

Causal Model on Work Engagement of the Agriculture Sector Employees in Davao Region

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ABSTRACT

This quantitative study aimed to examine the best fit causal model of work engagement for the employees in the agriculture sector in their authentic leadership, strategic management, and workplace/ethics in Davao Region, Philippines. Using descriptive-correlation and Structural Equation Modeling, the researcher selected 400 agriculture staffs from the region through stratified quota sampling. Results reveal high levels of genuine leadership, strategic management, workplace ethics and a very high level of employees work engagement. A significant relationship has been identified between all latent exogenous variables and work engagement; all latent exogenous variables significantly correlated to work engagement. The best fit model 4 conveyed a comprehensive new concept that employee work engagement was principally based on only two indicators namely vigor and absorption, as influenced by authentic leadership with the following indicators self-awareness and balance processing, strategic management was strongly supported by one indicator strategic planning, and work place ethics was strongly supported by three indicators namely self-reliance, morality/ethics and the hardwork of agriculture staff. Structural Model 4, which depicted the direct causal relationship of authentic leadership, strategic management and workplace ethics to the work engagement of employees in the agriculture sector, was described as the most suitable and parsimonious model.

Keywords: work engagement, authentic leadership, strategic management, workplace ethics

1. INTRODUCTION

1.1 Rationale

The issue of low agricultural productivity in Davao region as stated by the National Economic Development Authority-NEDA (2016) spurred conceptualization of this research given the increase in public investment. Dar (2019) reported 1.1 percent growth in domestic

agriculture and remained low in agricultural productivity, raising concerns about food security, competitiveness and long-term sustainability. The specific problem inquiry centered on employees in the agriculture sector is disengaged which leads to this low productivity or the lack of strategies by leaders to enhance productivity by engaging agriculture workers. Connected to the report, Guhao (2019) stated that in most organizations, employees are poorly engaged in work which leads to dissatisfaction with their job. The Alok and Israel study (2012) endorsed this argument that disengaged workers are performing below the expected potential; disengaged workers have a negative effect on the organization's performance (Cerasoli, Nicklin & Ford, 2014; Gan & Gan, 2014).

Work engagement (WE) is one of the factors affecting the efficiency and productivity at job of an employee (Gulbahar, 2017). It is a significant working-life quality index (Bakker, Schaufeli, Leiter, & Taris, 2008). Work engaged employees are a strategic advantage for any organization to ensure successful results such as job performance and vital skills retention (Halbesleben & Wheeler, 2008). Furthermore, WE is a significant framework for Rothbard and Patil (2011), which can lead to a variety of beneficial outcomes, such as productivity, customer satisfaction, pro-activity and innovation. Its advantage is the instrument widely used for assessing commitment is the Utrecht Work Engagement Scale (UWES), which has been validated worldwide and demonstrates excellent psychometric characteristics.

In this study, it is assumed that authenticity of the senior leaders believed to have linked to the agriculture sector staffs WE in the provision of services and the implementation of agricultural programmes. This research interpreted organizational philosophy as being followed by senior managers complementing the workplace norm would result in workers feeling compelled to care for the company and achieve their target. Furthermore, the findings of this research have shown that senior officials have a high degree of trust in job involvement that increases agricultural productivity. In addition, the writer indicated that incentives can be important motivators for workplace workers.

Strategic management (SM) should start with a choice at any organization (Gurel & Tat, 2017). The organization's chief executive is the only individual who can make a definitive decision. In this report, employees of the agriculture sector expressed the formulation of SM plan to achieve productivity in agriculture as an organizational goal affecting WE. Furthermore, pragmatic and pro-active strategies such as motivation, self-efficacy, and self-esteem tend to help leaders, managers, and workers develop positive work interaction within their organizations (Bakker, 2017).

The high level of evaluation of the agriculture sector employee workplace ethics (WPE) showed the higher level of WE. Moreover, several studies have provided empirical evidence that organizational ethics culture has had a substantial positive effect on WE (Huhtala, Tolvanen, Mauno, & Feldt, 2014; Mitonga-Monga & Cilliers, 2015). Likewise, in

contrast with Cilliers, Monga and Flotman's (2016) mediating regression analysis, predicting job involvement from WPE had a considerably beneficial effect on WE. In fact, the culture of ethics in the workplace (Cilliers et al., 2016) favorably predicted the dimensions of vigor, dedication and absorption of employee job involvement

The existence on the research gap as mentioned above and the investigation in terms on WE of the agriculture sector employees inspired the researcher to conduct the study. Hence, the researcher decided to examine the links between AL, SM, and WPE to answer the specific problems and inquiries centered on employees in the agriculture sector which leads to low productivity and lack of SM of leaders to enhance productivity in engaging agriculture workers. The literature review shows that the correlations between variables have not been studied in the agriculture sector of Davao region. However, there are few studies on modeling that resourcefully indicate WE in some discipline, but limited study being conducted using structural equation modeling (SEM) in the agriculture field. Although, there are studies examining selected variables, but very few studies dealing on the more complex model of the relationships between AL, SM, WPE and WE as mediated by their involvement has not been established. This is the research gap which prompted this study by the author.

1.2 Research Objective

This research was aimed to determine the best fit model of WE of agriculture sector employees in Davao region. The specific objectives of the study were:

1.2.1 To examine the level of AL of senior leaders of agriculture sector employees in terms of:

- | | |
|---|----------------------------------|
| 1.2.1.1 self-awareness; | 1.2.1.3 balanced processing; and |
| 1.2.1.2 internalized moral perspective; | 1.2.1.4 relational transparency. |

1.2.2 To ascertain the level of SM applied to agriculture productivity by the agriculture sector employees in terms of:

- | | |
|--------------------------------------|------------------------------|
| 1.2.2.1 strategy formulation; | 1.2.2.3 strategy evaluation. |
| 1.2.2.2 strategy implementation; and | |

1.2.3. To evaluate the level of WPE of agriculture sector employees in terms of:

- | | |
|--------------------------|---------------------------------|
| 1.2.3.1 self-reliance; | 1.2.3.5 centrality of work; |
| 1.2.3.2 morality/ethics; | 1.2.3.6 wasted time; and |
| 1.2.3.3 leisure; | 1.2.3.7 delay of gratification. |
| 1.2.3.4 hard work; | |

1.2.4. To assess the amount of WE of agriculture sector employees in terms of:

- 1.2.4.1 vigor; 1.2.4.2 dedication; and 1.2.4.3 absorption.
- 1.2.5. To determine the significant relationship between:
 - 1.2.5.1 authentic leadership and work engagement,
 - 1.2.5.2 strategic management and work engagement, and
 - 1.2.5.3 workplace ethics and work engagement.
- 1.2.6. To identify the best fit causal WE model for the agriculture sector employees in Davao region.

1.3 Hypothesis

The following hypotheses were tested at 0.05 level of significance:

- 1.3.1. There is no significant relationship between:
 - 1.3.1.1 authentic leadership of senior leaders and WE;
 - 1.3.1.2 strategic management and WE of the agriculture sector employees in Davao region; and
 - 1.3.1.3 workplace ethics and WE of the of agriculture sector employees.
- 1.3.2. There is no best fit model predicting WE.

1.4 METHOD

This section introduces the research design, location of research, population and sample, studies tool, information collection and statistical instruments used in the study.

1.4.1 Research Design

This study used specifically causal and correlation design quantitative research. This is used to develop and employ phenomenon-related mathematical models, theories and or hypothesis. Structural Equation Modeling (SEM) was used in the generation of the best fit model. First, it used a descriptive correlation technique. Accordingly, the descriptive correlation technique (Frontier, 2014) is a measure of connection between variables with variable measurement levels. It is descriptive because it is depicted at the average level by easy means describing the level.

