Bangladesh J. Sugarcane, 28 : 86-91 *July, 2006*

Impact of Refresher Training of CDAs on Their Cognitive Performances and Modern Cultivation of Sugarcane

M. A. Islam, M. A. Rahman, M. R. Khatun[1], M. A. Haque and K. M.R. Karim
Regional Sugarcane Research Station, Madarganj, Thakurgaon, Bangladesh.

Received on 20.12.06

ABSTRACT

The study was conducted on the cognitive performance of Cane Development Assistants (CDAs) to determine it relationship with the selected characteristics of CDAs who have received refresher training orgavised by the sample sugarmills. Fifty two CDAs form 3 sample sugarmills were selected at random for this study in 1999. Ten personal attributes i.e. age, education, service experience, training experience, job satisfaction, rural orientation, media exposure, cosmopoliteness, achievement motivation and extra-curricular activities were taken as independent variables. The majority of the respondents (57.7 percent) were of the middle aged category, a large proportion (59.62%) of the CDAs have secondary and higher secondary level education, the higher proportion (42.30%) of the CDAs had medium service experience, the higher proportion (55.70%) of the respondents categorized under long training experience, the higher proportion (53.85%) were found satisfied with there present job 63.46% CDAs with medium media exposure, 61.54% CDAs with medium cosmopoliteness and 53.85% CDAs with medium achievement motivation. The majority of the respondents have short (46.15 percent) medium orientation. Almost all the CDAs were born and grown up in the rural areas. The CDAs age, education, media exposure and extra-curricular activities were found significantly correlated with their overall cognitive performance on modern cane cultivation technologies. Service experience, training experience, job satisfaction, rural orientation, cosmopoliteness and achievement motivation did not yield any significant relationship with their cognitive performance.

Key words: Cognitive, sugarcane, training impact.

INTRODUCTION

Sugarcane is a tropical, long duration and cash cum industrial crop in Bangladesh. On economic point of view, it is the second most important cash crop in Bangladesh. The average cane yield is in our country is only 42.00 ton per hectare (TCH) which is lowest in the world (Anon, 2000). On the contrary the per hectare yield of sugarcane is 56.57 tons in India (Lakshmi Kantham, 1983), 123.5 tons in Java and 101.61 tons in Taiwan (Anon. 1975). Bangladesh is one of the most densely populated countries in the world and the average farm size is only 0.9 hectare per household (Anon., 1986). For maintaining proper nutrition 13kg sugar is required for each individual in a year. Based on the estimate 1.69 million ton sugar and 2.21 million tons gur are required for the country per year. the present consumption is only 5.8kg per capita which is considered very poorcomparring other SAARC countries like Srilanka (12.5kg), Pakistan (19.30kg) and India (20.50kg). Average consumption of sugar per person per annum in the developed countries is 25-30 kg (Ali and Ali, 1990).

Thus the importance of increasing sugarcane production per unit area is much needed to minimize the gap. Increase of per hectare yield will help to fulfill this need to a great extant. Bangladesh Sugarcane Research Institute (BSRI) have recommended a number of important production technologies with a view to increase the per hectare production. Organizations like the sugar mills, DAE, NGOs are working over the years to increase the production of sugarcane per unit area adopting those practices, through training, demonstration, field day and farmer's day etc. To enhance technology dessemination training for manpower development should receive top priority. Training is a systematic process approach considered as part of and continuous development process. The quality of training needs to be upgraded through evaluation and re-evaluation of training programmes including assessment and re assessment of training needs. An effective and efficient training can bring about tangible results, it helps increase employee's satisfaction,

moral, cooperation and reduce conflicts, absenteeism, wastage and spoilage of time and resources (Halim and Ali, 1988). A field survey study was undertaken by the authors for assesing the impact of refresher training of CDAs on their cognitive performance and sugarcane cultivation.

