over its rivals. In this study, the internal resources of cooperatives – namely, social capital, human capital, structural capital, and spiritual capital – are examined under the assumption that they directly influence cooperative performance. The RBV asserts that not all resources of a firm contribute to competitive advantage, only those that are heterogeneous and immobile can be strategic (Utami and Alamanos 2022). Thus, by leveraging these unique resources, cooperatives may enhance their performance and sustain their competitive advantages.

Respondents of the Study

The respondents were the board of directors, committee members, and regular members of registered cooperatives in the first district of Davao Oriental. Farmers' cooperatives and other types of cooperatives have existed in the province for a long time. They contribute significantly to creating jobs, generating income, and providing essential services and products. From agriculture and fishing to trade and services, cooperatives are key drivers of economic activity, stimulating local development and offering livelihood opportunities. After Typhoon Pablo hit Davao Oriental, specifically in the eastern part, additional cooperatives were created and served as beneficiaries of the financial grants and assistance from the government and non-government organizations. Community linkages were created to foster productivity, food security, and safety; however, it can be noted that there is a problem in the cooperatives as literature revealed a significant number of non-operating cooperatives in the province. It can be noted that cooperatives have weaknesses in terms of sustainability and are unable to account for the role of intangible resources in the organization. Thus, there is a necessity to conduct research on the role of social capital, human capital, structural capital, spiritual capital, and cooperative performance of the cooperatives in District 1 of Davao Oriental.

The selection of Davao Oriental for the research study is justified because of its notable cooperative history, diverse cooperative sector, unique socioeconomic conditions, and the potential it holds to provide insights for policy and practical applications. By studying cooperatives in this particular region, researchers aim to develop a comprehensive understanding of cooperative operations and their impact on local development and governance mechanisms. The cooperatives were chosen as respondents of the study based on the following qualifications: a) must be farmers'/fishers' cooperatives, producer's cooperatives; b) must have been operating for at least five years and beyond; c) must have at least 15 regular members and above; and d) must be compliant with registration with the Cooperative Development Authority (CDA). Based on the criteria, there were six qualified cooperatives with a total of 419 members. The study applied stratified random sampling in selecting the respondents. The population was stratified based on the types of cooperatives (farmers' and producers' cooperatives), while proportionate stratified random sampling was employed to determine the number of respondents selected from each stratum. Random numbers were used to select respondents based on the sampling frame, which is the list of cooperative members. A Sample Size Calculator Online (Creative Research Systems 2020) was used to estimate the 201-sample size for a population of 419. The total population of 419 was entered into the system, along with the corresponding confidence level (95%) and a confidence interval of 5 or 5% margin of error; the system calculated and generated the 201-sample size.

Research Instrument

The survey questionnaire utilized in this study was adapted from different authors whose research works are in line with the variables being studied. The survey questionnaire consisted of structured and open-ended questions. The questions for social capital were adapted from the World Bank Social Capital Integrated Questionnaire (Grootaert et al. 2004). The questions for human capital and structural capital were modified questions from the survey questionnaire of Sharabati et al. (2010) and Hammad Ahmad Khan et al. (2016). The questions about spiritual capital came from the study of Harry Hui Ng Mok Lau et al. (2011). Furthermore, the questions for cooperative performance were derived from Mellor's study (2009). All variables were measured using a 5-point Likert scale, as shown in Tables 1 and 2. The questions were contextualized based on the cooperative setting in the province. The questionnaire was prepared in English and translated into the Cebuano dialect to be easily understood by the respondents. To test the reliability of the questionnaire, pilot testing was conducted to determine whether the questions were reliable and could be easily understood by the respondents. The initial analysis of the pre-tested questionnaire has produced a Cronbach Alpha value of 0.825. Consequently, eight items were deleted from the original 139 items to obtain the maximum reliability result of a 0.937 Cronbach Alpha value. This indicates that the pre-tested questionnaire was highly reliable. Further, the questionnaire was also subjected to a validity test with the help of an expert who reviewed the different questions and ensured their validity. The questionnaire was reviewed by an expert in the Cebuano language who provided the exact translation of the questions.

Table 1. Likert scale used in measuring social capital, structural capital, human capital and spiritual capital.

Scale	Qualitative Description	Range of Means	Qualitative Interpretation
1	Strongly Disagree	1.00 – 1.80	Very Weak
2	Disagree	1.81 – 2.60	Weak
3	Neither Agree nor Disagree	2.61 – 3.40	Moderate
4	Agree	3.41 – 4.20	Strong
5	Strongly Agree	4.21 – 5.00	Very strong

Table 2. Likert scale used in measuring cooperative performance.

Scale	Qualitative Description	Range of Means	Qualitative Interpretation
1	Strongly Disagree	1.00 – 1.80	Very Low
2	Disagree	1.81 – 2.60	Low
3	Neither Agree nor Disagree	2.61 – 3.40	Moderate
4	Agree	3.41 – 4.20	High
5	Strongly Agree	4.21 – 5.00	Very High

Data Gathering Procedure

Before conducting the study, the researcher sought permission from the Barangay Captain and Board of Directors (BOD) Chair of the cooperatives by sending a letter requesting to conduct the study in their barangay. In addition, an ethical clearance was secured from the university ethics board. After receiving approval for the letter and securing ethical clearance, the researcher located the participants, and data gathering commenced thereafter. There were two ways to administer the survey questionnaire to the respondents. The first method involved individual visits. The target respondents were visited individually at their homes. In consideration of the availability of the respondents (farmers and processors), the survey was conducted on Saturdays and Sundays, as these were their resting days. Follow-up visits were conducted for those who were unavailable during the first visit. If still unavailable during the follow-up visit, a replacement was selected from the shuffled names in the bowl. The other method involved group administration, where the survey questionnaires were administered in groups. The group also administered questionnaires after the end of the meeting or processing period, duly coordinated with the Chairman of the respective cooperatives. Enumerators from the municipality where the cooperative is located facilitated the administration of the questionnaire and ensured that respondents understood the instructions clearly. After the interview, the filled-out

questionnaires were retrieved, collected, tallied, tabulated, analyzed, and interpreted accordingly with the aid of a statistician (Abulela and Harwell 2019).