In addition, correlation is used to explore and evaluate the link between two or more factors. Second, the research used modeling of structural equation as a means of analyzing the hypothesized interactions between factors and the best expected variable. This is a sophisticated multivariate method to simultaneously examine various dependence relationships between variables (Bhatta, Albert, Kahana, & Lekhak, 2017; Hair, Babin, & Krey, 2017).

Likewise, modeling of structural equations is performed over a number of steps. First, a template has to be delineated. This is the specification of the model phase. The second step

is model identification, followed by model assessment. Finally, model testing, and if the model is not strong enough to pass all parameters, the model should be adjusted and the above steps should be followed again (Hasman, 2015).

The Cronbach alpha coefficient was used to evaluate the internal consistency and reliability of each of the measuring instruments. Pearson's square was used to test the hypothesis of the study whose important value was set at a confidence level of at least 95 percent ($p < 0.05$).

1.4.2 Research Locale

The research was performed in the Davao Region. Davao Region is located on the southern part of Mindanao in the Philippines. As shown in Figure 1, the locale map, it is bounded on the north by the CARAGA region, on the east and south by the Philippine Sea, on the west by Bukidnon and the SOCSARGEN region. The Davao region comprises of five provinces: Davao Occidental, Davao del Sur, Davao del Norte, Davao Oriental and Compostela Valley or Davao de Oro. Its capital is Davao City. The participants of this research were agriculture sector employees in Davao region.

Davao region is renowned producer of fruits that caters to national and export markets. In addition, the region is regarded as the country's cacao center, while retaining its name as the biggest producer of coconut in the entire archipelago. The Davao region is also rich in innovative business and management initiatives which lead to an agricultural value-added entrepreneurial chain of manufacturing, processing and marketing, generating a wider field of leadership. This illustrates why the Davao region is the best choice of location for this research.

1.4.3 Population and Sample

The research used a stratified sampling method with a quota of 400 respondents. Accordingly, Foley (2018) defines stratified sampling as a method used in market research involving dividing the population of interest into smaller groups, called strata. Similarly, samples are then taken from these strata. Furthermore, stratified sampling is also frequently referred to as proportional sampling or quota sampling.

Each province in the region is composed of strata. Davao Oriental was regarded as one group, consisting of municipalities as (stratum I); another province as (stratum II), and so on, until the region's fifth province. Furthermore, each stratum is homogeneous according to a defined trait; then samples were taken from each stratum in easy random, purposeful and comfort sampling. The sample population was represented by each trait.

The complete study questionnaires distributed reached at 68.05 percent retrieval of

which was much greater than the maximum amount of samples in slovin formula which is 315 at the point of importance of .05. The minimum sample required for SEM is 400 in .05 significance level, following the quoted rules-of-thumb in Structural Equation Modeling, the number of participants (Yuan, Wu, & Bentler, 2010) should be between 300 and 400, respectively.

Study respondents were staffs of agriculture sector in Davao region. Staffs. Refer to employees in the agriculture sector either casual, job orders and permanent, and not holding

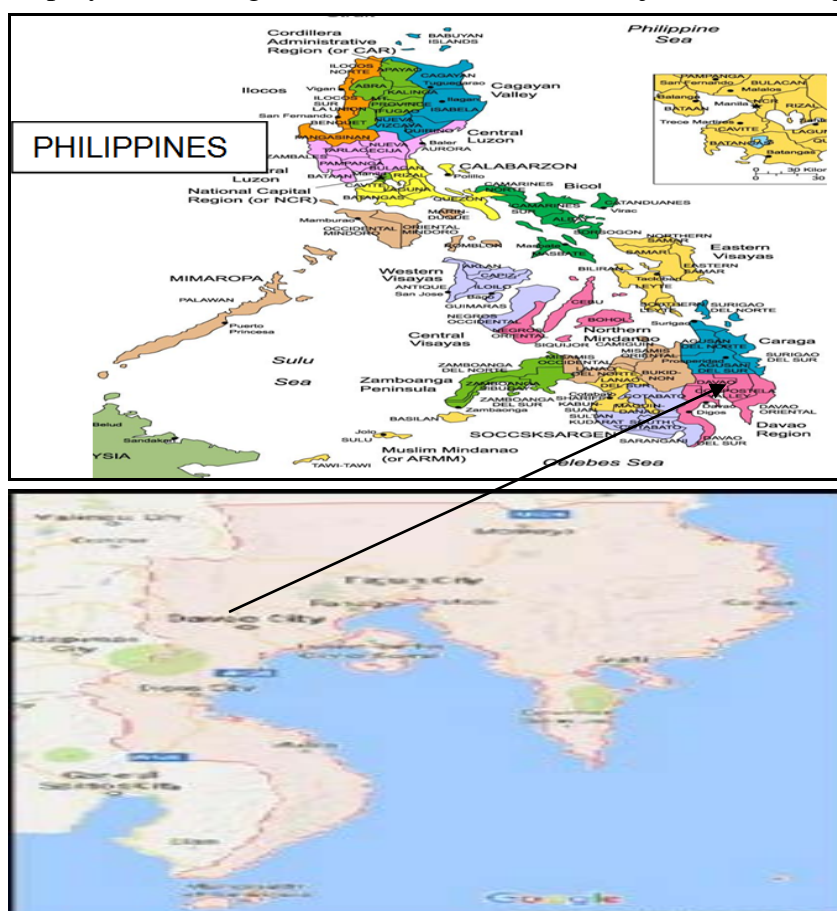


Figure 1. The Philippine Map and the Davao Region Research Locale

supervisory or executive positions. The research began on the 1st week of December 2018 to May 08, 2019.

1.4.4 Research Instrument

The data collected in this study comprises of four components, namely: WE of agriculture staff, AL of senior officials, SM and WPE of agriculture staff in Davao region. The survey questionnaires used in the research were downloaded from multiple associated research, then modified to create the tool more applicable to the workplace.

A set of altered, validated questionnaires composed of four components was used to

retrieve the information and were: authentic leadership, self-assessment questionnaire composed of 16 items and measuring four sub-scales which are four items each measuring self-awareness, internalized moral perspective, balance processing and relational transparency in a five-point Likert scale with 1 indicating strong disagreement and 5 as strongly agreed (Walumba & Associates, 2012).

Strategic management questionnaire is composed of three main components and measuring three sub-scales composed of eight items measuring strategy formulation, seven items measuring strategy implementation and five items measuring strategy evaluation from (AMCES, 2002). Respondents answered using a modified five-point Likert scale reduced from ten Likert scale.

Workplace Ethics composed of 65 items and measuring eight subscales which were ten items each measuring self-reliance, morality/ethics, leisure, hard work and centrality of work. Meanwhile, eight items measuring time lost and seven items measuring gratification delay (Miller, Woehr, & Hudspeth, 2001). Respondents answered using a five-point Likert scale with 1 showing strong disagreement and 5 as strongly agreed.

The Utrecht Work Engagement Scale (UWES) Schaufeli and Bakker (2004) is composed of 17 items and measuring three subscales which are six items measuring vigor, five items measuring dedication and six items measuring absorption. Respondents answered to the scale using a modified five-point Likert scale with 1 stating rarely once a month or less and 5 indicating always everyday (Schaufeli & Bakker, 2004) noted that UWES has accuracy varying from .80 to .95.

