Impact of Application of Law No 16/2006 About Fisheries and Forestry Agricultural Extension System toward to Performance of Agricultural Extension Workers

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Abstract

This study aims to analyze the relationship of knowledge, attitudes, skills, and characteristics with the motivation and performance of agricultural extension workers after implementing Law No. 16 of 2006. The research location was determined purposively. Sampling uses the stratified quota method. The data collection method is direct and in-depth interviews, observation and documentation. The results of the study showed that the average motivation and performance of agricultural extension workers were in the medium category. Knowledge, attitudes, characteristics, and skills of agricultural extension workers in Tabanan Regency proved to have a significant positive effect on instructor motivation and performance. Knowledge, attitudes, and skills of agricultural extension workers in Gianyar Regency proved to have a real positive effect on motivation and performance. The motivation and performance of extension agents in Gianyar and Tabanan Districts are mostly in the moderate category. The motivation of agricultural instructors in Tabanan has a very significant positive effect on the performance of extension agents, while the motivation of agricultural extension agents in Gianyar Regency has a significantly positive relationship to performance.

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1. Introduction

Since Law number 16, the year of 2006 published on the 15th November 2006 (furthermore it called SP3K regulation) where it brings a new extension history in Indonesia. It is much expected by many people who involve in agricultural, fisheries and extension widely.

In the law of the R, I number 16 about the SP3K 2006 is said that agricultural extension system is all development of capability, knowledge, skills, and attitudes of agriculture player through extension. The agricultural extension is a process of study for the players of the agriculture activity with an expectation they want and capable to help and organized their selves to access market information, financial, technology, and other resources as an effort to increase productivity, efficiency, revenue, prosperity and to develop consciousness of environmental functions of live. The implementation of Law regency autonomy after 1999 was unchanged by governments of the province or city. It is clear how important the extension and how it must be implemented within various different attitudes (Puger *et al.*, 2019; Suryani *et al.*, 2018).

Tabanan Regency has selected as the place of the research base on the consideration that Tabanan Regency was the only one regency conducted agricultural extension system base on the SP3K regulation. Even though, its implementation still finds some problems, for examples are extension budget, tools availability, and extension performance. Those are the main problems of the agriculture extension performance.

Apparently, Tabanan Regency is better in case of implementation of the cultural extension (because it really implements the SP3K regulation, professional, more human resources and higher agriculture potential) than Gianyar Regency relatively. Base on the explanation above, writer inspired to do research about motivation and performance of the extension worker after implementation of the SP3K at Gianyar Regency, the center of tourism, while Tabanan Regency has wider agriculture center.

2. Materials and Methods

Research Design

This research was a survey which explained relationship research variables that affect knowledge, skills, motivation, attitude and individual character toward agriculture performance that matching to the SP3K Regulation No. 16/2006. The re-research was conducted by comparison between the Tabanan Regency that already implemented the SP3K Regulation No. 16/2006 and no implemented it yet (Gianyar).

Research Location and Time

The research was conducted at Gianyar and Tabanan Regencies. Its location was determined with the method of purposive sampling based on certain consideration (Hadi, 1998) as follows:

- 1) Tabanan Regency already implemented the SP3K No. 16/2006 relatively on extension program as a guideline of extension implementation.
- 2) Gianyar Regency actually is ready to implement the SP3K No.16/2006 but, up to now it's not yet realized due to some problems of budget so that it can be categorized that Gianyar Regency was not implemented it accordingly.
- 3) The comparison above was conducted to see the regency that already implemented the SP3K No.16/2006 (Tabanan) and other (Gianyar) who no implemented it yet. Both locations were selected due to the places close to each other and easy to do observation. The locations were assumed as the representative over all of Bali where Tabanan in the west and Gianyar in the east.

Research Sample

Respondent for agriculture extension worker was determined with quota sampling technics at both regencies. The stratified quota was held where the same respondents were taken from each stratum and regency.