Data Analysis

In this study, descriptive and inferential statistics were employed. Data were processed by assigning code numbers to categorical variables for ease of statistical analysis.

The Pearson Product-Moment Correlation was utilized to determine the relationship among social capital, human capital, structural capital, spiritual capital, and cooperative performance, while multiple regression was utilized to determine the influencing factors among independent variables (social capital, human capital, structural capital, and spiritual capital) that most influence cooperative performance.

Path analysis is a multiple regression statistical analysis method used to assess causal models by investigating the relationships between a dependent variable and two or more independent variables. Using this method, one can estimate the magnitude and significance of causal connections between variables (Crossman 2019). This method was used to assess the best fit model for cooperative performance. For the causal model to be considered fit for cooperative performance, the following criteria were considered: the Comparative Fit Index (CFI) is equal to the discrepancy function adjusted for sample size. The CFI ranges from 0 to 1, with a larger value indicating better model fit. Acceptable model fit is indicated by a CFI value of 0.90 or greater (Hu and Bentler 1999). The Root Mean Square Error of Approximation (RMSEA) should be less than 0.05, which is related to the residual in the model. RMSEA values range from 0 to 1, with a smaller RMSEA value indicating better model fit. Acceptable model fit is indicated by an RMSEA value of 0.05 or less (Hu and Bentler 1999). The results of the analysis are presented using tables and graphs.

RESULTS

Relationship between Social Capital, Human Capital, Structural Capital, Spiritual Capital, and Cooperative Performance

The statistical results of the Pearson Product Moment Correlation analysis are shown in Table 3. The correlation analysis implied that all the independent variables are highly associated with the performance of cooperatives ($P < 0.05$). The study found a strong, positive, and significant relationship between the three independent variables, namely social capital, human capital, and structural capital with cooperative performance, with r-values of 0.71 ($P < 0.05$), 0.75 ($P < 0.05$), and 0.80 ($P < 0.05$), respectively. On the other hand, spiritual capital shows a moderate, positive, and significant relationship with an r-value of 0.69 ($P < 0.05$).

Factors Influencing Cooperative Performance

Based on the result of the multiple regression analysis, the findings reveal that structural capital, social capital, and spiritual capital have a positive effect on cooperative performance, while human capital does not show a direct influence on cooperative performance (Table 4).

The results of this study showed that 73.10% of the variations in cooperative performance can be explained by the variation in social capital, human capital, structural capital, and spiritual capital, while the remaining 26.90% of the variations can be explained by other variables not incorporated in the study, such asthe role of tangible resources of the cooperative. The regression model of the study is shown as follows:

$$y = 0.936+0.370x\_1+0.288x\_2+0.109x\_3$$

y = cooperative performance
x_1 = structural capital
x_2 = social capital
x_3 = spiritual capital

This model represents that for each unit of structural capital (x_1), cooperative performance increases by 0.370 units, assuming other factors remain the same. Similarly, for each unit of social capital (x_2), cooperative performance increases by 0.288 units, while all other factors are kept constant. For every unit of spiritual capital (x_1), cooperative performance increases by 0.109 units, with all other factors remaining unchanged. The constant 0.936 is the intercept, which represents the cooperative performance value when all independent variables (structural, social, and spiritual capital) are zero.

Statistical Model for Cooperative Performance

Hypothesized model 1. Figure 1 depicts the hypothetical model of the study. It was used as a template in future iterations in finding the best fit path model of cooperative performance in terms of social, human, structural, and spiritual capitals. As shown in the figure, all explanatory variables have a direct effect on cooperative performance. Among all explanatory variables, structural capital has the highest effect with a path coefficient of 0.35, which confirms the result of the regression analysis. On the other hand, human capital has the lowest effect with a path coefficient of 0.07. This model can explain 93% of the data.

Table 5 shows the characterization of Figure 1 in terms of different parameters. It shows that all of the parameters exhibited by Figure 1 do not fit which implies that even if it can explain 93% of the data, it is not the best fit model of cooperative performance. For instance, the minimum discrepancy over degrees of freedom (CMIN/DF) is 98.073, which is far beyond the highest threshold of 2.00. Additionally, the Tucker-Lewis Index (TLI) has a negative value but requires being greater than 0.95.

Hypothesized model 2. Figure 2 shows the hypothetical model 2 of the study. The model is being improved by showing spirituality as having an indirect effect on cooperative performance. The one-headed arrow from spiritual to structural shows an indirect effect on cooperative performance through structural capital. As shown in the figure, structural capital still has the highest impact (0.37) on cooperative performance compared with the previous model, followed by social capital and spiritual capital. This result also confirms the result of the regression analysis that human capital does not directly influence cooperative performance. This model can explain 94% of the data

Table 3. Degree of the relationship between cooperative performance and social, human, structural, and spiritual capitals.

Types of Capital	Pearson r	Degree of relationship	p-value	Statistical Inference
Social Capital	0.71	Strong positive relationship	0.000	Significant
Human Capital	0.75	Strong positive relationship	0.000	Significant
Structural Capital	0.80	Strong positive relationship	0.000	Significant
Spiritual Capital	0.69	Moderate positive relationship	0.000	Significant

Table 4. Summary of stepwise multiple regression analysis.

