

Reprint

ISSN 1997-2571 (Web Version)

Journal of Innovation & Development Strategy (JIDS)

(*J. Innov. Dev. Strategy*)

Volume: 7

Issue: 2

August 2013

J. Innov. Dev. Strategy 7(2): 10-15 (August 2013)

ASSESSMENT OF HIGH SCHOOL STUDENTS' INVOLVEMENT IN VEGETABLES GARDENING THROUGH DEMONSTRATION IN NORTHERN BANGLADESH

N.C. HOWLADER AND A.K. GANGULY



GGF
Nature is Power

An International Scientific Research Publisher

Green Global Foundation[©]

Publication and Bibliography Division

100 Leeward Glenway

Apartment # 1601

M3c2z1, Toronto, Canada

E-mails: publication@ggfjournals.com, editor@ggfjournals.com

<http://ggfjournals.com/ejournals/current issues>



JIDS** issn 1997-2571, HQ:19-10 central place, saskatoon, saskatchewan, s7n 2s2, Canada

ASSESSMENT OF HIGH SCHOOL STUDENTS' INVOLVEMENT IN VEGETABLES GARDENING THROUGH DEMONSTRATION IN NORTHERN BANGLADESH

N.C. HOWLADER¹ AND A.K. GANGULY

Monitoring and Evaluation Specialist, ECRRP, FAO-UN, Dhaka, Bangladesh.

¹Corresponding author & address: Nikar Chandra Howlader, E-mail: nikar_chandra@yahoo.com
Accepted for publication on 10 June 2013

ABSTRACT

Howlader NC, Ganguly AK (2013) Assessment of high school students' involvement in vegetables gardening through demonstration in northern Bangladesh. *J. Innov. Dev. Strategy*. 7(2), 10-15.

The study was carried out to assess the involvement of high school students in vegetables gardening through school gardening demonstration program in the Northern part of Bangladesh. The main objective of this program was to raise students' awareness regarding the nutritional and economic benefits that can be gained through homestead gardening. The program aims to equip the students with both theoretical and practical knowledge so that they can apply the learning for better planning and management of their homestead gardens. Strengthening household's Access to Bari Gardening (SHABGE) Project funded by DFID has been operating in northwest and southeast regions of Bangladesh with the goal to improving the livelihoods of poor and vulnerable rural households". Beginning in January of 2001, the project introduced a 'School Vegetable gardening Program' that focuses largely on girls students. The study was conducted using Questionnaire through individual interview and the analysis was done through Focus Group Discussion (FGD) with School Programme Management Committee (SPMC) and Guardians. The result mainly showed that the enrollment of girls student increased drastically 99.6%, 94.5% and 77.6% in, B and C Category of school respectively. The study reveals that 34.5% students obtained above 80% marks, 46.5% marks obtained 50-80% marks while 19% marks obtained below 50% in post-test.

Key words: *vegetables gardening, school program, demonstration plot*

INTRODUCTION

The school program survey was done for capturing the impact and best lessons learned of the school program implemented in the Rural Livelihood Program (1999-2005). In earlier discussions with the Education Sector of CARE Bangladesh, the process for facilitating the school program initiative, as followed in RLP, is considered of great relevance for implementing future similar initiatives in other disciplines such as health and rights and social justice for other projects in the mission. Until now the school program has been documented by making a video and the M&E unit tracking the performance of the program produced a number of school program monitoring reports. RLP was therefore requested to develop an appropriate format in this regard for assessing the impact of the program, document these for wider dissemination with interested parties. (Alonge and Martin, 1995)

The main objective of this program to raise students' awareness regarding the nutritional and economic benefits that can be gained through homestead gardening. The program aims to equip the students with both theoretical and practical knowledge so that they can apply the learning for better planning and management of their homestead gardens (Keeney 1989). Other objectives of the program include the development of analytical and learning skills, the teaching of science and production skills, as well as strengthening community understanding and acceptance of home gardening activities. It is further expected that the program will lead to the adoption of home garden production techniques beyond the members of local Farmers Field School (FFS) groups and reduce the dropout rates of students, especially girls (Francis and Youngberg, 1990).