The tool was presented for validation to six management specialists. The general score is 4.17 or very good. Pilot testing was performed after validation. Cronbach alpha was used to verify the validity of the questionnaire with the following results: WE (0.946), SM (0.981), WPE (0.968) and AL (0.833). The alpha mean of the Cronbach is 0.932. It is rated excellent.

In addition, George and Mallery (2002) assumed that the following thumb guidelines were used to measure the reliability of the questionnaire using Cronbach's alpha: If the outcome is higher than or equal to 0.9; it is excellent; it is good higher than or equal to 0.8; it is acceptable higher than or equal to 0.7; it is questionable higher than or equal to 0.6; it is poorer than or equal to or higher than or equal to 0.4. The Cronbach alpha mean obtained from the study is 0.932, which is rated as excellent.

The selection of the best-fit path model was grounded on the Goodness of Fit Statistics for the Alternative Model through Analysis of Moment Structure (AMOS). In order to identify the best fit model, all the values of the given indices must fall with each criterion.

Chi Square/Degree of Freedom (CMIN/DF)	$0 < \text{value} < 2$
P Value	> 0.05
Normative Fit Index (NFI)	> 0.95
Comparative Fit Index (CFI)	> 0.95
Goodness of Fit Index (GFI)	> 0.95
Tucker-Lewis Index	> 0.95
Root Mean Square Error of Approximation (RMSEA)	< 0.05
P close	> 0.50

The independent and dependent variables tool was adapted from (Devadoss & Minnie, 2013; Jamieson, 2017; Neider & Schriesheim, 2011; and Stephene, 2012) to measure using the 5-level Likert scales from 1 (very low) to 5 (very high). To evaluate the level of WE, AL, SM and WPE of the agriculture employees, the following ratings were used:

Range of Means	Descriptive level	Interpretation
4.20-5.00	very high	This means that WE, AL, SM and WPE are always observed.
3.40-4.19	high	This means that WE, AL, SM & WPE are oftentimes observed.
2.60-3.39	moderate	This means that WE, AL, SM & WPE are sometimes observed.
1.80-2.59	low	This means that WE, AL, SM and WPE are seldom observed.
1.00-1.79	very low	This means that WE, AL, SM and WPE are never observed.

1.4.5 Data Collection

The researchers has performed several steps in accomplishing the study. Before the data was collected, the researchers first obtained approval from the Dean of Professional School of the University of Mindanao as well as the different heads of offices of the agriculture sector in Davao region, explaining to them the objectives, the respondents of this study and the flow of data as an output of the research. Furthermore, the researcher sought the professional help of experts in the field of management to ensure the validity of the instrument used.

In addition, the researcher requested permission from the University of Mindanao Ethics Review Committee for the legitimate conduct of the research. Upon approval by the heads of offices, the researcher then administered an initial of 40 survey questionnaires for the Cronbach alpha measures of reliability of the questionnaire. On the other hand, the respondents were asked to participate voluntarily and were informed about the nature of the study. An assurance of confidentiality was also emphasized.

1.4.6. Statistical Tools

The following statistical tools were used in the study:

Statistical Package for the Social Science (SPSS) was used during the initial statistical analysis to examine the reliability and validity of the scales used in this research.

Mean was used to determine the level of AL, SM, WPE and WE of agricultural employees.

Pearson Product- Moment Correlation was applied to determine any significant relationship between the variables of the study.

Structural Equation Modeling was used to determine the best fit model of the agriculture sector employees in Davao region.

1.4.7. Ethical Consideration

Ethics was noted in the study's behavior. Before the questionnaire floated, the investigator complied with the University of Mindanao Ethics Review Committee's protocols to guarantee that ethics was observed in the behavior of the research. In information collection, an informed consent form was connected to the questionnaire where participants were required to affix their signature to guarantee that they **voluntarily** answered the survey questionnaire and were not **coerced**. In addition, the respondents' identity was not disclosed in any of the sections of the study.

Ethical consideration serves as a guidance for the investigator to **act morally** on the behavior of this research. Research ethics is primarily associated with analyzing **ethical problems** that arise when individuals are engaged as research participants (Walter, 2017). To guarantee **integrity, quality and transparency**, this study was evaluated and compliance certificates were issued in accordance with the University of Mindanao's Professional School's study behavior protocol as well as excellent study procedures.

The researchers assured that sources used were properly cited. The idea of the authors was paraphrased and synthesized properly to avoid any plagiarism throughout the whole study. This paper also underwent Turnitin process to guarantee that the paper would not be plagiarized.

1.5 RESULTS AND DISCUSSION

The data and findings presented in this chapter are based on respondents' responses to the causal model of WE of the agriculture sector employees in Davao region.

It could be observed that the standard deviation in all indices reflected in all tables is less than 1.00, which according to Wittink and Bayer (1994) is the typical standard deviation for a five-point Likert-scale. This shows that there is consistency of answers among the

research participants.

1.5.1 Level of AL of the Senior Leaders of Agriculture Sector Employees in Davao Region

The level of AL of the agriculture sector employees in Davao region is shown in Table 1. The general mean score achieved on AL is 3.94 with a standard deviation of 0.479, described as high.

This implies that genuine or AL is oftentimes observed. The high level of AL of the senior officials of the agriculture sector are due to the high rating given by the staffs in terms of self-awareness, internalized moral perspective, balanced processing, and relational transparency. The senior leaders of the agriculture sector are morally guided as leaders, emphasized personal core values, and virtues such as prudence, temperance, justice, and strength. These aptitudes are also influential personal resources of the senior leaders particularly linked to the results of the research by (Oh, Cho, & Lim, 2018; Riggio, 2014), Jones' (2017) research that perceived genuine self-awareness of governance results in an awareness of one's own limits, strength, and weaknesses.

Table 1

Level of AL of the Senior Leaders of the Agriculture Sector Employees in Davao Region

Items	SD	Mean	Descriptive Level
<i>self-awareness</i>	0.562	4.07	high
<i>internalized moral perspective</i>	0.566	3.96	high
<i>balanced processing</i>	0.659	3.94	high
<i>relational transparency</i>	0.640	3.79	high
Overall	0.479	3.94	high

1.5.2 Level of SM of the Agriculture Sector Employees

The overview of the SM level of agriculture sector staff in Davao region is shown in Table 2. The general mean score is 4.04 with a standard deviation of 0.483, described as *high*, which implies that SM procedures are often observed/felt by the participants.

The staffs of the agriculture sector are participants in developing the mission and vision of the organization, and the organizations' commitment in providing financial resources to support the implementation of strategic initiatives. These strategic initiatives are motivating factors by the staffs of feeling ownership taken to implement programs to increase workers productivity particularly linked to the results of the research by Benham (2017) of a similar substantial increase in productivity due employee's participation in the organization

achieved through the introduction of strategies by leaders to increase productivity; and Bakker (2017) an enhanced management strategy considers offering resources to their staff can stimulate proactive levels of WE by maximizing the use of their strengths.

Table 2. *Level of SM of Agriculture Sector Employees*

Items	SD	Mean	Descriptive Level
<i>strategy formulation</i>	0.488	4.04	high
<i>strategy implementation</i>	0.543	4.04	high
<i>strategy evaluation</i>	0.566	4.03	high
Overall	0.483	4.04	high

1.5.3 Level of the WPE of the Agriculture Sector Employees

The level of WPE of the agriculture sector staff in Davao region is presented in Table 3. The general mean score is 4.10 with a standard deviation of 0.389, defined as *high*, which implies that WPE are oftentimes observed by participants.