Predictor	Coefficient	R square
Structural Capital	.370	0.731
Social Capital	.288	
Spiritual Capital	.109	
Constant	.936	

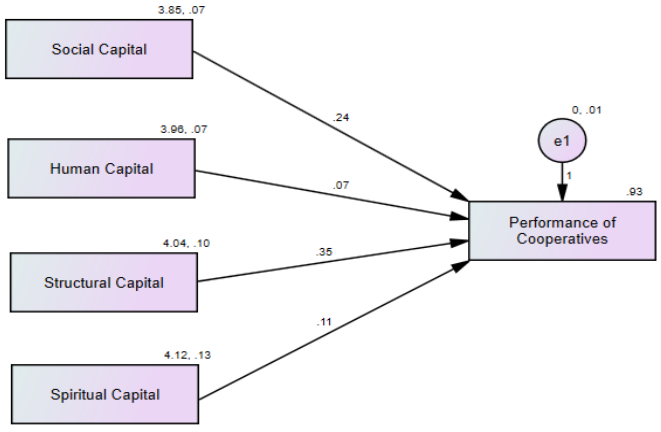

Figure 1. Hypothesized model 1 (CMIN/DF = 98.07, p-value = 0.000, GFI = 0.697, CFI = 0.308, TLI = -0.153, NFI = 0.309, RMSEA = 0.697).

Table 5. Characterization of hypothesized model 1.

Types of Model Fit	Parameters	Results	Critical Values	Remarks
Parsimonious Model Fit	CMIN/DF	98.073	< 2.00	Not Fit
Absolute Model Fit	p-value	0.000	> 0.05	Not Fit
	RMSEA	0.697	< 0.05	Not Fit
	GFI	0.410	> 0.95	Not Fit
Incremental Model Fit	CFI	0.308	> 0.95	Not Fit
	TLI	– 0.153	> 0.95	Not Fit
	NFI	0.309	> 0.95	Not Fit

Table 6 shows the characterization of Figure 2 in terms of different parameters. It shows that five (5) parameters which are p-value, Goodness of Fit Index (GFI), Comparative Fit Index (CFI), TLI, and Normed Fit Index (NFI) satisfy the required critical values. The remaining two (2) parameters do not satisfy. This implies that while Figure 2 can explain 94% of the data, as with the previous model, and showed a majority of the parameters, it is still not the best fit model of cooperative performance.

Hypothesized model 3. Figure 3 shows the hypothetical model 3 of the study. In this model, social capital indirectly affects cooperative performance through spiritual capital. As shown in the figure, structural capital still has the highest impact (0.37) on cooperative performance compared with the previous model followed by social and spiritual capital. This result also confirms the result of the regression analysis that human capital does not directly influence cooperative performance. This model can explain 94% of the data.

Table 7 shows the characterization of Figure 3 in terms of the different parameters. It shows that only the GFI and CFI satisfy the required critical values compared with model 2 which satisfies 5 parameters. This implies that it can explain 94% of the data similar to the previous model, and although it showed two (2) parameters that fit the model, it is still not the best fit model of cooperative performance.

Hypothesized model 4. Figure 4 shows the hypothetical model 4 of the study. In this model, structural capital (0.37), social capital (0.29), and spiritual capital (0.11) showed a direct effect on cooperative performance. The figure also depicts that structural capital and social capital indirectly affect cooperative performance through spiritual capital. Though human capital shows no influence on cooperative performance based on the results of the multiple regression analysis, this should not be discredited as part of the intangible resources of the firm that contribute to cooperative performance. Based on the model generated, human capital directly affects structural, social, and spiritual capitals and indirectly affects cooperative performance through these three (3) capitals. This model can explain 94% of the data. Table 8 shows the characterization of Figure 4 in terms of different parameters. It shows that all parameters of parsimonious, absolute, and incremental model fits, which are Degrees of Freedom (DF), p-value, Root Mean Square Approximation (RMSEA), GFI, CFI, TLI, and NFI fit the model. Thus, this model is considered the best fit model of cooperative performance.

DISCUSSION

Relationship between Social Capital, Human Capital, Structural Capital, Spiritual Capital, and Cooperative Performance

The study found that four variables have a significant positive relationship with the performance of cooperatives in Davao Oriental. The result of correlation analysis is consistent with the study of Ettehadi and Seyyedi (2016) that there is a strong positive relationship between social capital, human capital, structural capital, and spiritual capital with organizational performance. The study of Hashim et al. (2015) found that intellectual capital which consists of human capital, customer capital, structural capital, social capital, technological capital, and spiritual capital has a significant influence on organizational performance.

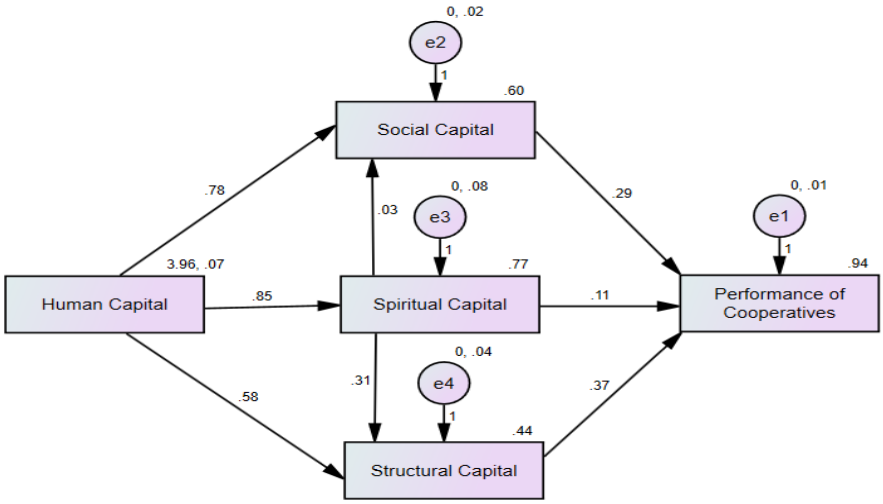

Figure 2. Hypothesized model 2 (CMIN/DF = 2.517, p-value = 0.081, GFI = 0.998, CFI = 0.996, TLI = -0.982, NFI = 0.994, RMSEA = 0.259).

Table 6. Characterization of hypothesized model 2.