The objectives of the study "to assess the enrollment of the girls' student and to see the involvement in vegetables gardening in their homestead."

MATERIALS AND METHODS

School Selection: The schools were selected as sample basis, six schools from the NW. The sample was inclusive of at least one excellent, medium and poor performing schools. In addition 2-3 schools were selected for the control. Selection criteria were based on specific criteria for each category. Excellent, medium and poor performing schools to learn magnitudes of the impact and diversity of the strengths and weaknesses. This performance of the schools (The Best, Medium & Poor) was defined by available information in school monitoring reports and subjective judgment of the concerned staff. The following criteria mentioned below were defined to select the excellent, medium and poor school program.

Excellent School program

- Schools that mostly targeting the girl students (over 70%).
- School Program Management Committee (SPMC) is in place a demonstrating outstanding performance in line of holding regular meeting, taking and implementing decisions and documents these.
- Assigned teacher conducted learning sessions as per plan with little or no dependency on CARE staff.
- More than 80% students disseminated learning with their parents or 3-5 neighbors.

Medium/Good School program

- School that targeted 50-70% of girls students.
- SPMC is functioning well in the light of implementing most of the decisions and document these to a satisfactory level.
- Assigned teacher conducted more than 60% of planned sessions with some degree of dependency on CARE staff.
- 50-80% of the students disseminates learning with their parents and 2-3 neighbors.

Poor School program

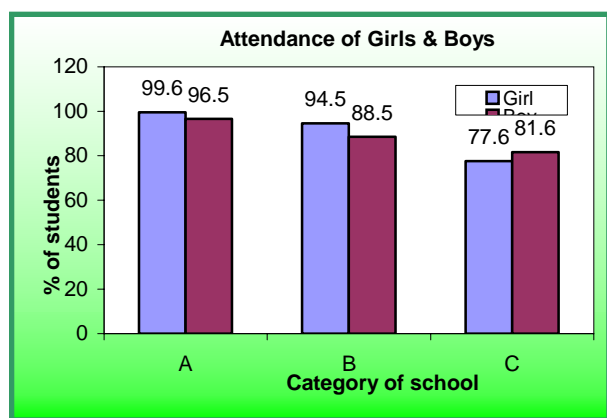
- School that targeted below 50% of girl students.
- SPMC is not functioning effectively, meetings are held irregularly, decisions are not followed upon in most cases.
- Assigned teacher conducted less than 50% of planned sessions with dependency of CARE staff.
- Less than 50% of the students disseminated their learning with their parents and only with 1-2 neighbors.

Tools development & Staff Orientation: After reviewing the draft questionnaire and incorporating the feedback and suggestions by soliciting from concerned staff and experts, the tools was refined followed by field tests at region level.

After field test, a half-day orientation session for the facilitators was conducted on the developed tools (with fine adjustment if required), methodology of study and planning.

Facilitator: The facilitator worked in a pair consisting one senior and one front line staff (eg. Project Development Officer (PDO)- Education, who has been involved with the school program implementation earlier. Plus one Community Facilitator (CF) or Program Organizer (PO). This pair of facilitators included the experienced staff those were directly involved with school program. The senior staff felt needed to collect information from Head Master and SMC as well as who coordinated the study and ensure its quality.

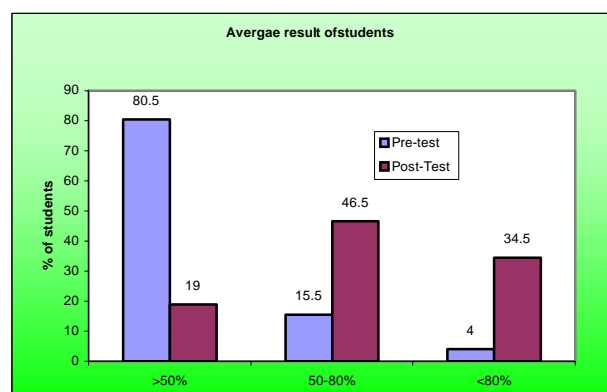
RESULTS AND DISCUSSION



The chart reveals the students attendance according the category of school. The attendance of girls is higher in category A and B school compare to category C. It is observed that the attendance of girls is low than boys in the school of C category. The result mainly showed that the enrollment of girls student increased drastically 99.6%, 94.5% and 77.6% in, B and C Category of school respectively compare to boys'.