Some samples were determined quota due to the high homogeneity of the population (Table 1.1). Besides that, [Sugiono \(2012\)](#); [Lein & Setiawina, 2018](#), said that some samples of explanatory or social research are determined at least 10 % of its population. In this case, the determination of respondent of each government of Tabanan and Gianyar was 35 person but, they were only 21 from the private sector of each regency. So, total respondents observed were 112 people.

Table 1
Population sample determination

No	Agriculture worker	Population (person)		Sample (person)	
		Tabanan	Gianyar	Tabanan	Gianyar
1	Government sector	146	69	35	35
2	Private sector	32	21	21	21
Sum		178	90	56	56

Source: Agriculture and Food Vegetations Department of Bali (2016)

Type, Souce and Data Collection

Primary data is data that direct collect from the respondent, while more second is collected from notes or deportations of the [Department of Agriculture and Food Vegetations of Bali Province \(2016\)](#) or other resources which are trusted. Extension workers as the respondent of the research were the primary data. It consists of quantitative and qualitative where the qualitative data are not numerical but, it numerically with scoring technics. The secondary data of the research was obtained from the linked department i.e. the Department of Agriculture and Food Vegetation, Statistic Center Department of Bali Province, and other supporters which link to the research.

Variable Measurement

Knowledge variable (X1), attitude (X2), skills (X3), individual character (X4), motivation (Y1) and performance (Y2) were tabulated and measured of all indicators of the research variable with five scales (1, 2, 3, 4 and 5). Variables scored were classified into five categories i.e. very high, high, medium, low and very low or very good, good, medium, bad, very bad. For positive statement, very high response and very good were scored 5, while very bad and very low responses were scored 1. On the other way around, for the negative statement that very low and bad response were scored 5 but, for very high and very good responses were scored 1 ([Singarimbun & Effendi, 2006](#)).

Data Analysis

Accumulated data were tabulated base on each category and analyzed statistically. Analysis techniques used in the research was Structural Equation Modeling (SEM) base on variance or component base the SEM called Partial Least Square (PLS) visual version 1.04bl. stated that the PLS is powerful analysis method because it is not based on how many assumptions they are and have no multivariate normal distribution (indicator with the scale of category, ordinate, interval up to ratio can be used on the same model), and need no much sample. The PLS can analyze and construct which were formed by reflective and formative indicators.

3. Results and Discussions

Descriptive evaluation

The research results showed that the average score of knowledge respondent overall agricultural extension was 3.62. There was 48.21 % of Tabanan extension workers had high knowledge that links to the working program and the research method self, while at Gianyar Regency most of them (41.07 %) were at medium category. Knowledge of extension workers at Tabanan was higher statistically than at Gianyar but, on average their knowledge was in high category (3.62).

Table 2
Respondent distribution base on the research variable

Variable	Scor on average	Variable category	Tabanan extension worker		Gianyar extension worker	
			Sum (person)	Percentage (%)	Sum (person)	Percentage (person)
Knowlwdge	3,62	High	27	48.21	23	41.07
Attitude	3,60	High	25	44.64	26	46.43
Skill	3,80	High	22	39.29	24	42.86
Motivation	3,30	Medium	30	53.57	32	57.14
Performance	3,20	Medium	25	44.64	28	50.00

Information:

* Score
 1.0-1.8 : Very low/very bad
 >1.8-2.6 : Low/Bad
 >2.6-3.4 : Medium
 >3.4-4.2 : Good
 >4.2-5.0 : Very high/Very good

**Respondent percentage (Total of respondents = 112 person)

Average score respondent attitude was 3.60 or positive attitude category. There were 44.64 % of Tabanan and 46.43% of Gianyar respondents had that category. This was due to the respondent's attitude which already trusted in services given to farmers that collaborated with their orientation and enthusiasm in giving solution on problems they faced.