The high level of WPE of the agriculture sector staffs are due to the high assessment given by the workers themselves in terms of *self-reliance*, *leisure*, *centrality of work*, *wasted time*, and *delay gratification*. The staffs of the agriculture sector are prudent in the fulfillment

Table 3. *Level of WPE of the Agriculture Sector Employees*

Items	SD	Mean	Descriptive Level
<i>self-reliance</i>	0.609	3.89	high
<i>morality/ethics</i>	0.545	4.26	very high
<i>Leisure</i>	0.538	3.84	high
<i>hard work</i>	0.519	4.28	very high
<i>centrality of work</i>	0.508	4.08	high
<i>wasted time</i>	0.529	4.19	high
<i>delay gratification</i>	0.550	4.19	high
Overall	0.389	4.10	high

of the best things in life are those to wait for, people would be better off if they depended on themselves, an individual should be as *self-reliant* and independent of others as much as possible to be effective particularly connected to the results of the research by Miller, Woehr, & Hudspeth (2001), that delay of gratification deals more with the orientation towards the future, patience in waiting for reward and the cults of prudence; (Czerw & Gabrowski, 2015) conviction about the value of prizes located in the future; and *self-reliant*, praising

independence in everyday job (Miller et al., 2001).

1.5.4 WE of the Agriculture Sector Employees

The level of WE of the agriculture sector staff in Davao region is shown in Table 4. The general mean score is 4.25 with a standard deviation of 0.482, defined as very *high*, which implies that WE is always observed by participants.

The very high level of WE of the agriculture sector employees in Davao region are due to the very high rating given by respondents' in terms of vigor and dedication. The agriculture sector employees are strong and vigorous, feeling like going to work, enthusiastic, resilient and being proud of their work. These temperaments are likely influential personal resources particularly linked to the study of Basikin (2007); Mauno, Kinnunen, & Ruokolainen (2006) who pronounced these resources have translated motivation among agriculture employees with pride and show perseverance when confronted with difficulties and maintain high levels of energy and mental resilience; Bakker (2014) that engagement is at its highest when staff have experienced exciting work requirements and the same time access to adequate work resources.

Table 4. *Level of WE of the Agriculture Sector Employees*

Items	SD	Mean	Descriptive Level
<i>vigor</i>	0.530	4.20	very high
<i>dedication</i>	0.568	4.41	very high
<i>absorption</i>	0.592	4.13	high
Overall	0.482	4.25	very high

1.5.5 Significance on the Relationship between AL and WE

Significance on the relationship between AL and WE is shown in Table 5 showing correlations between independent variable (IV) i.e. AL, dependent variable (DV) i.e. WE. The general r-value is 0.255 with $p < 0.05$ obtained by the aforementioned measures therefore important, leading to the rejection of the null hypothesis. The findings showed that the AL of the senior leaders of the agricultural sector in Davao region has a significant positive, strong correlation with WE. This meant that AL and WE were extremely correlated with each other.

This significant relationship between AL and WE was also reinforced by the study of Mafud and Moreno (2018) which revealed that an authentic leader is highly skilled in keeping his staff more engaged and involved in their job by establishing a unique connection with them. Similarly, elevated rates of confidence also correlate with work engagement and well-being, increased rates of creativity and problem-solving and increased efficiency (Jones, 2017).

In addition, the study of (Oh, Cho, & Lim, 2018), showed the strong and significant effect of real leadership on both key values of practice and WE. Similarly, AL embodied by key values is a step forward in improving employee engagement, and genuine leadership development programs that can be undertaken to promote key values through seminars and training programs. In the past research by Roux (2010) AL showed a significant positive correlation with WE. Furthermore, findings also collaborated with Roux's (2010) research that described positive correlation between AL and WE as a consequence of SEM. Moreover, it has been demonstrated that genuine leadership is sequentially linked to WE as proposed by

Table 5. *Significance on the Relationship between Levels of AL and WE*

Authentic Leadership	Work Engagement			
	Vigor	Dedication	Absorption	Overall WE
self-awareness	0.242* (0.000)	0.180* (0.000)	0.181* (0.000)	0.233* (0.000)
internalized moral perspective	0.226* (0.000)	0.221* (0.000)	0.185* (0.000)	0.245* (0.000)
balanced processing	0.143* (0.004)	0.095 (0.057)	0.122* (0.014)	0.140* (0.005)
relational transparency	0.217* (0.000)	0.115* (0.021)	0.182* (0.000)	0.199* (0.000)
overall authentic leadership	0.259* (0.000)	0.189* (0.000)	0.211* (0.000)	0.255* (0.000)

*Significant at 0.05 significance level.

the research. In addition, Roux developed the descriptive words for AL as a positive construct, including genuine, reliable, trustworthy, real, hopeful, resilient and true.

1.5.6 Significance on the Relationship between SM and WE

The significance of the connection between SM and WE is shown in Table 6. The general r-value extracted from the said measures is 0.414 with a p-value of less than 0.05 which is less than a point of significance. The result is significant, and the null hypothesis of no significant relationship is rejected.

The connection between the SM of the agriculture sector and the involvement of WE in the Davao region is significantly correlated with the results of this research; therefore, the

null hypothesis of no connection has been rejected. This meant that workers of the agriculture sector are highly motivated towards SM that correlates WE. This significant relationship between SM and WE was also reinforced by the study of Stigter and Cooper (2015) which revealed that the theoretical impact of linking SM with employee performance through WE arose. The study result could be helpful for improving employee performance in the agriculture sector. Similarly, from the point of view of SM, research finding by Benham's (2017) inquiry discovered a substantial increase in employee engagement in organizations (moderate to high) corresponds with significant increases in investor income acquired by applying policies among company leaders to boost productivity.

On the other hand, previous research has demonstrated the role of selection, optimization, and compensation (SOC) in job resources as management strategy at work were positively associated with WE. This study investigated direct and indirect effects of SOC strategies at work and two important job resources (i.e., learning and developmental opportunities and autonomy at work) from 118 flight attendant in predicting WE. Consequently, learning and developmental opportunities, and job control were also related to WE. Additionally, meaningful mediation effects, such that positive associations of job resources with WE were significantly mediated through the use of SOC (Weigel, Muller, & Hornung, 2014).

Lastly, another management strategy from the research results, (Hoole & Hotz, 2016), disclosed that there is significant correlation between total rewards and WE with performance and career management that substantially predicted WE. Furthermore, the writers suggested that total rewards are significant motivators for staff in the workplace.

Table 6. *Significance on the Relationship between Levels of SM and WE*

Strategic Management	Work Engagement			
	Vigor	Dedication	Absorption	Overall WE
strategy formulation	0.340* (0.000)	0.296* (0.000)	0.341* (0.000)	0.382* (0.000)
strategy implementation	0.376* (0.000)	0.258* (0.000)	0.343* (0.000)	0.379* (0.000)
strategy evaluation	0.356* (0.000)	0.253* (0.000)	0.335* (0.000)	0.367* (0.000)
overall strategic management	0.397* (0.000)	0.295* (0.000)	0.374* (0.000)	0.414* (0.000)

*Significant at 0.05 significance level.

1.5.7 Significance on the Relationship between WPE and WE

Table 7 is the meaning of the connection between WPE and WE. The general r-value is 0.542, with $p < 0.05$ significantly dismissing the null hypothesis. All the probability values indicated significant correlations.