A = Excellent school, B = Medium school and C = Poor quality school (The details criteria were illustrated in the methodology part of this report.)

Fig. 1. Attendance of Boys and Girls according to the category of school



The graph reveals the result obtained by the students in pre-test and post-test. It is found from the graph that the students obtained good result compare to pre-test. It is observed that 34.5% students obtained above 80% marks, 46.5% marks obtained 50-80% marks while 19% marks obtained below 50% in post-test.

Fig. 2. Students' score in Pre-test and post-test in different categories of school

Table 1. Students' score in Pre-test and post-test by category of school

School Category	Average result of students Pretest		
	>50%	50-80%	Above 80%
A	55	32.5	12.5
B	99	1	0
C	87.5	12.5	0
School Category	Average result of students Post Test		
	>50%	50-80%	Above 80%
A	3.8	59	37.2
B	8.5	36.9	54.6
C	45	43.5	11.5

Students' knowledge and skill:

Fig. 3. Students are sharing their knowledge on homestead gardening

According to the curriculum a huge number of sessions were conducted with students to increase their knowledge and skill on homestead agriculture. From the analysis it is found that the knowledge of students have increased what they have learnt from learning session. The learning sessions they can recall are child's right, cooking system of vegetables, compost preparation, hand pollination, human nutrition, home made pesticide, tree management, this issue don't have any relevancy with vegetable gardening in school., vegetables seed collection and preservation. The child's right, cooking system of vegetables sessions have been recalled with full confidence by the students in all category of school.

The students learnt also some cultivation procedure like land preparation, technique of seed sowing, intercultural operation, tree management, technique of applying fertilizer etc.

Apart from vegetables cultivation they acquired some knowledge such as human nutrition, cooking system, demerits of early marriage, child's right, demerits of dowry and gender discrimination between girl and boys. There is no significant observed between different category. In control school the students learnt very theoretical knowledge on agricultural knowledge like land preparation, poultry culture, cow rearing, vegetables cultivation, floriculture etc. (Hamilton 1999).

Contribution of study plot in learning process:

In learning process the contribution of study plot was remarkable. The students (it is difficult to calculate because data collected through focus group discussion) expressed that they learnt the cultivation procedure like bed preparation, pit preparation and other technique practically in the study plot. The study plot helped them to build up their confidence as they set up different experiment in study plot. Sometimes they set up problem-based experiment such as "to see the effectiveness of ash mixed kerosine to control aphid infestation", "variety performance of brinjal, reddish, amaranth, yard long bean", "to see the effectiveness of bagging on sweet gourd to control fruit fly", "to see the effectiveness on home made pesticide to control pest", and germination test in the study plot of school.

In the school where not the RLP school program, they have no study plot and their students learning process is fully theoretical based. Though they have been asked by the authority to deliver practical learning through study plot in the school area but they do not follow it.

Intervention used in family garden:

Fig. 4. Student is caring his vegetables garden

Most of the students practiced their learning to their family garden in all category of school. They learnt lot of technique related to homestead gardening and practiced to their home garden. They cultivated vegetables like reddish, carrot, brinjal, sweet gourd, bottle gourd, tomato etc through using different technique such as bed preparation, hand pollination, pit preparation, proper intercultural operation, applying proper doze of fertilizer and applying home made pesticide etc.

Table 2. Technical intervention are being practiced in the family garden

A Category	B Category	C Category
Pit crop, hand pollination, bed preparation, Ash mixed kerosine used, Intercultural preparation, seed collection and preservation technique, cooking system, tree sapling plantation, tree management, using organic fertilizer, vegetables cultivation.	Pit crop, Bed preparation, Hand pollination, compost preparation, use ash mixed kerosine, seed preservation, tree sapling plantation, tree management, staking of tomato, cooking system.	Pit preparation, bed preparation, Tree sapling plantation, compost preparation, tree management, bagging, cooking system.

The students who did not practice the technical intervention what they learnt from the learning session of school program, they have no own homestead area and their guardian did not assist to implement.