---

[1], Lecturer of TTC, Mymensingh, Bangladesh

MATERIALS AND METHODS

There are 16 state owned sugar millswhere 1400 CDAs are working for technology dessinmination. Three sugar mills (out of sixteen) namely Panchagarh, Setabgonj and Joypurhat Sugar mills were selected for the study purposively. Total number of CDAs working in these three sugar mills zones at time of undertaking this study were 103 out of which 52 CDAs (50%) were selected through random sampling procedure. Personal interview method using structural questionaires were used, starting from 15th November 1999 to 30th December, 1999 to gather information from the respondants. Ten (10) socio-demographic characteristics of the CDAs i.e. age, educational qualification, service experience, training experience, job satisfaction, rural orientation, media exposure, cosmopoliteness, achievement motivation and extra-curricular activities were selected as independant variables.If a respondent passed primary level examination and the other one passed secondary level examination their education scores were estimated as 5 and 10, in case of diploma in Agriculture it was "14" and for masters of Arts it was "15". Age,Service experience ,training experience were measured in terms of actual number of years. Job satisfaction, rural orientation and achievement motivation were measered using specific scales containing statement items. Each scale contains 50% positive and 50% negative items. The respondents were asked to indicate whether they "strongly agreed", agreed, neutral, disagreed or strongly disagreed aginst each statement. Weights assigned were 5,4,3,2 and 1 respectively. Cosmopoliteness, extra -curricular activities and media exposure were measured against item statements scaled as regularly, frequently, occasionally, rare and not at all and weighed as 4,3,2,1 and 0respectively. Cognitive performance of the CDAs was measured as the output of regular refresher training conducted by Sugar mills on four different modules such as production, protection, soil fertility and extension. For each level of cognitive behaviour two open-ended questions were asked, each of which could score from "0"to "3".

RESULTS AND DISCUSSION

Socio Demographic Characteristics of the CDAs

There are many interrelated attributes which characterize an individual and thus influence the outcomes of training. It is impossible to study all the demographic selected characteristics in a single study. Therefore only ten characteristics such as age, education, service experience, training experience, job satisfaction, rural orientation, media exposure, cosmopoliteness, achievement motivation and participation in extracurricular activities were selected for this study. A brief description of the variables concerned as follows:

1.Age

Age of the CADs ranged from 30 to 55 years with an average of 43.54 years (% c.v = 13.76). Based on the range of their age the CDAs were classified into three categories: young aged, middle aged and old aged. Data presented in table 1 indicate that 25% of the CDAs belonged to the young aged category, while 57.5% was in the middle aged category and 17.3% categorized as old age-category.

The data further indicate that majority of the respondents (57.7%) was from the middle aged category. Such a big proportion of the CDAs representing the middle aged category was due to big number of CDAs recruitment during the 1978 to 1980 and 1980 to 1985 (Anon., 1975) under a World Bank Project.

Table 1. Distribution of CDAs according to their age

Categorie	CDAs		Mean	C. V.(%)
	Number	Percent		
Young aged (<40)	13	25.00	43.45	13.76
Middle aged (41-48)	30	57.70		
Old aged(49-55)	9	17.30		
Total	52	100		

2. Educational qualification

Educational qualification refers to the highest degree obtained by the respondents under the country's formal schooling system prior to interviewing. The lowest qualification of the CDAs was SSC and the highest qualification found as MA. The score assigned for the educational qualification of the CDAs ranged from 10 to 15 with an average of 11.41 (% CV = 9.96). Data furnished in table 2 indicate that majority of the respondents (59.62%) had SSC/ HSC, while 34.61% respondents had BA or BSc degree and only 5.77% had Diploma in Agriculture or MA.

Table 2. Distribution of CDAs according to their Educational qualification

Categories	CDAs		Mean	C.V.(%)
	Number	Percent		
SSC / HSC	31	59.62	11.44	9.96
BA / BSc	18	34.67		
Diploma in Agriculture / MA	3	5.77		
Total	52	100		

All the CDAs were expected to have Diploma in Agriculture but only 3 out of 52 CDAs had the desired qualification. This finding seems little bit controversial with the required educational qualification of the CDAs. The fewer number of Agriculture Diploma holders among the CDAs was probably due to reason that CDAs recruitment was consistent with the set qualification. Because of pressure of the labour union, the authority was bound to recruit unskilled or non-qualified staff. This result is in agreement with the findings of a study conducted by BSFIC which reports that only three percent of the CDAs had the required qualification out of 1191 CDAs.The majority CDAs were high school and college graduates in general arts, science and commerce (Anon.1975).