The research results score on average for the motivation of respondent was 3.30 (medium category). Most of the respondents (53.57 % from Tabanan and 57.14 % from Gianyar) had high enough motivation. Most of them also motivated by their need and expectation in extension service. High motivation of them due to spirit to reach what they need by doing what they do now. According to [Hasibuan \(1995\)](#), motivation is a movement power which creates passionate work to stimulate people to want to work together, effective and integrated with all effort to reach an ambition.

A respondent from Tabanan had high skills (42.86 %) but, Gianyar only 30.26 %. Most of the respondents (39.29%) from Gianyar had good enough skills in service as extension workers. From prior knowledge variable point of view, respondent knowledge of Tabanan Regency was also higher than that of Gianyar.

Average score knowledge of Tabanan Regency was 3.20 and most of the respondents 44.64 % (Tabanan Regency) and 50.00 % (Kabupaten Gianyar) implemented a work program good enough and resulted in output clearly. This showed that agriculture extension workers base on the personal character which needs to be increased to produce better extension workers. Performance of extension workers with very good interaction between extension worker and farmers are diligent, discipline, hard work, creative, high extension frequency, good extension materials, and good extension program. Medium performance category is responsible, innovation and model.

Most of the extension workers (53.57 %) on the age between 35 –50 years old and no older than 65 years old. In general, the research results showed that the extension workers were 47.50 years old and this showed their age on productive category. Sample formal education level of the extension workers was 100 % scholar

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people (Strata 1) and they follow training more than 3 times. The training is needed to increase technical and non technical services and management. Their work was good enough due to their time service was long enough (6.2 years on average).

Evaluation of Measurement Model

The measurement model was evaluated with convergent validity, discrimination and association reality of each indicator and variable. Evaluation results of convergent validity and all indicators are valid if its value is higher than 0.50 with t calculate is higher than 1.96 (Table 3).

Table 3
Loading factor of indicator of the research variable

No	Variable	Indicator/Item	Value	t- calculate
1	Knowledge (X1)	Know about extension basic principle	0,753	16,452
		To know extension method	0,807	26,249
		Know extension design	0,787	21,262
		Know the implementation of extension	0,830	24,524
2	Attitude (X2)	Attitude on going extension	0,871	38,597
		Attitude in understanding extension method	0,901	57,679
		Attitude about extension design	0,829	20,971
		Attitude on extension application	0,787	21,262
3	Skills (X3)	Extension capability	0,828	24,261
		Extension method skills	0,804	25,781
		Extension design skills	0,841	28,123
4	Characteristic (X4)	Age	0,862	26,557
		Education	0,889	34,459
		Training	0,706	9,225
		Time service	0,881	21,461
5	Motivasi (Y1)	Needs	0,862	26,557
		Expextation	0,889	34,459
		Push	0,706	9,225
6	Work (Y2)	Deligent	0,831	15,385
		Discipline	0,881	21,461
		Incharge	0,725	36,597
		Innovation	0,888	52,679
		Creative	0,823	24,971
		Model	0,710	55,262
		Extension working plan	0,693	21,261
		Mecanism and working method	0,721	24,781
		Extension material	0,921	27,123

The research variable AVE value was above 0.50. It means all variability which happened on the research indicators could be explained more than 50 % with latent on reliability because of measurement mistake (Table 4).

Table 4
AVE value and its comparison with variable correlation

No	Research Variable	AVE Value
1	Knowledge (X1)	0,732
2	Attitude (X2)	0,652
3	Skills (X3)	0,538

4	Characteristic (X4)	0,780
5	Motivation (Y1)	0,553
6	Performance of extension worker	0,751

Square root value of average variance extracted latent variable is bigger than another latent variable correlation coefficient. This indicates that six latent variables have good discrimination validity.