Types of Model Fit	Parameters	Results	Critical Values	Remarks
Parsimonious Model Fit	CMIN/DF	2.517	< 2.00	Not Fit
Absolute Model Fit	p-value	0.081	> 0.05	Fit
	RMSEA	0.259	< 0.05	Not Fit
	GFI	0.998	> 0.95	Fit
Incremental Model Fit	CFI	0.996	> 0.95	Fit
	TLI	0.982	> 0.95	Fit
	NFI	0.994	> 0.95	Fit

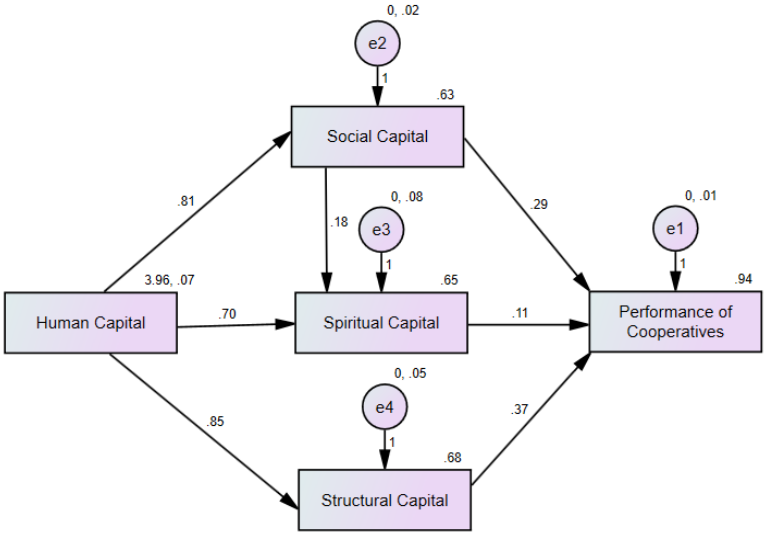

Figure 3. Hypothesized model 3 (CMIN/DF = 14.460, p-value = 0.000, GFI = 0.953, CFI = 0.952, TLI = -0.840, NFI = 0.949, RMSEA = 0.259).

Table 7. Characterization of hypothesized model 3.

Types of Model Fit	Parameters	Results	Critical Values	Remarks
Parsimonious Model Fit	CMIN/DF	14.460	< 2.00	Not Fit
Absolute Model Fit	p-value	0.000	> 0.05	Not Fit
	RMSEA	0.259	< 0.05	Not Fit
	GFI	0.953	> 0.95	Fit
Incremental Model Fit	CFI	0.952	> 0.95	Fit
	TLI	0.840	> 0.95	Not Fit
	NFI	0.949	> 0.95	Not Fit

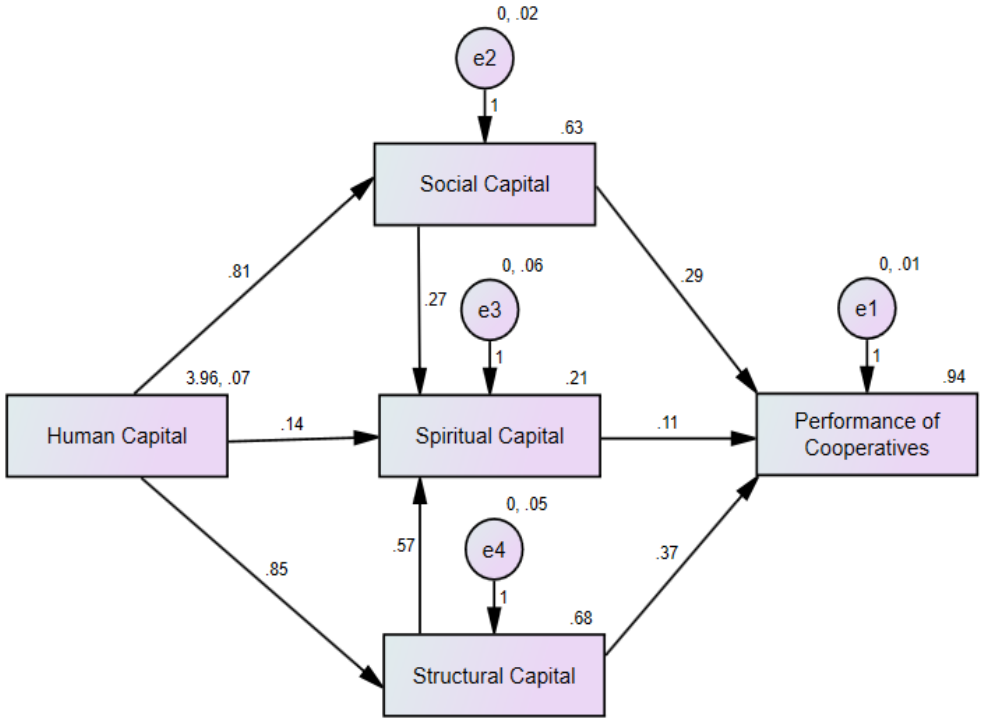

Figure 4. Hypothesized model 4 (CMIN/DF = 1.360, p-value = 0.257, GFI = 0.998, CFI = 0.999, TLI = -0.996, NFI = 0.997, RMSEA = 0.042).

Table 8. Characterization of hypothesized model 4.

Types of Model Fit	Parameters	Results	Critical Values	Remarks
Parsimonious Model Fit	CMIN/DF	1.360	< 2.00	Fit
Absolute Model Fit	p-value	0.257	> 0.05	Fit
	RMSEA	0.042	< 0.05	Fit
	GFI	0.998	> 0.95	Fit
Incremental Model Fit	CFI	0.999	> 0.95	Fit
	TLI	0.996	> 0.95	Fit
	NFI	0.997	> 0.95	Fit

Social Capital to Cooperative Performance. The result of the analysis reveals that cooperatives with strong social connections and networks tend to perform better (r = 0.71, $P < 0.05$). According to Liang et al. (2018), social capital has a significant and positive effect on the economic performance of cooperatives. Further, results also showed that there is a positive relationship between certain dimensions of social capital and members' participation in cooperative meetings and training. In the study of Sis et al. (2013), domains of social capital like social integration, social awareness, and infrastructure domains had the highest effect on the performance of cooperatives.