3. Service experience

Service experience refers to one's entire duration of service i.e. from the data of first joining in the service till the date of interview. Scores for Service experience ranged from 8 to 36 years with a mean of 19.69 (% cv= 32.71). According to the observed range of Service experience scores, the respondents were grouped into three categories i.e. short service experience, medium service experience and long service experience

Data presented in table 3 indicate that 36.53 percent of the respondents had short Service experience, nearly half of the respondents(42.30%) had medium service experience, and only 21.07% had long service experience.

Table 3. Distribution of CDAs according to their relative Service experience

Categories	CDAs		Mean	C.V.(%)
	Number	Percent		
Short Service experience(8 – 16)	19	36.53	19.69	32.71
Medium Service experience(17 – 26)	22	42.30		
Long Service experience(27 – 36)	11	21.07		
Total	52	100		

Data revealed that majority of the respondents (42.30%) had medium service experience. The big number of the CDAs representing the medium service experience category was probably due to large scale recruitment of CDAs recruitment during the 1978 - 80 and 1980 - 85 under the project supported by the World Bank (Anonymous, 1975). It is expected that the CDAs belonging to the three service experience categories should represent equal proportion.

4. Training experience

Training experience refers to one's participation in different short and in-service training courses during his entire service period. The purpose of in-service training is to develop understanding, skills and ability of the CDAs to perform their jobs more effectively. An in-service training experience score was computed for each respondent on the basis of total number of days one participated in training. In-service training scores of the respondents ranged from 10 to 45 days with an average of 35.69 (% CV = 32.05). The respondents , on the basis of the observed in-service training experience scores were classified into short in-service training experience, medium in-service training experience and long in-service training experience categories.

Table 4. Distribution of CDAs according to their Training experience

Categories	CDAs		Mean	C.V.(%)
	Number	Percent		
Short training experience(10 – 21)	5	9.70	35.69	32.01
Medium training experience(22 – 33)	18	34.60		
Long training experience(34 – 45)	29	55.70		
Total	52	100		

Data presented in table 4 indicated that 55.70 % of the respondent had long training experience followed by 34.60% with medium training experience 9.70% with short training experience.

This study indicated that majority of the respondent had long training experience. Such a big proportion of the CDAs representing long training experience category was probably due to their longer service experience. The BSFIC and BSRI regularly organizing in service training for the CDAs, therefore, most of them got enough scope for participating these training.

5. Job satisfaction

The computed job satisfaction scores of the respondents ranged from 27 to 50 with a mean of 39.17 (CV= 13.12). Based on obtained scores the respondents were classified into three categories like CDAs with low job satisfaction, medium satisfaction and high satisfaction.

Data showed in table 5 indicated that 53.85 % of the respondent had Medium job satisfaction while 25.00% had high job satisfaction and 21.15% had low job satisfaction.

Data in Table-5 showed that majority of the respondents had medium level of the job satisfaction who are serving as CDAs for 17 to 26 years but during this long period neither they have been promoted to the senior post nor given any incentive such as change in salary grade.

Table 5. Distribution of CDAs according to their Job satisfaction

Categories	CDAs		Mean	C.V.(%)
	Number	Percent		
Low satisfaction(27 - 34	11	21.15	39.17	13.12
Medium satisfaction (35 – 42)	28	53.85		
High satisfaction(43 and above)	13	25.0		
Total	52	100		

6. Rural orientation

Rural orientation refers to one's experience of rural life by staying in the village. In this study it refers to a CDA's total stay in village from his date of birth to the time of data collection. Rural orientation scores of the CDAs ranged from 80 to 210 with an average of 134.81 (% CV = 23.03). Based on the obtained scores, the respondents were classified into three categories i.e. short orientation, medium orientation and long orientation.

Data shown in Table 6 indicate that 46.15% of the respondents had short rural orientation compared to 42.31% CDAs with medium and 11.54% CDAs having long rural orientation.

