

Explanatory Factors for Benefits and Reasons for Undertaking Professional Development Activities by Senior Secondary School Agriculture Teachers in Swaziland

Madonsela Thabisile¹
Swazi National High School

Barnabas M. Dlamini²
University of Swaziland



Abstract

A descriptive correlational research was designed to identify factors explaining benefits and reasons for undertaking professional development activities by senior secondary school agriculture teachers. Desk review and a modified Delphi technique were used to generate items used in a survey questionnaire for data collection. From the target population (N=134), a representative sample of agriculture teachers (n=103) was drawn for the study. Findings revealed that senior secondary school agriculture teachers benefitted from undertaking professional development activities. Variables that explained benefits and reasons for undertaking professional development activities were personal reasons, curriculum related changes, societal related changes and school location. The conclusions drawn from the findings of the study were that, for senior secondary school agriculture teachers, the most important motivating factor for undertaking professional development activities was competence related reasons and they benefitted intrinsically from undertaking professional development activities. Teachers who undertake professional development activities should be given accelerated promotion and access to qualification upgrading opportunities.

Key words: Professional development, senior secondary school agriculture teacher, benefits of professional development, competence.

Introduction

Professional development is defined as efforts to improve teachers' capacity to function as effective professionals by having them learn new knowledge, attitudes and skills (Broad and Evans, 2006). Agriculture is the mainstay of the economic growth and development of many countries, therefore a need is apparent to

develop the agriculture professionals with the necessary skills and knowledge in agriculture.

Theoretical/Conceptual Framework

There are a number of factors that influence the reasons for undertaking professional development activities. The factors include personal reasons (Anangisye, undated), competence (Nzuza, 1989), educational policy (Anangisye, undated), curriculum changes (Schieb and Karabenick, 2011), financial factors (Chiadiaka and Awili, undated), global competitiveness (Brown et al., 2008), peers, family and significant others (Salzer, 2002), technological advancements (Ozioko and Mwabueze, 2011), societal changes (Moeini, 2008) and, background and demographic variables (Lagfield and Dobbins, 2003).

The specific objectives of the study were to:

1. Describe the benefits derived by senior secondary school agriculture teachers from undertaking professional development activities.
2. Describe reasons for undertaking professional development activities by senior secondary school agriculture teachers in terms of personal, curriculum changes, educational policy, global competitiveness, societal changes, financial, technological advancements, family, peers and significant others and, competence related reasons.

Methodology

The design of the study was descriptive correlational. A triangulation of desk review, a modified Delphi technique and a survey questionnaire were used for data collection. Descriptive correlational design is a design that seeks to establish the relationships amongst the variables. A desk review research is collecting data from existing resources (Management Study Guide, 2013). Delphi technique is used for achieving conver-

¹Email: mthabsile12@gmail.com

²Email: dean@uniswa.sz

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gence of experts' opinion experts within a certain topic area. Finally, a survey questionnaire is a data collecting tool whereby respondents are required to fill closed or open ended questions in a survey (Jurs, 2005).

The outcomes of the desk review and the modified Delphi technique were used to develop the survey instrument, which determined the reasons for undertaking professional development activities by senior secondary school agriculture teachers in Swaziland.

The target population for the study was all senior secondary school agriculture teachers in Swaziland (N=134) from which a sample (n=103) was drawn. Frame error was controlled by obtaining an up to date list from the agriculture senior inspector's office. The list was purged to avoid duplication of names, thus controlling selection error. The instrument was validated through the Delphi process. *Post hoc* reliability coefficients were found to range between 0.83 and 0.95 for the questionnaire domains.

A questionnaire was used to collect data, following guidelines by Dillman (1978). The questionnaire was divided into four parts. Part I assessed the dependent variable - benefits and reasons for undertaking professional development activities. Respondents were asked to indicate their level of agreement on identified benefits and reasons for undertaking professional development activities. The following rating scale was used in rating the questionnaire items: 1= strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, 6 = strongly agree.

Part II contained the items relating to the major independent variable, personal reasons. The respondents were asked to indicate their perceived level of agreement on how personal factors influence their undertaking professional development activities. The following rating scale was used in rating the items: 1= strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, 6 = strongly agree.