The findings of this study showed that the workplace ethics of the employees of the agriculture sector in Davao region has a significant relationship with WE, which contributes to the rejection of the null hypothesis of the study. This meant that the general ethical outcome of the agriculture sector workers in the workplace is substantially correlated to WE. This significant relationship between WPE and WE was also in consonance with the study of Mitonga-Monga and Cilliers (2015) which revealed that WPE culture and WPE climate were significantly and positively correlated to their level of WE. In addition, the findings provide evidence that individual's perception of work ethics culture and work ethics climate explain their level of WE. Similarly, the findings of the research results of Czerw and Grabowski (2015) revealed WPE as a predictor of WE.

On the other hand, WPE are nothing but the rules and procedures that should be carried out in an office by the employer and the employees to maintain a professional company culture and to build a better relationship with their customers by providing better services. Examples of WPE are: loyalty, comradery, citizenship, trustworthiness, integrity, respect, caring, fairness, responsibility, and accountability (Reddy, 2016).

Table 7. *Significance on the Relationship between Levels of WPE and WE*

Work Place Ethics	Work Engagement			Overall WE
	Vigor	Dedication	Absorption	
self-reliance	0.206* (0.000)	0.166* (0.001)	0.270* (0.000)	0.251* (0.000)
morality/ethics	0.265* (0.000)	0.291* (0.000)	0.263* (0.000)	0.319* (0.000)
leisure	0.301* (0.000)	0.245* (0.000)	0.341* (0.000)	0.346* (0.000)
hard work	0.388* (0.000)	0.397* (0.000)	0.378* (0.000)	0.452* (0.000)
centrality of work	0.456* (0.000)	0.422* (0.000)	0.483* (0.000)	0.530* (0.000)
wasted time	0.411* (0.000)	0.404* (0.000)	0.342* (0.000)	0.449* (0.000)

delay	0.337*	0.339*	0.349*	0.399*
gratification	(0.000)	(0.000)	(0.000)	(0.000)
overall work	0.466*	0.446*	0.480*	0.542*
place ethics	(0.000)	(0.000)	(0.000)	(0.000)

*Significant at 0.05 significance level.

1.5.8 Best Fit Model That Predicts Work Engagement

This section introduces the assessment of the interrelationships between independent variables to the dependent variable of the agriculture sector employees in Davao region. In this research, the hypothesized model 1 of exogenous and endogenous or latent variables are represented with rectangular shape as shown in Figure 2; they are also known as the unobserved or unmeasured variables. The single head arrow reflects a direct connection of

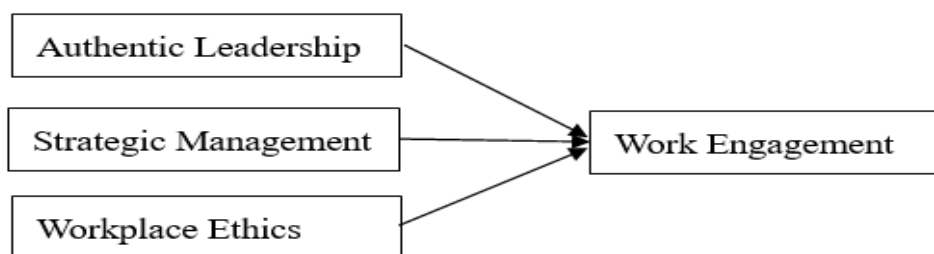


Figure 2. The Conceptual Framework of the Study Showing the Direct Causal Relationship of the Latent Exogenous Variables: Authentic Leadership, Strategic Management and Work Place Ethics towards Work Engagement

latent exogenous variables such as authentic leadership, strategic management and workplace ethics towards latent endogenous variable, work engagement.

Four hypothesized models were developed and tested in this research. Data normality was obtained from critical testing and observation of variables needed in model formulation. From the conceptualized models of this study, the immediate impacts are depicted by arrows from a predictor or endogenous variable shown on the front hand directed to the dependent variable.

Generated Model 1. Presented the fitness of the measurements, shown in Table 8 illustrate the immediate relations of the latent exogenous variables: AL, SM and WPE towards the latent endogenous variable, WE. It is noted that all indicators remained intact (Figure 3). Moreover, the review of Generated Model 1 using goodness of fit indices: P of Close Fit (Pclose); Chi-Square/Degrees of Freedom (CMIN/DF); P-value; Goodness of Fit Index (GFI); Comparative Fit Index (CFI); Normed Fit Index (NFI); Tucker-Lewis Index (TLI); and Root Means Square of Error Approximation (RMSEA), the outcome of the fit quality of Model 1 is very low, since all indices did not comply with the criterion set against

the fit value of the model acquired.

Table 8. Goodness of Fit Measures of Structural Model 1

INDEX	CRITERION	MODEL FIT VALUE
P-Close	> 0.05	0.000
CMIN/DF	0 < value < 2	3.862
P-value	> 0.05	0.000
GFI	> 0.95	0.874
CFI	> 0.95	0.896
NFI	> 0.95	0.866
TLI	> 0.95	0.876
RMSEA	< 0.05	0.085

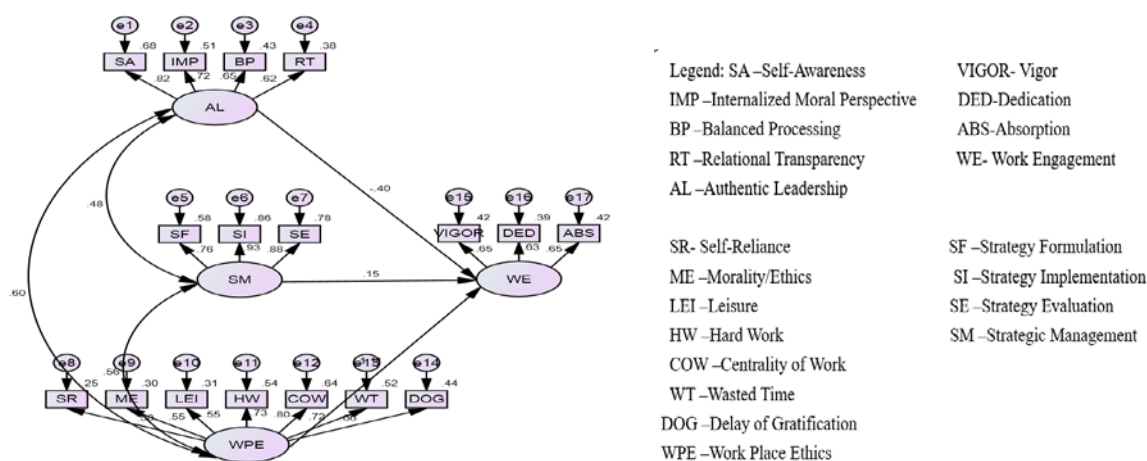


Figure 3. Structural Model 1 in Standardized Solution

Generated Model 2. The System Modification Method (Kline, 2011; Schreiber, Nora, Barlow, & King, 2006) was explained by testing the hypothesized model and eliminating factors or variables to boost data fitness. The examination of Model 2 shown in Table 9 using goodness of fit indices: P of Close Fit (Pclose); Chi-Square/Degrees of Freedom (CMIN/DF); P-value; Goodness of Fit Index (GFI); Comparative Fit Index (CFI); Tucker-Lewis Index (TLI); and Root Means Square of Error Approximation (RMSEA) were able to meet the set criterion as reflected in the model fit value. Moreover, the Normed Fit Index (NFI) did not

Table 9. Goodness of Fit Measures of Structural Model 2

INDEX	CRITERION	MODEL FIT VALUE
P-Close	> 0.05	0.629
CMIN/DF	0 < value < 2	1.881

P-value	> 0.05	0.000
GFI	> 0.95	0.961
CFI	> 0.95	0.972
NFI	> 0.95	0.942
TLI	> 0.95	0.963
RMSEA	< 0.05	0.047

comply with the set criterion (>0.95) compared to the obtained model fit value (0.942); thus, this generated in a poor result. However, the model tested shows the interrelationship between the exogenous factors: AL, SM and WPE, and their immediate causal relationship to the latent endogenous variable, WE.