Structural Capital to Cooperative Performance. Based on the results of the correlation, cooperatives in Davao Oriental with well-established systems and processes perform better (r = 0.80, $P < 0.05$). Hammad Ahmad Khan et al. (2016) also revealed that structural capital has been found to have a significant relationship with cooperative performance, while human capital has been found to have a negative relationship, which is inconsistent with the results of this study.

Human Capital to Cooperative Performance. This study found that cooperatives with skilled and educated members tend to have higher performance (r = 0.75, $P < 0.05$). Moreover, the study conducted by Ariyanto and Chalil (2017) revealed that human capital, structural capital, relational capital, and spiritual capital are found to have a positive and significant impact on the organization's performance.

Khalique and Mansor's (2016) findings demonstrate that structural and social capital positively impact the hotel industry's performance in Malaysia. On the other hand, human capital, technological capital, and spiritual capital show insignificant contributions to enhancing the performance of the hotel industry. Spiritual capital has been found to have an insignificant contribution to performance, which is in contrast to the results of this study, in which this type of capital shows a significant contribution to organizational performance.

Spiritual Capital to Cooperative Performance. According to the results of the study by Moghadam and Makvandi (2019), a direct and strong correlation exists between spiritual capital and employee job performance. This is consistent with the results of this study that cooperatives that emphasize shared values and beliefs tend to perform better (r = 0.69, $P < 0.05$), but this relationship is slightly weaker than the others. This finding is in line with the findings of other researchers (Badakhshani 2017; Moghadam and Makvandi 2019) who confirmed the relationship between spiritual capital and organizational performance. Accordingly, it is highly suggested by different authors that promoting spiritual capital can improve the performance of organizations. Therefore, it is recommended that organizational managers promote factors such as spiritual valuation, speaking with God, spirituality, and spiritual influencing in the organization.

Factors Influencing Cooperative Performance

Among the explanatory variables, structural capital was the most influential factor contributing significantly to cooperative performance. Structural capital highlights the intangible resources held by the company in terms of processes and procedures, databases, work culture, and others that facilitate the workers' ability to create wealth for the organization and stakeholders, which would enhance the performance of cooperatives. The efficiency of this process is very significant because it includes internal procedures that allow for knowledge integration and sharing of capabilities, resulting in wealth creation for the organization (Azzahra 2018). It also remains an asset for the firm even when there are employees who will leave the firm (Muhammad and Ismail 2009; Khalique et al. 2013). According to Liang et al. (2019), social capital shows a positive effect on the economic performance of cooperatives, which supports the results of this study. Moreover, the study of Neubert et al. (2017) found that spiritual capital impacts business success even after controlling for other forms of capital. Therefore, it is suggested that cooperatives should always consider the proper implementation of the systems and programs of the cooperative. Besides, officers and members should be informed of the policies, procedures, and processes and their respective functions, duties, and responsibilities.

Human capital was found to have no significant influence on cooperative performance. This result is consistent with the study by Leal et al. (2014), which showed that human capital had no significant influence on organizational performance and satisfaction, unlike structural and relational capital. Additionally, the findings of Buang et al. (2023) indicated that the relationship between human capital and cooperative performance is not significant. In this study, human capital does not directly influence cooperative performance; however, it mediates the effect of other independent variables on cooperative performance. Similarly, the study by Birhane et al. (2023) reported that human capital plays a partial mediating role in the association between capital structure and organizational performance.

Statistical Model for Cooperative Performance

According to Liang et al. (2019), social capital shows a positive effect on the economic performance of cooperatives, which supports the results of this study. In their study, they concluded that social capital through the internal structure relationship enhanced performance and innovativeness. Social integration, as part of the social capital, is a vital part of the performance of cooperatives. In business, social capital contributes to an organization's success and is attributed to personal relationships and networks, both within the organization and outside of it. The term social capital promotes personal relationships within a company that help build trust and respect among employees, leading to enhanced company performance (Kenton 2019). The sense of cooperation, life satisfaction, security, empathy, respect of members for their beliefs, and capacity for differences are increased among members through educational production functions and market regulation (Sis et al. 2013). Furthermore, the social relationships in the organization are considered an intangible resource that can contribute to organizational success (Bhandari and Yasunobu 2009).

According to Obeidat et al. (2017), structural capital is concerned with the organization's structures and mechanisms, which eventually impact firm innovation, thus making it a vital organizational resource. Structural capital in this study shows a direct effect on cooperative performance. It implies that this intangible resource, which consists of assets that are intangibly included in the company's infrastructure technologies and organizational structure, enables the movement of knowledge to advance the operational effectiveness and efficiency of the firm (Ariawan et al. 2016). Hence, supportive infrastructure within a cooperative would improve its performance since this capital remains even if the employees leave the cooperative. Therefore, the cooperatives sector should focus on building up its infrastructure such as information systems, databases, and processes to ensure its success, especially in the long term.

The study of Neubert et al. (2017) found that spiritual capital impacts business success even after controlling for other forms of capital. Spiritual capital is an important asset for both individuals and organizations. It supplies a framework on how to govern business processes without conflicting with standards, ethics, and laws. Accordingly, it results in improved organizational performance (Abdullah and Sofian 2012). This capital also directly affects cooperative performance, implying that qualities rooted in an individual's perspective encourage their behavior to act accordingly; knowledge, confidence, and spiritual practices of an individual or an organization are vital to organizational success (Ariawan et al. 2016). Previous studies have found that spiritual capital serves as a guide on how to utilize human capital, structural capital, and relational capital in entrepreneurial activities (Sullivan 2000). This literature supports the result of the model that spiritual capital shows a direct effect on structural capital. Accordingly, spiritual capital promotes sustainable development and brings wealth and happiness to all the stakeholders of business firms (Florin et al. 2003). Spiritual capital is also important for both individuals and organizations. According to the results of the study by Moghadam and Makvandi (2019), a direct and strong correlation exists between spiritual capital and job performance in employees. This finding is in line with the findings of other researchers (Badakhshani 2017; Moghadam and Makvandi 2019) who confirmed the relationship between spiritual capital and organizational performance.