Learning Dissemination Process:

The school of all categories took initiatives to disseminate learning of school program. The initiatives were organizing parents gathering, agricultural fair, demonstration plot and student-to-student learning sharing in all category of school. It was observed little different in 'A' category of school, they also took some new initiatives like video program, publish in the printing media named korotoa, Guager Alo, and discussed in the Upazill Nirbahi Officer (UNO), primary teachers conference.

The school also arranged cross-sharing sessions among the other class students and they (students of other classes) also visited demonstration plot and gathered knowledge on vegetables cultivation procedure (Flora 1990).

Expect one school of C category, every school (from A and B category) organized fair or Guardian day for disseminating the learning of school program. Many of the guardians were present on that meeting. They learnt lot of technique of homestead gardening, which was displayed by the students. The students also played some mini drama, role-play related to child's right and gender discrimination of girls & boys. The guardian perceived it and took it very seriously. As a result, some the guardian practiced to their family and removed the discrimination between girls and boys in their family life.

Dissemination of knowledge to the neighbor:

The students were assigned in baseline session that they would disseminate learning to their neighbor and relatives what they have learnt from learning session. They were committed that one student will disseminate the learning to at least three person. It is found from analysis that every student disseminated to 2.5 neighbors on average in the "A" category of school while 2 neighbors on average in the "B" category of school. It was also found that the students taught average 230 neighbors in the category of "A" whilst 203 neighbor in the category of "B" and in the category of "C" school did not fulfill the target.

The students also shared their learning with their parents. They shared the learning commonly regardless in all category school were child's right, cooking system, hand pollination, bagging, home made pesticide, seed preservation technique, bed preparation, pit crop etc. The guardian also used their learning like hand pollination, bagging, cooking system and child's right. The parents are washing vegetables before cutting, using more oil during vegetables cooking as a part of learning of cooking system. They are distributing food equally to their children ignoring girls and boys. One the other hand they used hand pollination on sweet gourd and got good result.

It was observed in the school of C category, though students shared the learning to their parents but few guardians did not use it ignoring as they are young student.

In control school there are no formal system to disseminate the learning that have learnt from school session.

Expanding process of school Program:

The school committee, guardian as well as students gave some suggestion to disseminate the school program beyond the school. They suggested to arrange mela or agricultural fair to the Thana and district level. They also told that the school program could be expanded through demonstration plot, organizing people gathering with miking, publishing in printing media, telecasting through electron media, video show, poster, rally, role-play, drama etc.

Effectiveness of the learning and teaching process for the teachers:

Participation of TT in curriculum development for TOT

One teacher from "A" category school and one teacher from "B" category school were participated in curriculum development for TOT. The teachers who were involved with that process, they contributed to

identify need base topics, in developing session plan. They told that the participation of schoolteachers with this process is necessary to select the need base learning for the students. The teachers also stated that the most valuable topics are child's right, cooking system, human nutrition, seed preservation, home made pesticide, compost preparation for the students because these are related to practical family life and the students would be able to use in their learning in future life.

Participation on TOT

The teachers from all category of school participated on TOT. They told that the participation of TOT was very effective because they told that though some teacher received formal training on education system but the TOT was very practical. They told that they acquired the knowledge on new process, which was helpful for them to conduct a learning session, to make the session attractive and using the appropriate session materials though some of them were agricultural teacher on that school. They added that though it was the short duration training but it was practical learning oriented as they learnt the cultivation procedures of vegetables practically with applying new technique of homestead agriculture.

The school where not the RLP school program, the teachers of that school normally participated in formal education training for long time. It is observed in two schools that the teacher assigned for agriculture, did not receive formal education training. He told that he would have practical training then it might be helpful for conducting the session.

Comments on methodology and contents of school program according to grade of school

The question regarding methodology and contents were asked to the head master, trained teacher and the students. They expressed their comments and told that the methodology and contents were medium (Obtained score-2 defined as medium in the questionnaire). The above respective person from the school of A category and B category made the comments that the methodology and contents of school program were strong whilst the person from C category school made comments as medium.

