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Competencies of Sub Assistant Agriculture Officers of DAE in Dinajpur District

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Abstract

The purposes of the study were to determine the competencies of SAAOs, to explore the relationships between the selected characteristics of the SAAOs with their competencies, and to identify the constraints faced by the SAAOs and their expectations to solve the constraints. Data were collected by using a pre-tested interview schedule from the SAAOs of Phulbari and Birol upazila of Dinajpur district, and Debigonj and Boda upazila of Panchagarh district during 17 August to 29 September, 2019. Multistage random sampling technique was used to select the sample SAAOs which was 91, drawn from a population of 446. Ten characteristics of the SAAOs such as age, level of education, family size, annual family income, working experience, social mobility, social participation, job satisfaction, working facilities availability and importance of different competencies were considered as the selected characteristics whereas competency of the SAAOs considered as the focus issue. To measure the competency of the SAAOs, Competency Index (CI) was estimated by using 13 items related to different competencies along with 4-point rating scale. The findings showed that majority of the SAAOs (59.3 percent) had high competency, 27.5 percent had medium and 13.2 percent had low competency with a mean competency score of 28.27 and standard deviation of 9.46. Based on CIs the top ranked competency was 'self-evaluation of service' (CI 211), followed by 'selection of extension strategies or methods for service' (CI 208) and 'checking service compliance with current legislation' (CI 207). Among ten selected characteristics of the SAAOs, age, annual family income, working experience, social participation, job satisfaction, importance of different competencies had positive and significant relationships with their competencies. 'Lack of training and practical demonstration' was the top ranked service constraint mentioned by the SAAOs and their top ranked expectation was 'improvement of training facilities for doing service'.

Keywords: *Competencies, job satisfaction, Sub Assistant Agriculture Officers (SAAOs)*

Introduction

The agriculture sector alone accounts about 14.10% of Gross Domestic Product of Bangladesh (BBS, 2018). Agriculture is crucial for attaining overall growth and poverty reduction of the country. Agricultural extension is an essential mechanism for delivering knowledge (information) and advice as an input for modern farming (Meera, 2015). This service include transferring knowledge to farmers, advising and educating farmers in their decision making, enabling farmers to clarify their own goals and possibilities, and stimulating desirable agricultural developments (Aker, 2010). There are many agencies which provide extension services

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in Bangladesh. The Department of Agricultural Extension (DAE) is the government agency tasked with providing efficient and effective need-based extension services to all categories of farmers, enabling them to optimize resource use and achieve sustainable agricultural and socioeconomic growth (DAE, 2018). SAAOs are the grass-root level extension worker as personnel of DAE who directly work with farmers. They involved in making decisions about local extension programs in Upazila Planning Workshops and are responsible for developing and agreeing their own work programs. They plan and implement many different extension methods, some with individual farmers and some with groups by using different media to reach to the farmers and are also responsible for production of different audio-visual aids. SAAOs also work in partnership with other organizations working at the field level (Alam and Islam, 1997). The technical functions of SAAOs are to encourage farmers to test or adopt technologies, demonstrating useful and effective technologies. Then farmers use those technologies and promote these to other farmers (DAE, 2018). They also advise farmers on the price and availability of necessary inputs and market condition. They report farmers' response to recommendation, production problems, input demand and availability, and market conditions to their supervisors.

As SAAOs work as facilitators and communicators, helping farmers on their decision-making and ensuring that appropriate knowledge is to implement and obtain the best results, their competencies is very important for effective dissemination of the information and technology. Competency of SAAOs is not merely based upon dealing with physical and material aspects pertaining to different job areas but also upon their behavioral components like knowledge, skill, satisfaction, attitude towards job and other economic and socio-psychological aspects (Azami *et al*., 2005). In performing their activities they face different constraints which need to be focused for improving their competencies and effectiveness of their performance. In the view of the above discussion, facts and the need for having an understanding about the competencies of the SAAOs for better implementation and adoption of extension services, the present study was undertaken with the following specific objectives: i) to determine the competencies of the SAAOs in their service, ii) to explore the relationships between the competencies and the selected characteristics of the SAAOs, and iii) to determine the constraints faced by the SAAOs in their service and their expectations to overcome these constraints.