Table 5
Reliability composite value and latent variable cronbach's alfa

No	Latent variable	Composite Reliability	Cronbach's Alpha
1	Knowledge	0,773	0,705
2	Attitude (X2)	0,801	0,736
3	Skills (X3)	0,852	0,863
4	Characteristic (X4)	0,841	0,636
5	Motivation (Y1)	0,799	0,747
6	Performance (Y2)	0,859	0,924

The research results in Table 5 showed that all indicator block were capable to measure the research variable. All indicators are consistent in the measurement of attitude, motivation, perception, social interaction, decision, and success of effort over 70%.

Structural Model Evaluation

The structural model was evaluated with pay attention on Q^2 predictive relevance model that measures how good observation value was resulted by the Q^2 model base on determination coefficient of all Q^2 dependent variable which had value for $0 < Q^2 < 1$, the closer the value 1, the better structural model of the research. To know more complete. About evaluation results of the goodness of fit model it can be seen in Table 6 as follows:

Table 6
Composite reliability value and latent variable Cronbach's alfa

No	Latent variable	R^2	Q^2
1	Motivation (Y1)	0,754	0,786
2	Performance of extension worker (Y2)	0,690	

Information: $Q^2 = 1 - (1 - R_1^2) (1 - R_2^2) = 0,786$

Hypothesis Test

Hypothesis test was conducted with *bootstrapping* to see t - calculated value and tract coefficient value on each tract that affects directly partially. Hypothesis test was conducted with t-test on each direct effect tract partially. Test results of tract coefficient validation on each track of direct effect can be seen in Table 7.

Table 7
Evaluation result of tract coefficient validation partialy (t-test)

Correlation among variable	Tabanan Regency		Gianyar Regency	
	Tract coefficient	T-Statistics	Tract coefficient	T-Statistics
Knowledge → Motivation	0,492	3,169 ^{hs}	0,292	1,969 ^s
Attitude → Motivation	0,295	2,062 ^s	0,277	1,982 ^s

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Skills → Motivation	0,447	3,001 ^{hs}	0,307	2,101 ^s
Characteristic → Motivation	0,226	2,094 ^s	0,126	1,894 ^{ns}
Knowledge → Performance of extension worker	0,331	2,803 ^{hs}	0,239	2,103 ^s
Attitude → Performance of extension worker	0,325	3,062 ^{hs}	0,375	3,215 ^{hs}
Skills → Performance of extension worker	0,437	3,201 ^{hs}	0,204	1,965 ^s
Characteristic → Work of extension worker	0,026	1,194 ^{ns}	0,016	1,049 ^{ns}
Motivation → Performance of extension worker	0,373	2,900 ^{hs}	0,299	1,990 ^s

Information: hs = highly significant ($P < 0.01$)

s = significant ($P < 0.05$)

ns = non significant ($P > 0.05$)

From the formula model and results of tract coefficient validation on each track to direct effect in Table 7 above can be determined the results of the hypothesis test as follows. Knowledge of Tabanan respondent (X1) affect positive, highly significant ($P < 0.01$) on motivation and work of extension workers. This result showed positive tract value t-calculated 3.169 and 2.803 (t- calculated = 2.560). But, knowledge level on Gianyar respondent only significant effect ($P < 0.05$) on motivation and performance of extension workers, so the hypothesis of respondents knowledge affects positive significantly to the motivation and performance of extension worker and it could be accepted.

Tabanan respondent attitude (X2) positive significant effect ($P < 0.01$) on motivation and work of extension worker, but the attitude of Gianyar respondent only affect significant ($P < 0.05$) on motivation and performance of extension worker. Those were showed by tract coefficient with a positive value, t – calculated > 1.960 , so the hypothesis of respondent attitude affects positive significantly on motivation and work of extension worker could be accepted. Skills of Tabanan Regency respondent (X1) affect highly positive ($P < 0.01$) on motivation and performance of extension worker. It was shown on tract coefficient that positive value 0.447 and 0.437 with t-calculated 3.001 and 3.201 (t – calculated > 2.560), while at Gianyar Regency it skills only significant effect on motivation ($P < 0.05$), but work of extension worker affect positive highly significant ($P < 0.05$).