Part III consisted of rival independent variables, curriculum changes, educational policy, global competitiveness, societal changes, financial reasons, technological advancements, family, peers and significant others and competence. The respondents were asked to indicate their level of agreement regarding with the rival independent variables. The following rating scale was used: 1= strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, 6 = strongly agree. Part IV consisted of the background and demographic variables and respondents were asked to circle their choice or fill the requested information.

Self-administered questionnaires were used to collect data and the questionnaires were hand delivered to sample senior secondary school agriculture teachers in their respective schools. Teachers were given a week to fill the questionnaires. Regarding the senior secondary school agriculture teachers, the non- response error was not a threat to external validity, since all questionnaires were answered, returned and usable.

The Statistical Package for Social Sciences (SPSS) version 20 for windows was used to compute data. The data were analyzed using descriptive statistics, t-test, ANOVA, correlations and stepwise multiple regression as guided by the objectives. An *a priori* probability level of 0.05 was established to determine the level of statistical significance.

Findings

Results were summarized in terms of the following: benefits and reasons for undertaking professional development activities, reasons for undertaking professional development activities, background and demographic variables of respondents, relationship among dependent and independent variables and, predictors for benefits and reasons for undertaking professional development.

Benefits and Reasons for Undertaking Professional Development Activities

Table 1 indicates that the senior secondary school agriculture teachers agreed that they derived benefits from undertaking professional development activities (M=4.66, SD=1.14).

Item	M	SD
Teach effectively	5.25	1.05
Keep useful records	4.69	1.17
Progress in my career	5.20	1.02
Improve my work performance on the job	5.32	1.00
Acquire more knowledge	5.25	1.02
Build my current behaviors	4.39	1.15
Build my competences	5.08	.91
Enhance my behavior	4.37	1.17
Enhance my competence	5.06	.93
Enhance my Skills	5.14	.89
Prepare my lesson plans competently	4.39	1.32
Prepare my students for external examinations	4.62	1.19
Prepare my students for internal examinations	4.42	1.21
Conduct in-service training for other teachers	3.96	1.36
Work with the community	3.94	1.36
Understand the community	4.01	1.25
Understand more about the environment in which i work	4.59	1.06
Plan	4.16	1.21
Reflect	4.50	1.08
Have a positive working relationship with my co-workers	4.70	1.27
Understand research	4.80	1.17
Consume research	4.37	1.43
Do independent reading	4.55	1.35
Assist a colleague	4.52	1.22
Assist students improve their learning	5.06	1.03
Assist other teachers to become effective	4.61	1.09
Plan for success	4.93	1.03
Overall	4.66	1.14

Rating Scale: 1 = strongly disagree; 2 = disagree; 3 = slightly disagree; 4 = slightly agree; 5 = agree; 6 = strongly agree

Reasons for Undertaking Professional Development Activities

Table 2 provides the level of agreement with the benefits and reasons for undertaking professional development activities using means and standard deviations. Senior secondary school agriculture teachers were in agreement with the benefits and reasons for undertaking professional development activities.

Description of Respondents by their Background and Demographic Variables

Table 3 indicates that about three quarters of the respondents were male. The mean age was 35 years. About 60% of the respondents received recognition due to professional development activities.

Differences in Benefits and Reasons for Undertaking Professional Development Activities

A significant difference in showed benefits and reasons for undertaking professional development activities by location of school. Obtained P value of 0.03 was lower than the priori set alpha level of P=0.05. Thus, teachers from urban schools derived more benefits from undertaking professional development activities compared to teachers from rural schools at an effect size of d=0.07 indicating a difference of little practical importance.

Table 2. Reasons for undertaking professional development activities by senior secondary school agriculture teachers in Swaziland (N=103)

Domain	Agriculture teachers		
	M	SD	Rank
Reason for undertaking professional development is for:			
Competence related reasons	5.14	.72	1
Societal related reasons	5.04	.88	2
Technological related advancements	4.96	1.04	3
Global competitiveness	4.94	.74	4
Curriculum related change	4.75	.91	5
Personal reasons (intrinsic)	4.73	.73	6
Family, peers and significant others	4.68	.95	7
Educational policy	4.49	.99	8
Financial related reasons	4.27	1.17	9
Overall	4.77	.90	

Rating scale: 1= strongly disagree; 2=disagree; 3=slightly disagree; 4= slightly agree, 5 = agree; 6=strongly agree

Table 4. ANOVA table for differences in perceptions of ratings by geographical region regarding benefits and reasons for undertaking professional development activities