Methodology

The study was conducted in Department of Agricultural Extension (DAE) of Dinajpur region. All the Sub-Assistant Agriculture Officers (SAAOs) of Dinajpur region were considered as population of the study and the total number was 446. Multistage random sampling technique was used for the selection of locale and sample of the study. In the first stage, Dinajpur and Panchagarh districts were selected randomly out of three districts of Dinajpur region namely, Dinajpur, Panchagarh and Thakurgaon. Two upazilas from each of the selected districts were selected randomly in the second stage and the SAAOs of the selected upazilas were considered as sample and the sample size was 91. The selected upazilas were, Phulbari and Birol of

Dinajpur district and Debigonj and Boda upazila of Panchagarh district. Ten characteristics of the SAAOs were selected to describe the profile of the SAAOs are: age, level of education, family size, annual family income, working experience, social mobility, social participation, job satisfaction, working facilities availability and importance of different competencies. Competency of the SAAOs was the focus issue. The SAAOs were asked to give their opinion on thirteen selected job related competency items which were measured along with a four-point rating scale (Hasan *et al*., 2018). The respondents were asked to indicate their response for each of the item by giving opinion as 'high', 'moderate', 'low', and 'not at all' with a corresponding score of 3, 2, 1 and 0, respectively. Hence, scores of the respondents could range from 0 to 39; where 0 indicating no competency while 39 indicating highest competency. To compare among thirteen selected competency items, Competency Indices (CIs) was calculated. CI of each statement was calculated by using the following formula:

$$CI = C_n \times 0 + C_l \times 1 + C_m \times 2 + C_h \times 3$$

Where, *CI* is Competency Index, C_n is frequency of respondents mentioned competency as 'not at all', C_l is frequency of respondents mentioned competency as 'low', C_m is frequency of respondents mentioned competency as 'moderate' and C_h is frequency of respondents mentioned competency as 'high'. The score of CI of an item could vary from 0 to 273, 0 indicating no competency and 273 indicating highest competency to the mentioned competency item. During pre-testing of the interview schedule common constraints faced by the SAAOs were identified. A list of eleven possible service related constraints was used to develop service constraint scale. The respondents were asked to indicate their response for each of the constraint by giving opinion as 'highly faced', 'moderately faced', 'lowly faced', and 'not faced' with a corresponding score of 3, 2, 1 and 0, respectively. To ascertain the comparison among the constraints (for making rank order), Service Constraints Indices (SCIs) were computed by using the following formula:

$$SCI = SC_n \times 0 + SC_l \times 1 + SC_m \times 2 + SC_h \times 3$$

Where, *SCI* is Service Constraints Index, SC_n is frequency of respondent mention the constraints as 'not faced', SC_l is frequency of respondent mention the constraints as 'lowly faced', SC_m is frequency of respondent mention the constraints as 'moderately faced' and SC_h is frequency of respondent mention the constraints as 'highly faced'. The suggestions offered by the respondent SAAOs to their constraints faced in their service were ranked by content analysis and ranked order of the suggestions was also constructed based on the citations. The selected characteristics of the respondents were measured by numerical scores and through different scales. Various descriptive statistical measures were used for categorization and describing the variables. Pearson's Product Moment Correlation Coefficient was used for testing the relationships between the concerned variables. SPSS computer package was used for analysis of data. Data were collected by interview from the respondents individually in their office from 17 August to 29 September 2019.

Results and Discussion

Competencies of the SAAOs

Competency of the SAAOs was determined by the calculation of overall competencies of SAAOs and by ranking the competency items (through Competency Indices). The findings are presented as follows:

Overall competencies of the SAAOs

The overall competency scores of the SAAOs were classified into three categories by equal distribution of the possible range. The distribution of the SAAOs according to their competency categories are shown in Table 1.