Table 6. Distribution of CDAs according to their rural orientation

Category	CDAs		Mean	C.V.(%)
	Number	Percent		
Short orientation(80 – 123)	24	46.15	134.81	23.03
Medium orientation(124 – 167)	22	42.31		
Long orientation(168 and above)	6	11.54		
Total	52	100		

This finding indicated that majority of the respondents had short and medium orientation. Almost all the CDAs were born and grown up in the rural settings and they were also educated in rural areas, which account for a score of about 38. Later on, depending on the length of service their score varied a lot (80 to 160); as such those who served for a few years only, fell in the short orientation category and with increased service length they became medium and long rural oriented respondents.

7. Media exposure

It refers to one's exposure level to mass media for information and other purposes. Media exposure score of the respondents ranged from 4 to 16 with a mean of 11.12 (% CV = 22.84). on the basis of obtained media exposure scores, the respondents were classified into three categories i.e. low exposure, medium exposure and high exposure

Data contained in table 7 showed that only 23.08% of the respondent had high media exposure while 63.46% having medium and 13.46% with low exposure.

Table 7. Distribution of CDAs according to their media exposure

Category	CDAs		Mean	C.V.(%)
	Number	Percent		
Low media exposure(4 – 8)	7	13.46	11.12	22.84
Medium media exposure(9 – 12)	33	63.46		
High media exposure(13 – 16)	1	23.08		
Total	51	100		

Data indicated that majority of the respondents had medium media exposure. Traditional songs and plays of various forms are used to support agricultural extension programs in many developing countries. These are also used in mobile units, at shows, field days, training and meetings. Roy (1981) reported that one of the advantages of these media in that they have always highly been accepted in the community. Hassanullah and Mohammad (1985) in "Sugarcane Extension Manual" recommended the use of "Jari Gan", Drama, Puppet show, Folk songs etc. organized separately or as part of exhibition, demonstration or field day plays very important roles in technology dissemination

8. Cosmopoliteness

People differ in their travelling behaviour; some enjoy travelling to different places while other confine themselves within a narrow boundary. Those people who moves outward by nature, come into contact with different people, see new things, get new experiences and ideas. These people develop themselves with open-minded attitude. These people exhibit socially positive attitude and behaviours in many aspects of every day life compared to the others. The CDAs cosmopoliteness scores ranged from 3 to 12 with a mean of 7.87 (% CV = 24.90). on the basis of observed cosmopoliteness scores, the CDAs were classified into three categories as shown in the table 8.

Data presented in table 8 revealed that the highest proportion (61.54%) of the CDAs were of medium cosmopoliteness, and the rest were equally divided into low and high (19.23%) categories. The high group may have frequent access to different social activities, relationship with other people and side business or engagement to outside of the of their own societies. As a result they have more cosmopoliteness compared to other groups.

Table 8. Distribution of CDAs according to their cosmopoliteness

Category	CDAs		Mean	C.V.(%)
	Number	Percent		
Low cosmopoliteness (3-6)	10	19.23	7.87	24.90
Medium cosmopoliteness (7-9)	32	61.54		
High cosmopoliteness(10-12)	10	19.23		
Total	52	100		

9. Achievement motivation

Achievement motivation scores of the respondents ranged from 20 to 30, with an average of 25.23 (%CV = 9.55). on the basis of the observed range of achievement motivation scores, the respondents were classified into three categories viz. low motivation, medium motivation and high motivation

Data furnished in Table 9 indicated that 21.15%of CDAs had low achievement motivation, 53.85% had medium achievement motivation and 25% with high level of motivation.

Table 9. Distribution of CDAs according to their achievement motivation

Category	CDAs		Mean	C.V.(%)
	Number	Percent		
Low achievement motivation(20 – 23)	11	21.15	25.23	9.55
Medium achievement motivation(24 – 26)	28	53.85		
High achievement motivation(27 – 30)	13	25.00		
Total	52	100		

10. Extra-curricular activities

The computed scores for extra-curricular activities of the respondents (CDAs) ranged from 4 to 12 with an average of 7.65 (% CV = 29.8). On the basis of the observed scores of CDAs' extra-curricular activities, the respondents were classified into three categories such as low extra-curricular activities, medium extra-curricular activities and high extra-curricular activities

Data presented in Table 10 revealed that 38.46%of the respondents were involved in low extra-curricular activities, 36.5% in medium and 25% were highly involved in high extra-curricular activities. A good proportion of the respondents (38.46%) were found to have poorly involved in extra-curricular activities. This was most probably because of their seniority; they had to maintain the responsibilities of large and extended family, which keep them busy. As a result they have little time to spend for extra-curricular activities.