Despite no direct effect of human capital on cooperative performance, it indirectly affects social, spiritual, and structural capital. It cannot be discredited in modeling because there are many kinds of literature that state human capital contributes to cooperative performance but do not specifically clarify whether it is a direct or indirect effect. A recent study on Malaysian ministerial officers found that human capital and organizational performance are highly correlated (Tastan and Davoudi 2015). Researchers have argued that human capital and service delivery significantly contribute to organizational performance (Beh-Pajooh 2010; Saifuddin et al. 2014; Ferreira and Franco 2017; Neubert et al. 2017). Most researchers believe that firms that invest in human capital will have a competitive advantage over others (Beh-Pajooh 2010; Saifuddin et al. 2014). Furthermore, Cisneros and Perlines (2018) stated that human capital represents competence and an individual's potential, such as people-embodied knowledge, experiential knowledge, skills, and capabilities. It is also considered an attitude regarding motivation, behavior, and ethical conduct. Additionally, human capital can also encompass intellectual agility, includingadaptation, innovation, and imitation. Human capital comprises all other elements, includingcreativity, education/training, changeability, employee demographics, employee loyalty, entrepreneurial spirit, emotional intelligence, formal relationships, flexibility, influencing behavior identity of individuals, vocational qualifications, informal relationships, workforce training, and other work-related aspects (Cisneros and Perlines 2018).

Human capital directly affects social capital in the organization. In the process of economic growth, the investment in social fabric and human knowledge

creates economic progress. Economic growth is determined by human capital within social relationships (Soumyananda 2016). Despite the economic progress brought by human capital through social relationships in the organization, sentiments of not being needed anymore are evident in the social organization of displaced agricultural farmers due to mechanization (Banudan et al. 2023).

Human capital also has a direct effect on structural capital with path coefficients of 0.85. In the study by Namvar et al. (2011) exploring the role of human capital in a firm's structural capital in the Iranian e-business industry, it was found that human capital significantly influences innovation capital, relational capital, and process capital, which are the dimensions of structural capital. Additionally, structural capital stems from human capital. The mixture of knowledge and intangible resources derived from the procedures inside the business includes procedural innovativeness, access to information for codification into knowledge, and elements of efficiency (Edvinsson and Malone 1997). Model 4 also shows that human capital directly affects spiritual capital. Spiritual capital is possessed by individuals; thus, it is fundamentally rooted in an individual's perspective. The qualities of human spiritual capital boost behavior that aligns with the knowledge, confidence, and spiritual practices of individuals or organizations (Ariawan et al. 2016). This best fit model for cooperative performance is an effective framework for cooperatives to consider when structuring their strategic goals and priorities.

This study has proven that the resource-based theory is significant to organizations, where the internal resources have the opportunity to influence cooperative performance and sustained competitiveness against rivals. The cooperatives' internal resources, namely social capital, human capital, structural capital, and spiritual capital, have influenced the performance of cooperatives. This means that these capitals, directly and indirectly, affect the productivity and profitability of the cooperative. Therefore, community planners, policymakers, extension workers, and government agencies must consider these capitals as vital for cooperative success. Since this study found that structural capital is the most influential factor in cooperative performance, government agencies such as the Cooperative Development Authority can provide training and programs to strengthen the structural capital of cooperatives. These may include capacity-building initiatives for officers and members, the development of systems to enhance cooperative operations, and strict monitoring and evaluation of the implementation of these systems and processes. It is also recommended that cooperatives undergo ISO Certification, which would help strengthen their processes and procedures. This certification will strengthen the processes and procedures of the cooperatives. This study only focused on a successful cooperative; therefore, the researcher recommends further research on the effects of social capital, human capital, structural capital and spiritual capital on the performance of cooperatives from the perspective of passive or failed cooperatives. Additionally, investigating the roles of both tangible and intangible assets in different types of cooperatives, such as agricultural cooperatives, credit cooperatives, multi-purpose cooperatives, and others, would be interesting.

FUNDING

This paper did not receive any external funding and was conducted using personal funds as a patriotic endeavor to contribute to the advancement of knowledge.

ETHICAL CONSIDERATIONS

As part of the ethical considerations in conducting the study, the researcher secured prior informed consent before the participants answered the survey questionnaire. This showed proof of their voluntary participation in the study, being informed of the purpose of the study, the risks, and the benefits of participating in the survey. Moreover, the confidentiality of data was given utmost consideration. The risks in conducting the study were identified and proposed ways to minimize them. The respondents were located in other municipalities far from the researcher's location. A personal vehicle was used during data collection for ease and safety. Wearing personal protective gear was also practiced to protect against possible vehicle accidents resulting in injury.

The peace and order situation of the area was also considered. To minimize the risks of possible violence, the researcher closely coordinated with the Punong Barangay to ensure peace and order in the area during data collection. Most of the respondents did not provide accurate information due to confidentiality matters. The anonymity of the respondents was respected to uphold privacy and preserve dignity during data collection and analysis.

DECLARATION OF COMPETING INTEREST

The authors declare that there are no competing interests for any authors.

ACKNOWLEDGMENTS

The author would like to convey his sincere thanks to Davao Oriental State University for the support given during the conduct of the study. Sincere thanks are also extended to the reviewers and editors of this paper who critically commented on and unweariedly read the content. This paper has improved through your guidance.