Results of Table 1 indicated that the overall competency scores of the SAAOs' ranged from 8 to 39 against a possible range of 0 to 39. The mean score of the overall competency was 28.27 with a standard deviation of 9.46. The highest proportion (59.3 percent) of the SAAOs had high competency followed by 27.5 percent of the SAAOs had medium and 13.2 percent had low competency. Thus, 86.8 percent of the SAAOs had high to medium level of competencies in their job. This result is promising in the sense of extension service delivery to the farmers.

Rank order of the competency items

Rank order of the SAAOs according to their Competency Indices (CIs) for each of the 13 selected job related competency items have been shown in Table 2.

Table 1 Distribution of the SAAOs according to their overall competency scores (n=91)

Possible range (Observed range)	Competency categories	Frequency	Percentage	Mean	SD
0-39 (8-39)	Low competency (1-13)	12	13.2	28.27	9.46
	Medium competency (14-26)	25	27.5		
	High competency (27-39)	54	59.3		
	Total	91	100.0		

Table 2 Rank order of the competency items of SAAOs according to their CIs

Competency items	Extent of competency				CI*	Rank order
	Not at all	Low	Moderate	High		
Monitoring process of service activities	1	15	33	42	207	4th
Organise and supervise the execution of activities	5	16	25	45	201	7th
Selection of extension strategies or methods for service	2	16	27	46	208	2nd
Promote innovation in working methods for service	3	17	26	45	204	6th
Service schedules determination	3	14	30	44	206	5th
Analysis of data and produce reports	3	16	45	27	187	11th
Checking service compliance with current legislation	5	10	31	45	207	3rd
Checking production processes or machinery functioning at farm level	4	16	43	28	186	12th
Research and Development	3	23	52	13	166	13tn
Self-competency Development	3	19	26	43	200	8th
Office management and maintenance	3	13	40	35	198	9th
Financial management	5	16	32	38	194	10th
Self-evaluation of services	4	13	24	50	211	1st

*CI: Competency Index

Results of Table 2 show that Competency Indices (CIs) of the SAAOs ranged from 166 to 211. The top ranked three competencies of the SAAOs were 'self-

evaluation of service' (CI 211), followed by 'selection of extension strategies or methods for service' (CI 208) and 'checking service compliance with current legislation' (CI 207). SAAOs need to work as supervisor with farmers at field level. In this regard they need to evaluate their own work and select best strategies and methodologies in compliance with the legislation. This might be the factor for their high competencies on these items. The least ranked three competencies were 'analysis of data and produce reports' (CI 187), 'check production processes or machinery functioning at farm level' (CI 186), and 'research and development' (CI 166).

Selected characteristics of the SAAOs

Ten selected characteristics of the SAAOs were considered in this study. The findings related to the selected characteristics of the respondents have been presented in Table 3.