It can also be noted that the model (Figure 4) was slightly modified by taking out indicators with very high squared multiple correlation coefficients (greater than 0.90) which could suggest multicollinearity problem indicators (Guhao, 2019). Two indicators of SM (strategy evaluation) and two indicators of WPE (leisure and centrality of work) have been trimmed down to enhance the goodness of fit indices; leaving intact all indicators of AL and WE.

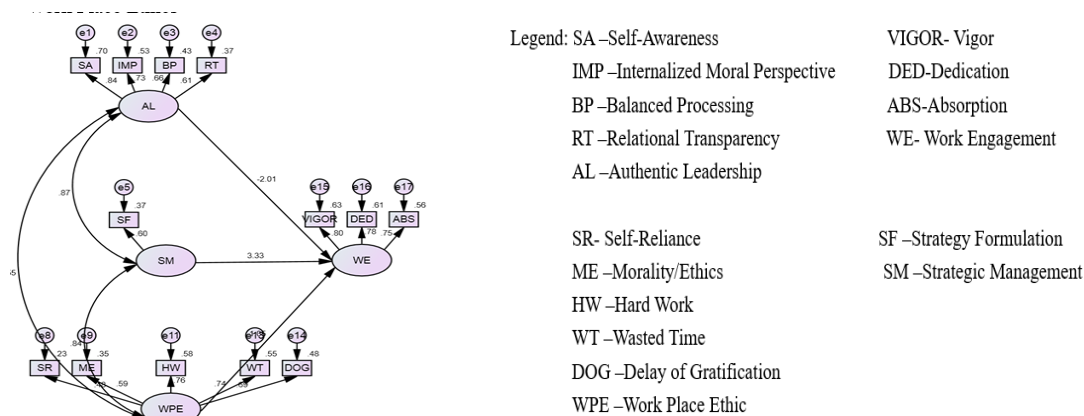


Figure 4. Structural Model 2 in Standardized Solution

Generated Model 3. Still using Kline’s (2011); & Schreiber’s et al., (2006) method, by removing measures or variables from the hypothesized model to boost data fitness. The goodness fit of structural model 3 fitness measures is shown in Table 10. Analyzing the fitness of the generated model 3 shows an improvement in the indices of the different standard parameters for the best fit model.

Of comparative fit, Model 3 passed p-closed increased to 0.625, the CMIN/DF which increased to 1.830, GFI which increased to 0.974, CFI which increased to 0.980, NFI which increased to 0.957, TLI which increased to 0.969 and RMSEA equal to 0.046 in which all

indices passed the criterion. Nonetheless, the P-value index of 0.004 did not comply with the criterion (>.05) and therefore this generated in a poor result. This explains that model tested is not strong enough to pass all parameters, the model should be adjusted and the procedural steps should be followed again (Hasman, 2015).

The generated model 3 exhibited in Figure 5 showed the interrelationship between the exogenous factors: AL, SM and WPE and their immediate causal relationship to the latent endogenous variable, WE. One measure of AL is: internalized moral perspective; two metrics of SM: execution of strategy and assessment strategy as well as four metrics of workplace ethics-leisure, centrality of work, wasted time, and delay of gratification were trimmed down to improve the goodness of fit indices. WE indices remained intact.

Table 10. Goodness of Fit Measures of Structural Model 3

INDEX	CRITERION	MODEL FIT VALUE
P-Close	> 0.05	0.625
CMIN/DF	0 < value < 2	1.830
P-value	> 0.05	0.004
GFI	> 0.95	0.974
CFI	> 0.95	0.980
NFI	> 0.95	0.957
TLI	> 0.95	0.969
RMSEA	< 0.05	0.046

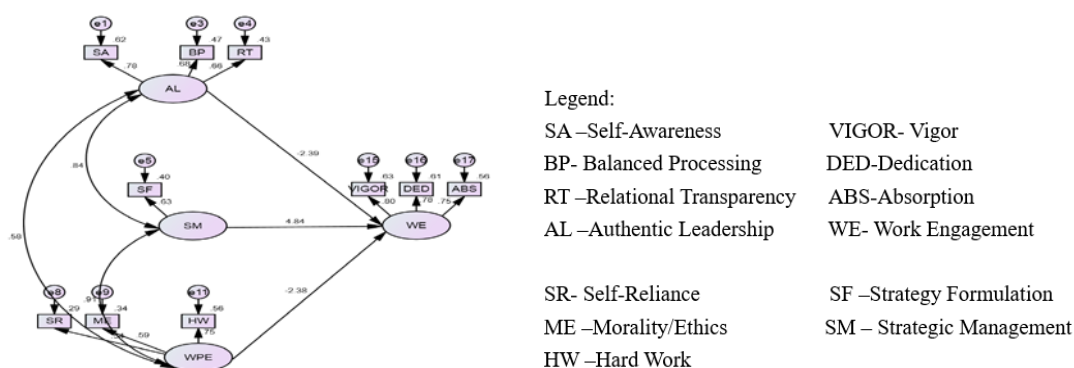


Figure 5. Structural Model 3 in Standardized Solution

The generated model 4 exhibited in Figure 6 showed the immediate impacts of predictor factors on the dependent variable which is the WE. Examination of Model 4 using fitness indicators shown in the Table 11: Chi-Square/Degrees of Freedom (CMIN/DF) equal to 1.32 is within the criterion; Normed Fit Index (NFI) which increased to 0.976; Tucker-Lewis Index (TLI) which increased to 0.988; Comparative Fit Index (CFI) which

increase to 0.994; Goodness of Fit Index (GFI) which increased to 0.988; Root Means Square of Error Approximation (RM SEA) which decreased to 0.029; and P of Close Fit (Pclose) which increased to 0.856. The outcome of the model's fit quality all indexes conformed to the fixed criterion against the fit value of the model acquired.

Finally, generated model 4 (Figure 6) displaying the direct causal link between the exogenous variables AL, SM and WPE and their immediate causal relationship to the latent endogenous variable, WE. The model is a modified version of Model 1, 2 and 3 in which some low-value indicators were removed. Model 4 was discovered to have indices that regularly show a very excellent fit to the information as all the indices shown falls within each criterion. There was therefore no need to find another model for testing because it was already discovered to be the best fit among all the model tested.