Role of the school program management committee and its effectiveness

Role of school management committee (SPMC)

Every school formed a SPMC to implement the school program of RLP smoothly. The SPMC was formed consisting different level of people, as included from teachers, existing committee and parents. SPMC played a good role to implement the school program activities. The responsibilities of the school committee played were to attend in the meeting, to oversee the garden and its maintenance, to ensure the enrollment of students, to assist in organizing parents gathering and agri fair, to observe the learning sessions etc. The SPMC of the school of "C" category was not strong compare to A and B category. It was found that the school program was implemented better where the SPMC was strong. The committee of control school was not so functioning like the school where RLP school program was exist.

The SPMC also solved the problems regarding school program like attendance of students, school garden and other problems. The committee counseled the students' guardian for attending the school program session regularly.

The SPMC monitored the exam system and the performance of schoolteacher but it is found in the school of C category, the SPMC was not so active and did not monitor the session as well as examination system.

Learning plot and its management

Every school provided a space for learning plot and gardening in their school campus. It was found that there were contributions by the both parties as contribution by school and by the program. The school mainly provided the land for garden, material for fence, compost, classroom facilities for session and labors. The program provided snacks, agri tools, seed, seedlings, chemical fertilizer, and expenses for gathering as 100% whilst shared contribution



Fig. 5. Session was conducting and students are describing the group work in the school field

The school-learning plot managed by the school in all aspect was good. In managing the production register, it is found good in A and B category of school while it is poor in C category school. The lay out of learning plot was excellent in two category of school except C category (good). In terms of problem-based study set up, the school of A category managed in excellent manner and B category school is good while C category is poor manner. Similarly, the income and expenditure recording of learning plot was good in all category of school except C category. The security of garden was good in all category of school.

Potential strengths for running school program

The respondents told that to run the program the potential strengths were students' eagerness & commitment, sincerity of committee, and assistance of parents. They also told that the overall method of teaching and training methodology were good which attracted the attention of student in learning session. There was a demonstration plot, which helped the students to learn practically.

Benefits of school program

The respondents told that the school program benefited the students, schoolteachers, guardian and neighbor in different way. In this regard two case studies are enclosed with this report. This program helped the students to increase practical knowledge on homestead gardening. The schoolteacher learnt the new technique related to homestead gardening from school garden. Some teachers also implemented to their own homestead following the lay out of school garden.

CONCLUSION

The school program is an effective method to increase knowledge on homestead gardening of school going students. The SHABGE-DFID project under Rural Livelihoods Program has taken this initiative from 2001, with a view to increase practical knowledge of students as they can be used to their practical life in future. It is found that the student knowledge has increased and implemented to their own homestead. The students also disseminated the knowledge to the parents and neighbor. The study reveals that the girls' student enrollment increased compare to boys. Apart this, the students obtained better results compare pre-test as their attendance was high. The students learnt the technical procedure to cultivate vegetable in their homestead areas and to observe the better growth, the guardian of the students helped to implement the homestead gardening.

REFERENCES

- Alonge AJ, Martin RA (1995) Assessment of the adoption of sustainable agriculture practices: Implications for agricultural education. *Journal of Agricultural Education* 36(3), 34-42. DeWitt, J. (1997).
- Flora CB (1990) *Sustainable agriculture in-service training manual*. Ames, IA: Iowa State University Extension. New York: John Wiley & Sons, Inc.
- Francis C, Youngberg G (1990) Sustainability of agriculture and rural communities. In A. F. Charles (Ed.), *Sustainable agriculture in temperate zones*. pp. 358-367.
- Hamilton ND (1999) Changing learner behavior through environmental education. *Journal of Environmental Education*, 21(3), 8-11.
- John Wiley & Sons, Inc. Fretz TA (1991) Sustainable agriculture: An overview. In A. F. Charles (Ed.), *Sustainable agriculture in temperate zones* (pp. 343-357). New York.
- Keeney DR (1989) Economic and environmental trade-offs in farming. In Leopold Center for Sustainable Agriculture (Ed.), *Building bridges: Cooperative research and education for Iowa agriculture* (pp. 39-48). Ames, IA: Leopold Center for Sustainable Agriculture, Iowa State University.