Age of the respondent SAAOs were ranged from 23 to 59 years with the mean of 37.03 and the standard deviation of 8.98. It was found that more than half of the respondents (53.8 percent) were young aged compared to 31.9 percent were middle aged and 14.3 percent under old aged category. The level of education of the respondent SAAOs ranged from 13 to 18, the mean was 13.38 and the standard deviation was 1.15. It was found that majority of the SAAOs had only diploma in agriculture, where 3.3 percent completed HSC after diploma in agriculture, 6.6 percent completed B.Sc. after diploma in agriculture and only 1.1 percent completed Master's degree after diploma in agriculture and B.Sc. The family size of the SAAOs ranged from 2 to 20 with a mean of 5.63 and a standard deviation of 2.67. Findings indicate that majority of the SAAOs (41.7 percent) had small sized family. On the other hand, 35.2 percent had medium sized family and 23.1 percent had large sized family. The annual family income of the SAAOs ranged from 362.88 to 1362.88 thousand Taka with a mean of 552.12 and standard deviation of 190.63. It was found that the highest proportion (71.4 percent) of the SAAOs had medium annual family income compared to 15.4 percent had low and 13.2 percent had high annual family income. The working experience score of the respondents ranged from 2 to 38 years with a mean of 11.97 years and standard deviation of 10.30 years. It was found that the highest proportion (61.5 percent) of the respondents had up to one-decade of working experience where 23.1 percent had up to two decades, 1.1 percent had up to three-decades and 14.3 percent had more than three-decades working experience. Social mobility score of the SAAOs ranged from 1 to 21 with a mean of 7.41 and standard deviation of 4.95. It was found that three-fourth proportion of the respondents (75.8 percent) had low social mobility whereas 12.1 percent had medium and 12.1 percent had high social mobility. Social mobility score of the SAAOs ranged from 5 to 18 with a mean of 11.74 and standard deviation of 3.61. It was found that more than half of the respondents (54.9 percent) had medium social participation whereas 26.4 percent had high and 18.7 percent had low social participation. Job satisfaction score of the SAAOs ranged from 7 to 24 with a mean of 15.51 and standard deviation of 4.32. About half of the respondents (50.5 percent) had medium job satisfaction followed by 26.4 percent had low and 23.1 percent had high job satisfaction. Working facilities score of the respondent SAAOs ranged from 0 to 18 with a mean of 5.01 and standard deviation of 4.08. It was found that about three-fourth of the respondents (75.8 percent) had no to low working facilities available whereas 20.9 percent had medium and only 3.3

percent of the respondent SAAOs had high working facilities available. Score for importance of different competencies of the respondent SAAOs ranged from 3 to 27 with a mean of 14.30 and standard deviation of 6.93. Equal distribution was observed for the low, medium and high categories of the importance of different competencies of the respondent SAAOs.

Table 3 Distribution of the SAAOs according to their selected characteristics (n=91)

Characteristics	Scoring method	Possible range (observed)	Categories	Respondents		Mean	SD*
				No.	%		
Age	No. of years	Unknown (23-59)	Young (< 36)	49	53.8	37.03	8.98
			Middle (36-50)	29	31.9		
			Old (>50)	13	14.3		
Level of education	Year of schooling	Unknown (13-18)	Diploma in Agriculture (13)	81	89.0	13.38	1.15
			Diploma in Agriculture with HSC (15)	3	3.3		
			Diploma in Agriculture with B.Sc. (17)	6	6.6		
			Diploma in Agriculture with Master's degree (18)	1	1.1		
Family size	No. of members	Unknown (2-20)	Small (<5)	38	41.7	5.63	2.67
			Medium (5-6)	32	35.2		
			Large (>6)	21	23.1		
Annual family income	'000' Taka	Unknown (362.88-1362.88)	Low (up to 400.00)	14	15.4	552.12	190.63
			Medium (400.01-700.00)	65	71.4		
			High (>700.00)	12	13.2		
Working experience	Year of working	Unknown (2-38)	One-decade (1-10)	56	61.5	11.97	10.30
			Two-decades (11-20)	21	23.1		
			Three-decades (21-30)	1	1.1		
			More than three-decades (>30)	13	14.3		
Social mobility	Score	0-21 (1-21)	Low (1-7)	69	75.8	7.41	4.95
			Medium (8-14)	11	12.1		
			High (>14)	11	12.1		
Social participation	Score	0-21 (5-18)	Low (1-7)	17	18.7	11.74	3.61
			Medium (8-14)	50	54.9		
			High (>14)	24	26.4		
Job satisfaction	Score	6-24 (7-24)	Low (<13)	24	26.4	15.51	4.32
			Medium (13-18)	46	50.5		
			High (>18)	21	23.1		
Working facilities availability	Score	0-22 (0-18)	No (0)	4	4.4	5.01	4.08
			Low (1-7)	65	71.4		
			Medium (8-14)	19	20.9		
			High (>14)	3	3.3		
Importance of different competencies	Score	0-27 (3-27)	Low (< 9)	30	33.0	14.30	6.93
			Medium (10-18)	33	36.3		
			High (>18)	28	30.7		

*SD: Standard deviation

Relationships between the selected characteristics of the SAAOs and their competencies

Pearson's Product Moment correlation co-efficient (r) was estimated to examine the relationships of the selected characteristics

of the SAAOs and the focus issue (competencies of SAAOs). A summary of the correlation analysis is presented in Table 4.