REFERENCES

Abdullah DF and Sofian S. 2012. The Relationship between intellectual capital and corporate performance. Procedia - Social and Behavioral Sciences, 40: 537-541. https://doi.org/10.1016/j.sbspro.2012.03.227

Abulela MA and Harwell MM. 2019. Data Analysis: Strengthening inferences in quantitative education studies conducted by Novice researchers. Educational Sciences: Theory and Practice, 20(1): 59-78. https://doi.org/10.12738/jestp.2020.1.005

Adler PS and Kwon SW. 2002. Social capital: Prospects for a new concept. The Academy of Management Review, 27(1): 17–40. https://doi.org/10.2307/4134367

Ahmad Khan H. Yaacob M. Abdullah H and Abu Bakar Ah S. 2016. Factors affecting performance of co-operatives in Malaysia. International Journal of Productivity and Performance Management, 65(5): 641-671. https://doi.org/10.1108/IJPPM-05-2014-0077

Ardales VB. 2008. Basic concepts and methods in research (3rd Edition). Manila: Educational Publishing House. 415pp.

Ariawan, Sudarma M, Djumahir and Ghozali. 2016. The role of spiritual capital, human capital, structural capital, and relational capital of cmall and medium enterprises (SMES) to improving on performance: Study Literature. South East Asia Journal of Contemporary Business, Economics and Law, 11(2): 87-94. https://doi.org/10.31219/osf.io/9ehdv

Ariyanto A and Chalil RD. 2017. The role of intellectual and spiritual capital in developing Halal Tourism. Proceedings of the 7th Annual International Conference (AIC) Syiah Kuala University and the 6th International Conference on Multidisciplinary Research (ICMR) in conjunction with the International Conference on Electrical Engineering and Informatics (ICELTICs), Banda Aceh, Indonesia. https://jurnal.usk.ac.id/AICS-Social/article/view/11007/8654. Accessed on 05 March 2020.

Azzahra K. 2018. The influence of human capital, structural capital and relational capital to the performance of cooperation with competitive advantage as intervening variable of cooperation in South Tangerang: Economics and Accounting Journal, 1(1): 24-34.

Badakhshani F. 2017. Spiritual capital and its Influence on Organizational Performance. Book of Mehrban Publishing, Tehran. 135pp.

Banudan KP, Abrahan NL and Mantog JA. 2023. Amoda Gayud Ngini, Mupadayon Kita: A Phenomenological Study of the Lived Experiences of Displaced Farm Laborers Due to Rice Farm Mechanization. Psychology and Education: A Multidisciplinary Journal, 6: 995-1011. https://doi.org/10.5281/zenodo.7574692

Beh-Pajooh A, Soleymani M, Ali Afrooz G and Gholamali Lavasani M. 2010. A study on the impact of social skill training on social adjustment and academic performance in slow learners. Educational Innovations, 9(1): 163-186.

Bhandari H and Yasunobu K. 2009. What is social capital: A comprehensive review of the concept. Asian Journal of Social Science, 37(3): 480-510. https://doi.org/10.1163/156853109X436847

Birhane M, Borji B, Amenti C and Kant S. 2024. Mediating effect of human capital on the relation between capital structure and firm performance. Horn of African Journal of Business and Economics (HAJBE), 7(1): 135-154.

Buang M, Samah AA, Rosnon MR and Burhan NAS. 2023. Does the board's human capital, social capital and participation affect co-operative performance? The case of Program Desa Lestari. Revesco: revista de estudios cooperativos, 143: 1-23. https://doi.org/10.5209/reve.84397

Castillo ET. 2003. Cooperativism in agriculture: The case of top four cooperatives in Region IV. Philippines Asia-Pacific Economic Cooperation (APEC) Study Center Network, pp. 1-179.

Cisneros MAI and Perlines FH. 2018. Intellectual capital and organization performance in the manufacturing sector of Mexico Management Decision, 56(8): 1818-1834. https://doi.org/10.1108/MD-10-2017-0946

Creative Research Systems. 2020. Sample Size Calculator. https://www.surveysystem.com/sscalc.html. Accessed on 04 March 2020.

Crossman A. 2019. Understanding Path Analysis. https://www.thoughtco.com/path-analysis-3026444. Accessed on 13 June 2020.

Cruz ED and Sabado JRF. 2022. Credit risk and performance evaluation of cooperatives in region xi using data envelopment analyses (DEA). European Journal of Economic and Financial Research, 6(1): 101-120.

Deriada A. 2005. Assessment of Cooperative Movement in a Developing Country: The Philippine Experience, Forum of International Development Studies, 28: 81-101.

Edvinsson L and Malone M. 1997. Intellectual capital: Realizing Your Company's True Value by Finding Its Hidden Brainpower. HarperCollins Publishers, New York.

Ettehadi and Seyyedi. 2016. Study of effect of intellectual capital on organizational performance in Iranian organizations. The Social Sciences, 11(24): 5969-5972.

Florin J, Lubatkin M and Schulze W. 2003. A social capital model of high-growth ventures. Academy of Management Journal, 46(3): 374-384.

Ferreira A and Franco M. 2017. Strategic alliances, intellectual capital and organisational performance in technology-based SMEs: is there really a connection? International Journal of Business and Globalisation, 18(1): 130-151. https://doi.org/10.1504/IJBG.2017.081024

Grootaert C, Narayan DJ, Jones VN and Woolcock M. 2004. Measuring Social Capital, An Integrated Questionnaire. The World Bank, Washington DC. 51pp.

Hammad Ahmad Khan H, Yaacob M, Abdullah H and Abu Bakar Ah SH. 2016. Factors affecting performance of co-operatives in Malaysia. International Journal of Productivity and Performance Management, 65(5): 641-671. https://doi.org/10.1108/IJPPM-05-2014-0077

Hui CH, Wai Ng EC, Ying Mok DS, Ying Lau EY and Cheung SF. 2011. "Faith Maturity Scale" for Chinese: A Revision and Construct Validation. International Journal for the Psychology of Religion, 21(4): 308-322. https://doi.org/10.1080/10508619.2011.607417

Hashim M, Osman I and Alhabshi SM. 2015. Effect of Intellectual Capital on Organizational Performance. Procedia - Social and

Behavioral Sciences, 211: 207-214. https://doi.org/10.1016/j.sbspro.2015.11.085

Hu L and Bentler PM. 1999. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling: A Multidisciplinary Journal, 6(1): 1-55. https://doi.org/10.1080/10705519909540118

Khalique M, Nassir Shaari JA, Isa AHBM and Samad NB. 2013. Impact of intellectual capital on the organizational performance of Islamic banking sector in Malaysia. Asian Journal of Finance and Accounting, 5(2): 75-83. https://doi.org/10.2139/ssrn.2327407

Khalique M and Mansor SA. 2016. Intellectual capital in Malaysian hotel industry: a case study of Malacca. International Journal of Business Performance Management, 17(1): 103–116. https://doi.org/10.1504/IJBPM.2016.073348

Kenton W. 2019. Social Capital. https://www.investopedia.com/terms/s/socialcapital.asp. Accessed on 02 March 2020.