Table 10. Distribution of CDAs according to extra-curricular activities

Category	CDAs		Mean	C.V.(%)
	Number	Percent		
Low extra-curricular activities(4 – 6)	20	38.46	7.65	29.80
Medium extra-curricular activities(7 – 9)	19	36.54		
High extra-curricular activities(10 – 12)	13	25.00		
Total	52	100		

Relationship between cognitive attributes of the CDAs and their personal characteristics

Data presented in Table11 exhibited the relationship of ten (10) independent variables also the characteristics of the CDAs with their on cognitive level of educational behaviour (dependent variable). From the data in Table11 it was found that out of 10 independent variables only four i.e. age, education, media exposure and extra-curricular activities of the CDAs were found to have significant relationship with their cognitive behaviour level. In all the cases, the relationship were positive.

Table11. Relationship between cognitive attributes of CDAs and their characteristics

Individual characteristics	Value of "r"
Age	0.274*
Education	0.276*
Service Experience	0.125^{NS}
Training Experience	0.175^{NS}
Job satisfaction	0.106^{NS}
Rural orientation	0.160^{NS}
Media Exposure	0.300*
Cosmopoliteness	0.074^{NS}
Achievement motivation	0.047^{NS}
Extra-curricular activities	0.280*

*Significant at .05 level, NS-Non Significant

Rahman *et.al.* (1993), Huda *et.al.* (1995) found similar significant positive relationship between age of the respondent and their training achievement. In the present study educational qualification showed significant and positive relationship with their cognitive performance. Uddin(1999) found a positive relation with the education and IPM training. These facts might be the reason of higher cognitive performance of the CDAs towards improved sugarcane production technologies who had higher level of educational attainment in their life. Media exposure showed a significant positive relationship with their cognitive performance.This might be due to reason that higher media exposure help people in acquiring more information regarding modern agricultural cultivation practices. Extra curricular activities further showed a positive and significant relationship with their cognitive performance. Service experience, training experience, rural orientation, cosmopoliteness and achievement motivation had no relationship with their cognitive attributes of the respondents of sugarmills.

REFERENCES

Ali, M. Y. and Ali, M. K 1990. Bangladesh akh csaser projuktigoto sambhabana. (A Bengali manual of technological potentiality of sugarcane production)Sugarcane Research and Training Institute,Ishurdi,Pabna.

Anonymous, 1975. Schem for intensive cane development and administering production in mills zone, phase-1, Bangladesh Sugar and Food Industries Corporation, Dhaka.

Anonymous,1986. Statistical yearbook of Bangladesh, Ministry of planning Government of Bangladesh, Dhaka.

Anonymous, 2000. Statistical yearbook of Bangladesh, Dhaka: Ministry of planning. Government of Bangladesh.

Halim. A. and M.M.Ali. 1988. Administration and Management of training programs. Bangladesh Journal of training and development. **1**(2) : 1- 19.

Hasanullah and Muhammad. 1985. Akh samprosaran manual (Sugarcane extension manual) Huda,N.A.M.S., M.D. Hossain and F. Jamel. 1995. Effectiveness of rice production

specialist training program of Bangladesh Rice Research Institute, Bangladesh J. Training and Development.**8**(1&2):9-14

Jamal Uddin,M. 1999. Impact of IPM training of rice farmers educational behaviour; Cognitive and Affective domains. Unpublished M.S. thesis.Bangabandhu Sheikh Mujibur Rahman Agricultural University, Salna, Gazipur.

Karim, associated factors A. S. M. Z. 1993 . In-service training received by the Subject Matter Officers and the Bangladesh J Training and Development. **6**(1): 1-9.

Rahman, M. M ,M. S. Alam,M. Howlader and F. Jameel. 1993. Influence of different demographic characters of the performance of the participants attending rice production training at BRRI. Mimeographed. Bangladesh Rice Research Institute, Joydebpur, Gazipur.

Roy. Rati and Rangan, 1981 . Folk poetry in Bangladesh: Vpdating Traditional forms to carry timely massages development communication No.34:4