Table 4 Relationships between the focus issue and the selected characteristics

Focus issue	Selected characteristics	Computed values of 'r' with 89 *df*	Tabulated value of 'r'	
			0.05 level	0.01 level
Competency of SAAOs	Age	0.341**	± 0.206	± 0.269
	Level of education	-0.002		
	Family size	-0.002		
	Annual family income	0.227*		
	Working experience	0.335**		
	Social mobility	0.108		
	Social participation	0.219*		
	Job satisfaction	0.222*		
	Working facilities availability	-0.144		
	Importance of different competencies	0.433**		

*Correlation is significant at 0.05 level of significance (2-tailed test);
**Correlation is significant at 0.01 level of significance (2-tailed test); *df*. is degrees of freedom

Out of ten selected characteristics of SAAOs age, annual family income, working experience, social participation, job satisfaction and importance of different competencies found significantly and positively related with competencies of the SAAOs. Age might improve skills that used to meet individual's job related needs. This might relate with job satisfaction which will be also improve individual's relationships and teamwork. All these will help to improve the competencies of the SAAOs. Again the extended working experiences are related to lifelong learning which targeted at improving the competencies of the elder persons. Social participation help an individual to recognize and understand the social, cultural, economic, organizational and environmental influences that affect their competencies to perform the job. Solvency regarding family income might also help to develop positive psychological construction regarding working competencies of an individual. Positive perception regarding an issue is important for improvement of competencies regarding that issue. All of these might explain the positive relationships of the above mentioned selected characteristics of the SAAOs with their competencies. These selected characteristics are needed to be considered for launching any competency development programs by DAE. Level of education, family size, social mobility and working facilities availability did not show any relationship with the competencies of the SAAOs.

Constraints faced by the SAAOs in service and their expected solutions

For determining constraints faced by the SAAOs in their service, comparative severity of the constraints was determined by item-wise ranking of the constraints. SAAOs' expectations related to their constraints in service were also explored. The findings related to constraints and expectations are discussed below in Table 5 and 6.

Comparative severity of constraints faced by the SAAOs in their service

The comparative severity of constraints faced by the SAAOs in their service was computed by computation of Service Constraints Index (SCI) of the 11 constraints which ranged from 68 to 170 against a possible range of 0 to 273 and the rank order according to their SCI are shown in Table 5.

Table 5 Rank order of service constraints faced by the SAAOs

Constrains	Extent of Constraints				SCI*	Rank Order
	Not at all	Low	Medium	High		
Lack of knowledge on availability of working facilities	41	35	12	3	68	11th
Mismanagement system in various activities of the department	8	43	24	16	139	4th
Faced social and religious restriction to work	44	24	15	8	78	10th
Physical distance of working area is long	39	23	11	18	99	9th
Coverage of working area is too large	36	15	22	18	113	7.5th
Lack of vehicle to go to the working area	28	10	17	36	152	3rd
Lack of training and practical demonstration	14	16	29	32	170	1st
Lack of supportive government policies	28	23	17	23	126	6th
Inappropriate contents that do not meet the needs of the farmers	6	32	26	27	165	2nd
Non -reliable information needs to deal	15	33	27	16	135	5th
Lack of recent information	22	42	10	10	113	7.5th