Leal CTP, Marques CSDE, Marques CP and Braga-Filho E. 2014. The role of intellectual capital in a credit cooperative: a multivariate analysis. Polytechnic Institute of Santarém, 2: 578-585.

Li Y, Song Y, Wang J and Li C. 2019. Intellectual capital, knowledge sharing, and innovation performance: Evidence from the Chinese construction industry. Sustainability, 11(9): 1-20. https://doi.org/10.3390/su11092713

Liang Q, Lu H and Deng W. 2018. Between social capital and formal governance in farmer cooperatives: Evidence from China. Outlook On Agriculture, 47(3): 196-203. https://doi.org/10.1177/0030727018778603

Lv B and Han D. 2015. The relationship between intellectual capital and corporate performance in Chinese bio-pharmaceutical industry. International Conference on Modern Economic Technology and Management, 17(1): 1-7. https://doi.org/10.1051/shsconf/20151701024

Masuku TA, Masuku MB and Mutangira J. 2016. Performance of Multi-Purpose Cooperatives in the Shiselweni Region of Swaziland. International Journal of Sustainable Agricultural Research, 3(4): 58-71. https://doi.org/10.18488/journal.70/2016.3.4/70.4.58.71

Maheshwari VK. 2018. Causal-comparative research. http://www.vkmaheshwari.com/WP/?p=2491. Accessed on 13 March 2020.

Mellor JW. 2009. Measuring Cooperative Success, New Challenges and Opportunities in Low- and Middle-Income Countries. United States Overseas Cooperative Development Council (OCDC) and United States Agency for International Development (USAID), pp. 63-69.

Moghadam AK and Makvandi R. 2019. Investigating the relationship between spiritual capital and job performance with organizational citizenship behaviors in employees (evidence from Iran). Cogent Business and Management, 6(1): 1692484. https://doi.org/10.1080/23311975.2019.1692484

Muhammad NMN and Ismail MKA. 2009. Intellectual capital efficiency and firm's performance: Study on Malaysian Financial Sectors. International Journal of Economics and Finance, 1(2): 206-212. https://doi.org/10.5539/ijef.v1n2p206

Nakhata C. 2018. The relationships between human capital, entrepreneurial competencies and career success of SME entrepreneurs in Thailand. AU Journal of Management, 5(1): 17-26.

Namvar M, Fathian M, Gholamin M and Akhavan P. 2011. Exploring the role of human capital on firm's structural capital in Iranian e business industry. Social Science Research Network Electronic Journal. http://dx.doi.org/10.2139/ssrn.2187267

Neubert MJ, Bradley SW, Ardianti R and Simiyu EM. 2017. The role of spiritual capital in innovation and performance: Evidence from Developing Economies. Entrepreneurship Theory and Practice, 41(4): 621–640. http://dx.doi.org/10.1111/etp.12172

Obeidat BY, Abdallah AB, Aqqad NO, Akhoershie-dah AHOM and Maqableh M. 2017. The effect of intellectual capital on organizational performance: The Mediating Role of Knowledge Sharing. Communications and Network, 9(1): 1-27. http://dx.doi.org/10.4236/cn.2017.91001

Republic Act 9520. 2009. An acct amending the Cooperative Code of the Philippines to be known as the "Philippine Cooperative Code Of 2008". https://cda.gov.ph/issuances/republic-act-9520/. Accessed on 02 November 2019.

Saifuddeen SM, Rahman NN, Isa NM and Baharuddin A. 2014. Maqasid al-Shariah as a complementary framework to conventional bioethics. Science and Engineering Ethics, 20(2): 317-327.

Sharabati AA, Jawad SN and Bontis N. 2010. Intellectual capital and business performance in the pharmaceutical sector of Jordan. Management Decision, 48(1): 105-131.

Sis YS, Mohammadi SHM and Hedjazi Y. 2013. Analyzing effect of social capital on performance of Taram City olive farmers cooperative. International Research Journal of Applied and Basic Sciences, 6(5): 592-597.

Soumyananda D. 2016. Interrelationships between Social and human Capital, and Economic Growth. Munich Personal RePEc Archive Paper 89646. University Library of Munich, Germany. 6pp. https://ideas.repec.org/p/pra/mprapa/89646.html. Accessed on 05 March 2020.

Sullivan PH. 2000. Value Driven Intellectual Capital: How to Convert Intangible Corporate Assets into Market Value. Wiley & Sons, Inc. New York. 308pp.

Tastan S and Davoudi SMM. 2015. An Examination of the relationship between leader-member exchange and innovative work behavior with the moderating role of trust in leader: A Study in the Turkish Context. Procedia - Social and Behavioral Sciences, 181: 23-32. https://doi.org/10.1016/j.sbspro.2015.04.862

Utami H and Alamanos E. 2023. Resource-Based Theory: A review. In: Papagiannidis S (ed). TheoryHub Book. https://open.ncl.ac.uk / ISBN: 9781739604400. Accessed on 05 March 2020.

ROLE OF AUTHORS: **JAM** - *concept, design, analysis of data, drafting and revising the manuscript;* **ALD** – *advising and critiquing*

Responsible Editor: Dr. Allaine T. Baaco