	N	M	SD	Statistics	P
Shiselweni	18	4.56	.40	F = .86	.46
Lubombo	21	4.83	.70		
Manzini	36	4.70	.55		
Hhohho	28	4.54	.96		
Total	103	4.66	.69		

P<.05

Table 3. Background and demographic variables of respondents

Characteristics of respondents	Agriculture teachers N=103	
	f	%
Sex		
Female	29	28.2
Male	74	71.8
Age		
23-30	30	29.1
31-40	48	46.6
41-50	19	18.4
51 and above		
M	35.36	
SD	7.59	
Number of professional development programmes attended in the past		
0	18	17.5
1	16	15.5
2	23	22.3
3	15	14.6
4	9	8.7
5 and above	22	21.4
M	3.36	
SD	3.13	
Highest level of education		
Diploma	9	8.7
Bachelor's Degree	84	81.6
Master's Degree	10	9.7
PhD	0.00	0.00
Median	2.00	
Mode	2.00	
Location of school		
Urban	40	38.7
Rural	63	61.2
Distance from school (km)		
Less than 1	28	27.2
1-10	47	45.6
11-20	10	9.7
25-40	9	8.8
41 and above	9	8.9
M	11.15	
SD	19.97	
Marital status		
Single	32	31.1
Married	71	68.9
Teaching experience		
Less than 1	1	1
1-2	12	11.6
3-5	26	25.3
6-10	27	26.2
More than 10 years	37	36
M	10.21	
SD	7.66	
Number of years in current position		
Less than 1	4.00	3.9
1-2	22	21.4
3-5	27	26.3
6-10	22	21.4
More than 10 years	28	27.4
M	8.45	
SD	7.27	
Number of years before promotion		
Not applicable	51	49.5
Less than 1	7	6.8
1-2	4	3.9
3-5	5	4.9
6-10	18	17.4
More than 10 years	18	17.4
M	9.15	
SD	7.82	
Number of development programmes involved in		
None	46	44.7
1-2	44	42.7
3-4	11	10.7
More than 4	2.00	1.9
M	1.60	
SD	1.52	
Recognition due to professional development		
No	41	39.8
Yes	62	60.2

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Table 5. Differences in benefits and reasons for undertaking professional development activities by selected background and demographic variables

Independent variables	N	M	SD	t-value	P	D
Sex						
Female	30	4.78	.62	1.11	.27	
Male	73	4.62	.72			
Location of school						
Urban	40	4.85	.71	2.19	.03	.07
Rural	63	4.54	.66			
Marital status						
Single	33	4.52	.70	-1.41	.16	
Married	70	4.73	.69			
Recognition received						
No	41	4.74	.66	.85	.39	
Yes	62	4.62	.72			

P<.05 Means are significantly different. Cohen's descriptors d=small effect size, d≤0.49; medium effect sizes, d=0.50-0.79; large effect sizes, d≥.80.

Relationships Amongst Variables

Table 6 summarizes the relationship amongst variables. A high correlation was observed between the dependent variable, benefits and reasons for undertaking professional development activities and the major independent variable personal reasons for undertaking professional development activities ($r=0.74$).

Explanatory and Predictor Variables for Benefits and Reasons for Undertaking Professional Development Activities

Table 7 shows the results of Stepwise regression which was used to determine the variables that contributed to the explanation of benefits and reasons for undertaking professional development activities. Multiple regression require that the number of cases substantially exceeds the number of predictor variables used in the regression. The absolute minimum is to have 5:1 as many cases as predictor variables and an acceptable ratio is 10:1 (University of Ljubljana, 2012). In this study, the number of variables to cases was satisfied being 103 cases and 21 independent variables, which was 5:1. Prior to conducting multiple regressions the existence of multi-collinearity among independent variables was checked. Inter-correlations for all the independent variables were conducted to detect collinearity which is a strong association ($r= 0.80$ or above) between independent variables. High correlations are expected between a dependent variable and independent variables. Highly correlated independent variables are measuring the same thing (Pallant, 2004).

Findings of the study indicated existence of multi-collinearity between the following independent variables: age and teaching experience ($r=0.94$) and teaching experience and number of years in the current post ($r=0.84$). The respective

variables which were highly correlated were then combined when conducting the regression analysis, since they measure the same thing as suggested by Dlamini (2011).