Characteristic of Tabanan respondent (X1) affect positive significant ($P < 0.05$) toward motivation and no effect ($P > 0.05$) toward the performance of extension but, at Gianyar Regency, it results showed no significant effect on motivation and performance ($P > 0.05$). These results were shown by tract coefficient positive value 0.226 with t- calculated 2.094 (t – calculated > 1.960), so Tabanan respondent characteristic affect significant positive toward motivation could be accepted, while on it performance could not be proved and hypothesis of Gianyar Regency respondent was rejected.

Tabanan respondent motivation (Y1) proved highly significant positive affect ($P < 0.01$) toward the work of extension worker and at Gianyar Regency showed significant ($P < 0.05$). These results were shown on tract coefficient positive value with t – value $> t$ -table (t – calculated > 1.960 and 2.560), so respondent motivation hypothesis significant positive affect toward work of extension worker and could be accepted.

Knowledge had a significant positive correlation with the performance of agriculture extension worker that may cause of many training were followed by agriculture extension workers such as agriculture extension basic training, artificial insemination, meat cattle estate, forage preservation of animal feed and village agribusiness effort. Correlation of significant positive attitude toward motivation and work of extension worker means the hypothesis of the research was accepted. This can be understood that the positive attitude of agriculture extension performance could support the work of them in order to develop agriculture and animal farms. Positive attitude form of agriculture extension worker's at Tabanan and Gianyar Regencies are an honest attitude on service of extension worker and always provide time for farmers to develop agriculture business. High skills of agriculture extension worker were also supported by talented used of extension tools on agribusiness animal farm for example whiteboard, poster and pamphlet.

High motivation of agriculture extension worker's was supported also by an interpersonal good relationship with senior and sesame members. Result of F test in Table 5. 16 showed that knowledge variable, attitude, skills, and individual characteristic affect highly significant ($P < 0.01$) simultaneously toward motivation and performance of extension worker (t – calculated > 3.180) and determination coefficient value (R^2) 0.754 and 0.690 respectively. So that, the result gave information altogether about motivation and

performance of extension worker were determined by a variable of 75.40 % and 69.60 %. The higher the attitude knowledge level, skills, and individual character, the higher of motivation and performance of them.

Table 8
Results of tract coefficient evaluation simultaneously (F – test)

No	Predictor variable	Creterion variable	R ²	F
(1)	Knowledge, Attitude, Skills and Characteristic	Motivation	0,754	74,925 ^{hs}
(2)	Knowledge, Attitude, Skills and Characteristic	Performance of extension worker	0,690	53,456 ^{hs}
(3)	Knowledge, Attitude, Skills and Characteristic and Motivation	Work of extension worker	0,720	45,133 ^{hs}

Information: hs = highly significant

4. Conclusion

Average motivation and performance of agriculture extension worker was medium category after the SP3K No. 16/2006. was implemented in Bali Province. Knowledge and skills agriculture extension worker at Tabanan Regency affects highly significant toward extension motivation of the extension worker while attitude and characteristic only significant positive affect toward motivation. Knowledge, attitude, skills agriculture extension worker at Tabanan Regency proved positive highly significant effect toward their work but, there was no correlation on the individual characteristic. Knowledge, attitude, and skills of agriculture extension worker at Gianyar proved positive affect toward motivation, while their characteristic no effect toward motivation. Knowledge and skills agriculture extension worker at Gianyar Regency proved positive significant effect toward performance and attitude positive correlated really toward the extension worker. But, there was no correlation individual characteristic toward the performance of the extension worker.

Most of motivation and performance of extension worker of Gianyar and Tabanan Regencies positive highly significant effect toward extension worker. But, agriculture extension worker of Gianyar Regency real positive correlation to word performance.

Suggestions

For agriculture extension workers are needed to increase their performance particularly in the field of extension and human resources competency through better extension technics i.e. properly application of extension material which is needed, so that knowledge and skills increase gradually.

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