*SCI: Service Constraints Index

Results of Table 5 show that based on SCIs the top ranked constraint was 'lack of training and practical demonstration'. To fulfill the demand of time, attaining competency in updated extension work and approaches such as knowledge and capacity on e-extension service in work plan and carrying out responsibilities, SAAOs should be well trained regularly. Their practical knowledge also needs to be updated by demonstrations. Currently there is no provision of regular training and practical demonstration at the upazila level as like of previous Training and Visit System (T&V). The second ranked constraint was 'inappropriate contents that do not meet the needs of the farmers. The extension approaches to serve the farmers and the contents of the information is not regularly updated in accordance with the farm problems in DAE which need to be updated regularly by utilization of ICT tools for convenience. The third ranked constraint of the SAAOs was 'lack of vehicle to go to the working area'. SAAOs have to cover a large working area and/or in distant places. In

many cases they cannot manage convenient vehicle to serve the farmers of this large and distant areas. This might be the reason of this sort of response. The least ranked three constraints were: 'physical distance of working area is long', 'faced social and religious restriction to work' and 'lack of knowledge on availability of working facilities'. The constraints responded by the SAAOs need to be focused in future policy formulation and development of extension strategies for the efficient service delivery in the region of DAE and the country overall.

Expectations of the SAAOs related to their service constraints

The expectations of the SAAOs related to their constraints in service are given in Table 6 with their citations and rank order.

Table 6 Rank order of the expectations of the farmers related to their service constraints

Expectations of SAAOs	Frequencies	Rank order
Improvement of training facilities for doing service well	81	1
Ensuring enough vehicle support to serve distant farmers	76	2
Assurance of well-facilitate residential facilities	69	3
ICT tools like PC, Laptop, Projectors need to be available	61	4
Well-facilitate office space need to be ensured	58	5

Results of Table 6 indicated that the SAAOs' top ranked expectation was to 'improvement of training facilities for doing service well'. SAAOs have to work with different categories of farmers, and they play a vital role in disseminating agricultural innovations or practices among the farmers. Improving their training facilities will help them to perform their service effectively. Their second top ranked expectation was 'ensuring enough vehicle support to serve distant farmers'. SAAOs need to cover large block and some blocks lack enough transport facilities. So, it becomes difficult to serve the distant farmers. To overcome these constraints enough vehicle support should be ensured for them. Their third ranked expectation was 'assurance of well-facilitate residential facilities'. DAE provides residential facilities for a very few SAAOs. DAE should provide sufficient well-facilitate residential facilities for the SAAOs. The next ranked expectation of the SAAOs is: 'ICT tools like PC, laptop, projectors need to be available'. Extension agents of Bangladesh still depended on traditional extension methods of communication with limited use of ICT based media like smart phones and cell phones might be due to unavailability of ICT tools at their convenience. The SAAOs also give suggestion for 'well-facilitate office space need to be ensured'. In many Upazila Agriculture Offices the SAAOs don't have enough convenient office space for their work. Without convenient office space it is difficult to perform their job well. The expectations of the SAAOs need to be focused in future policy formulation and development of extension strategies of DAE for the efficient service delivery.

Conclusions

Although the competencies of the SAAOs were high level, there is an ample scope to increase the competency of the SAAOs. To improve the competencies of the SAAOs,

frequently on-the-job, refresher and career development training need to be ensured by DAE. Six out of ten characteristics were found important factors related to the competencies of the SAAOs. DAE should consider these factors during formulating service improvement policies and strategies. More than three-fourth of the respondents have medium to low level of job satisfaction, thus DAE need to focus on improvement of the job satisfaction level of the SAAOs. In this regard, both reward and punishment system needs to be incorporated in the operational rules and regulations of DAE which should be free from political influence and nepotism. The higher income encourages one's integrity to achieve better performance, provision of different incentives like bonus, increments etc. need to be incorporated for rewarding better services in DAE. DAE also need to realize the existing work constraints of the SAAOs and should address to solve or minimize the constraints as soon as possible to ensure efficient service delivery at farm level.

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