Four variables were found to explain the benefits and reasons for undertaking professional development activities by senior secondary school agriculture teachers. The variables explained 68% of the cumulative variance.

The major independent variable (personal reasons) explained the greatest variance (55%), curriculum related changes explained (9%), societal related changes explained (2%) and school location explained (2%) of the variance on the benefits and reasons for undertaking professional development activities. The study therefore failed to reject the hypothesis that personal reasons is the major independent variable associated with the benefits and reasons for undertaking professional development activities by senior secondary school agriculture teachers.

Prediction Model for Benefits and Reasons for Undertaking Professional Development Activities

The model specific for this study was therefore:

$$Y_1 = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + \dots + b_kX_k + e$$

Benefits derived = $0.80 + 0.49$ (personal reasons) + 0.20 (curriculum related changes) + 0.14 (societal related changes) + -0.20 (school location) + e

Conclusions

The conclusion drawn from this study was that the senior secondary school agriculture teachers derived personal benefits from undertaking professional devel-

Table 6. Correlation coefficients between benefits and reasons for undertaking professional development activities and independent variables

Variable	Correlation coefficient and interpretation
Personal reasons	.74r Positive and strong association
Curriculum related changes	.61r Positive and substantial association
Educational policy	.53r Positive and substantial association
Global competitiveness	.51r Positive and substantial association
Societal related changes	.55r Positive and substantial association
Financial reasons (interval)	.34r Positive and moderate association
Technological related advancements	.49r Positive and moderate association
Family, peers and significant others	.47r Positive and moderate association
Competence reasons	.64r Positive and substantial association
Number of professional development activities involved in	.02r Positive and negligible association
Number of years in service before promotion	.13r Positive and low association
Number of years in the current job	.09r Positive and negligible
Teaching experience	.05r Positive and negligible
Distance from residential place to school	.17r Positive and low association
Highest level of education	.12r _s Positive and low association
Number of professional development activities attended in the past	-.13r Negative and low association
Age	.07r Positive and negligible

r – Pearson Product Moment Correlation

r_s – Spearman rho

Table 7. Factors explaining and predicting benefits and reasons for undertaking professional development activities (Stepwise)

Independent variables	R	R ²	R ² change	B	Beta	t-value	P
Personal reasons	.74	.55	.55	.49	.51	7.30	.000
Curriculum related reasons	.80	.64	.09	.20	.26	3.54	.001
Societal related changes	.81	.65	.02	.14	.18	2.48	.015
School location	.82	.68	.02	-.20	-.14	-2.34	.021
Constant	.80						

Adjusted R²= .66, Standard error= .41

opment activities such as improving work performance on the job, acquiring more knowledge and building the teachers' competence. Also, that the senior secondary school agriculture teachers were mostly motivated by competence related reasons to undertake professional development. Another conclusion drawn from the research findings of the study was that the teaching of agriculture in senior secondary schools of Swaziland was mostly dominated by male teachers, who held Bachelor's degree; they are married and are mostly in rural schools. Also, that there was a difference of little practical importance in benefits and reasons for undertaking professional development activities by school location. Lastly, no difference was found by sex, marital status, recognition received due to professional development and by geographical regions. From the research findings a conclusion was reached that there was a relatively high association between benefits and reasons for undertaking professional development activities and personal reasons. According to the senior secondary school agriculture teachers they were mainly benefiting intrinsically from undertaking professional development activities.

The implication is that the senior secondary school agriculture teachers should undertake professional development activities in order to increase their knowledge base, become academically effective and reach to more students when teaching. The education and professional development of every teacher must be seen as a lifelong task and be structured and resourced accordingly, in order for the teachers to be more effective and efficient and live up to the expectations of the society (Alston et al., 2003). The senior secondary school agriculture teachers are mostly self-motivated to undertake professional development (Schieb and Karabenick, 2011).

Some competence factors were the main reason for undertaking professional development activities. A need, therefore, is for providers of professional development activities to re-evaluate the content of in-service for teachers in order to provide timely knowledge and skills competence. Teachers who undertake professional development activities should be given accelerated promotion and access to qualification upgrading opportunities, in order to fulfill their inner quest. An educational policy must be put in place for senior secondary school agriculture teachers to attend professional development activities after every five at least, years in order to cope with changes that are taking place regionally and globally.

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