The null hypothesis of no best fit model was therefore dismissed. It could be said that there is a best fit model predicting the WE of the agriculture sector employees in Davao region. In defining the best fit model, all included indices must continuously fall within acceptable ranges. Chi-square/ degrees of freedom value should be less than 5 with a

Table 11. *Goodness of Fit Measures of Structural Model 4*

INDEX	CRITERION	MODEL FIT VALUE
P-Close	> 0.05	0.856
CMIN/DF	0 < value < 2	1.342
P-value	> 0.05	0.167
GFI	> 0.95	0.988
CFI	> 0.95	0.994
NFI	> 0.95	0.976
TLI	> 0.95	0.988
RMSEA	< 0.05	0.029

Legend:

CMIN/DF	-	Chi-Square/Degrees of Freedom
NFI	-	Normed Fit Index
TLI	-	Tucker-Lewis Index
CFI	-	Comparative Fit Index
GFI	-	Goodness of Fit Index
RMSEA	-	Root Means Square of Error Approximation
<u>Pclose</u>	-	P of Close Fit
<u>Pvalue</u>	-	Probability value

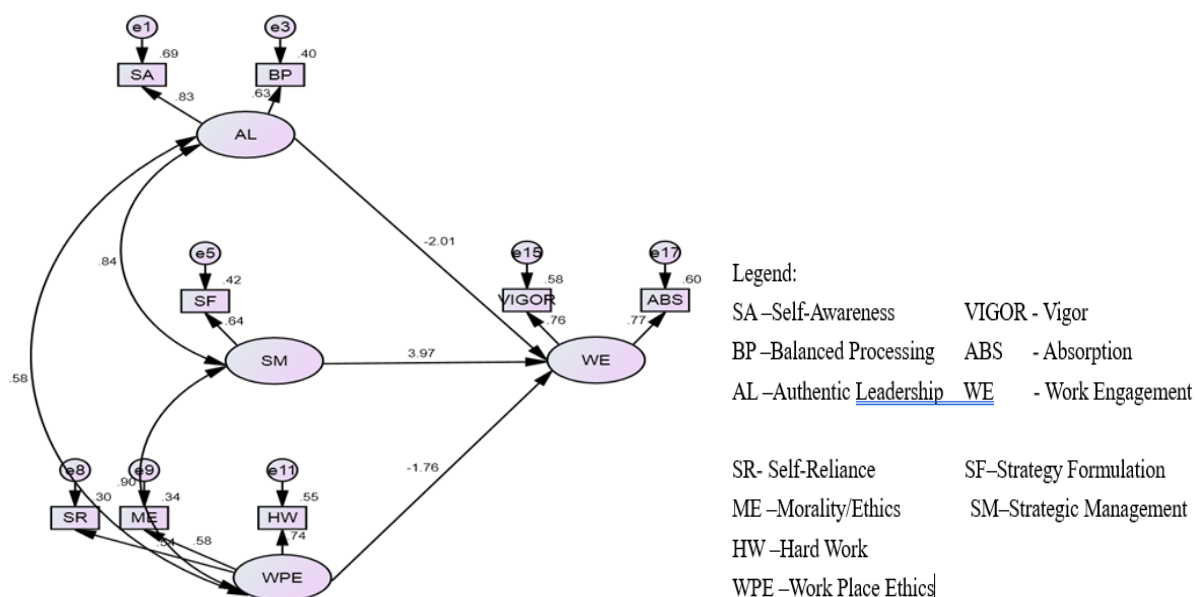


Figure 6. Structural Model 4 in Standardized Solution Best Fit Model

respective p-value greater than 0.05. The root mean approximation value of the square error must be less than 0.05 and its associated Pclose value must be higher than 0.05.

Other indicators such as the standard fit index, the Tucker-Lewis index, the comparative fit index and the fit index must all be higher than 0.90. Model 4 (Figure 6; Table 11) obviously shows the significance of the three exogenous variables such as: AL, SM, and WPE as predictors of WE. Two AL indicators from the best fit model remained out of four indices as a important predictor of WE to wit: self-awareness and balance processing.

For SM, only one out of three indicators was discovered to relate WE, namely: formulating a strategy. Furthermore, only three out of seven indicators were evaluated in WPE, namely: self-reliance, morality/ethics and hard work. Finally, only two out of three indicators were specifically evaluated in terms of WE: vigor_and absorption. Thus, the results indicate, that the involvement of agriculture sector WE in Davao region was best linked to: genuine senior management, measured in terms of self-awareness and balance processing. In the meantime, SM is measured in terms of strategy development, and lastly work place ethics is measured in terms of self-reliance, morality/ethics and hard work.

The best fit model 4 (Figure 6) conveyed that employee WE was principally based on elevated energy and absorption, influenced by self-awareness and balance management of genuine agriculture leadership, and strongly supported by strategic planning, self-reliance, integrity and the hard work of agriculture staff. Structural Model 4, which depicted the direct causal relationship of AL, SM, and WPE to the WE of employees in the agriculture sector, was described as the most fit model.

The four models generated by the study were encapsulated in Table 12. Model 4 is

certainly suited to the WE of agriculture sector employees in Davao region because it has shown significant and practical results that can be translated into tangible work engagement practices.

Table 12. *Summary of Goodness of Fit Measures of the Four Structural Models*

Model	CMIN/DF 0<value>2	P-Value > .05	NFI > .95	TLI > .95	CFI > .95	GFI > .95	RMSEA < .05	P-Clouse > .05
1	3.862	0.000	0.866	0.876	0.896	0.874	0.085	0.000
2	1.881	0.000	0.942	0.963	0.972	0.961	0.047	0.629
3	1.830	0.004	0.957	0.969	0.980	0.974	0.046	0.625
4	1.342	0.167	0.976	0.988	0.994	0.988	0.029	0.856

1.5.9 Best Fit Model that Predicts Work Engagement

Four proposed models were used to determine the interrelationships between genuine leadership, strategic management, and workplace ethics in working with the agriculture sector employees in Davao region.

The measurement model reflects the latent constructs of the measurement loads for each variable, while the structural model defines relationships between the latent variables. In addition, the fit evaluation was used as a basis for the acceptance and rejection of the concept. On the basis of the findings, the model clearly demonstrates the need for AL, SM and WPE as predictors of WE.

Meanwhile, illustrated from the best fit model 4, Figure 6, the rank and file workers' SM and workplace morality also demonstrated a powerful interrelationship with each other with a direct causal relationship to WE.

The model clearly showed the significance of two out of four genuine leadership variables, one out of three SM variables, and three out of seven WPE variables deeply interrelated with one another. These three exogenous variables have a direct causal link to WE. The best fit model showed that the three factors tested stayed intact. The model also showed residuals as represented by common error (Byrne, 2012).

Residuals described in AL, SM, and WPE can also be seen as explorable variables where they are regarded as a reflection of other factors that can substantially influence the WE of agriculture sector workers in Davao region. The workers' best fit causal model of work involvement suggested that the dedication of agriculture workers to work is best anchored in AL, measured in terms of *self-awareness* and *good workmanship*.

Strategic management, measured in terms of *strategy formulation* and workplace ethics, measured in terms of *self-reliance*, *morality/ethics* as well as *hard work*, are then

related to WE. Work engagement was also evaluated in terms of *vigor* and *absorption*. The findings of the study is also parallel to the outcome of the study of Kahn (1990) and Bakker (2017) that described *vigor* as WE measures related to increased concentrations of energy and mental resilience while at work.

The outcomes is also parallel to the research of (Bakker, 2017) that WE peaks when workers are presented with favorable occurrences and exciting job conditions on a daily basis and have access to adequate job resources.

Another WE indicator is *absorption*. As a result, WE in terms of *absorption* has received very high level of measures, which means that it is always observed by agriculture sector employees.

This shows that leaders in the agriculture sector are providing encouragement, gratitude, assistance, open-mindedness and sound guidance to allow employees to perform well. This promulgation is consistent with the work of Bakker (2017) and Griffin, Parker and Neal (2008), which claimed that *absorption* is linked to being fully focused and happily engaged in work, with time moving rapidly. In addition, parallel with the research (Basikin, 2007), *absorption* manifested as an inward focus, while according to Griffin et al., (2008), *absorption* is extremely intense, proudly inspired by their work. For SM, only one out of three observed factors seemed to have a causal link to WE which is strategy formulation.

The findings also connects to the results of the work of Surbhi (2015), the strategy formulation involves the design, the preparation of a well thought-out plan and selection of the best strategy for the achievement of the organizational goals and thus reach the organization's vision

Such values include *hard work*, *self-reliance*, *morality*, and *delayed gratification*. Previous literature pointed out *self-reliance*, specifically to people who did not depend on others to invest in their company but instead used the cash they had earned. Therefore, by sector and frugality, people became increasingly *self-reliant*. On the other hand, the research of Heartfeld (2018) speaks of work ethics for some people who are exceptionally difficult workers and obviously do not have a desirable work ethic. It is hard for them to focus and work.

In fact, another measure of WPE is *morality/ethics*. As a result, the very high level of *morality/ethics* is always practiced by the employees of the agriculture sector. Strengthened by the McKay study (2018), ethics in its easiest definition consists of a system of moral values; behavioral rules followed by a person.

Meanwhile, job values are the subset of one's views and thoughts linked to a particular occupation or job. In accordance with the research of Leonard and Seidel (2019), as quoted by Weber (1958 p.4) in his essay that the foundation of ethics is *hard work*, it thus emerged that employers value workers who understand and are willing to work hard, work

smartly, perform complete tasks efficiently, and save time while completing daily assignments. In addition, the researcher disclosed that employees with a strong work ethic are professionally dressed in clean, pressed clothing, hard-working and courteous to other staff.

The best-fit model of WE, as shown in Figure 6, the findings is consistent with the Social Exchange Theory (SET) of Blau (1964: 94), which affirms that social exchange requires "trusting others" and "personal responsibilities". Hence, findings is parallel to the research of Konovsky and Pugh (2017), widen the connotation of SET as an employee's confidence in a supervisor who mediated procedural fairness of decision-making in any form or variety transactions. In addition, the findings of this work are consistent with the concept of social exchange, which is based on the key assumption that the exchange of social and material properties is a basic type of human interaction.

The findings is parallel to the result of the study of Wang & Hseih (2013); Blau (1964) that SET, as an entity, depends on the relationship between the leader and his subordinate in terms of giving and taking.

Finally, the most appropriate model generated for WE, as shown in Figure 6, is consistent with the idea of reciprocity, which means that genuine leadership and trust can be seen as an exchange between rulers and their subordinates. The findings connects to the outcome of the study of Blau (1964) and Holmes (1981) that recognized trust as an identifying result of favorable social exchanges as well as the foundation of authentic leadership. Trust is one of the pillars on which the author has linked this theory, because trust is the foundation of true leadership.

The outcome of the study connects to the research of Blau (1964) and Holmes (1981), Cropanzano and Mitchell (2005), in consonance to the SET, revealed that engagement develop from a series of interaction between two parties that depend on each other to achieve a goal. The above-mentioned theory was also supported by the study relating genuine leadership on WE (Oh et al., 2018), which postulates the direct and substantial impact of genuine leadership on key values and WE. In addition, key values have been identified as having a partial mediating effect on the connection between AL and WE.

The findings also connects the theory of WE Job demands-resources (JD-R) theory (Basikin, 2007; Bakker et al., 2014) indicated that employment and personal resources are the most significant predictors of engagement, and these resources become employee motivational strategies when faced with high job requirements. The findings of the study connects this theory because it links to a strategic combination of job characteristics and personal resources that predicts job performance of the staff WE. According to the JDR Model (Bakker, 2017), WE is a function of the organization's job requirements and resources.

This theory is also supported by the findings of the study of Ferry (2018) that SM proposal, coincides with WE. It revealed that an organization's makeover must generate

internal alignment between its structure, its people, and its strategy towards its goals. The real change is about the individual. It needs all staff to realize what a new approach means to them.

The findings is parallel to the study of Mitonga-Monga and Cilliers (2015), referring to WE ethics at the workplace, suggested that the philosophy of work ethics in the workplace had a significant positive effect on WE. In addition, the findings suggested that WPE, culture, through the mediation of perceived ethical management, had a significant beneficial impact on the intensity, dedication and absorption of WE aspects. This findings correlates the study of Czew and Grabowski (2015) that link between work ethics as a predictor of WE. It has shown that WE has turned out to be the psychological characteristics of the subject, the unique role of seeing work as a key value, as well as the region of motivating the workers of the organization.

Although several studies have provided empirical support for the notion that a high level of organizational ethics is positively related to different individual psychological outcomes, such as work engagement (Huhtala, Tolvanen, Muano, & Feldt, 2015; Mitonga-Monga & Cilliers, 2015).

At the same time, the results of this study also supports the work of Konovsky and Pugh (2017) which emphasized SET as a worker's trust in the manager. It is clear that senior officials in the agriculture sector have gained strong confidence and trust from their followers, as demonstrated by the results of this research. The first study is related to the theory of authentic leadership-a link between the commitment of employees and the matching of creativity (Mubarak & Noor, 2018).

1.6 Conclusion

The resulting conclusions are considered from the findings of the study. There is a high level of AL among the senior officials of the agriculture sector. Similarly, the level of SM and WPE of the staff is also high. However, the level of WE of the agriculture sector employees is very high. Meanwhile, the assessment of AL, SM and WPE has a significant relationship and impact on the WE of the agriculture employees.

The Structural Model 4 is the best fit model that predicts WE of the agriculture sector employees in Davao region. The WE of the agriculture sector employees with two of the original three sub-constructs, vigor and absorption, is ideally rooted in strong evidence of AL, backed by its two indices of self-awareness and balance processing, SM with one specific sub-construct, strategy formulation and WPE with three specific sub-constructs, self-reliance, morality ethics and hard work.

The results of this study supports the proposition of the findings undertaken by Oh et al. (2018) that correlates AL on WE. According to Stigter and Cooper (2015); and

Mitonga-Monga and Ceillier's (2015) that the theoretical impact of linking SM with employee performance through WE revealed workplace ethics had a significant positive impact on WE. The best fit model generated has reduced its measures in the latent exogenous and dependent variable as shown in Figure 6 of this study.

Finally, this particular research study will provide mechanism/solution model to the management to improve existing system practices and procedures in the concerned area of study.

1.7 Recommendation

In the light of the abovementioned findings and conclusion, the succeeding recommendations are suggested. The level of AL, SM and WPE ratings of staff in the agriculture sector must be raised from high to very high level. This can be accomplished by improving leadership deficiencies through continuing education and interest reorientation program, which may be initiated by the state (Guhao, 2019) agriculture officials; leadership programs designed to fill knowledge gaps and address the needs of employees; encouraging employees to grow professionally to enroll graduate and post graduate studies; provision of materials, facilities, and equipment useful in carrying out their job; and ensuring pleasant-sounding relationship among staffs and superiors guided by the core values of the organization.

Employees may choose and implement strategic approaches that further develop the workers' initiative to address challenges facing the organization, adapt technologies that are appropriate to current trends, and provide resources to support the implementation of strategic personnel measures and the periodic review of strategic initiatives to track efficacy and relevance. Staffs may also attend training and seminar workshops that enrich and enhance their engagement based on the constructs of SM and occupational ethics of the best fit model.

Employees may take part in physical fitness leisure activities to enhance wellness through inter-departmental leagues and festivals. The best fit model that demonstrates AL, SM and WPE serves as a strong predictor of WE. This may have been adapted as a simple guide for agriculture workers.

The significant relationships between the three factors: AL, SM and WPE demonstrate that these variables can be exploited by agriculture employees, because the higher the level of these factors leads to a very high level of WE.

In line with this, it is recommended to enhance WE among employee to link gaps and increase productivity in the organization as well as in the entire agriculture community. Recommended for further research another related studies that, from an extensive geographical perspective, test other predictor variables not covered by the current research.

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