

Ways of changing students' behavior towards healthy school environment: Experiences form an action research

Lila Bahadur Vishwakarma¹

¹Kallery Secondary School

Kallery Village Development Committee-5, Kallery Maidan, Dhading, Nepal

Key words: Healthy school environment, Participation, Practice, Prolong-engagement, Multidimensional and transformative approach

Abstract

Being a teacher, I have observed the school environment very closely. In school, there is a mason who works in various segments with the responsibility of sweeping the classrooms. She has multidimensional duty which has reduced their attention towards the waste management of the school. As a result, the waste management of the school has become poor and filthy. Most of the students know about it but nobody has paid any due attention. Since long, I have been seeking for how to change the student's behavior to maintain healthy school environment.

I have conducted an action research with the purpose of exploring the ways for changing student's behavior toward HSE through performing waste management activities. Fundamentally, observation of the school surroundings, collection of the waste, segregation, disposal scaling/weighting up, audio-video recording etc. has been done as a part of waste management system and process. Strategically, encouraging students to perform the activities and make them self-motivated and motivating them with some kind of prizes was really difficult. However, objectives were accomplished with 4Ps (participation, practice, prolong-engagement and prize). Hence, 4Ps is the best way of changing student's behavior toward HSE which has been claimed through this research. The 4Ps should be operated in a cyclic way while action research is conducted because there is a link among stage of participation, practice, prolong-engagement and prizes. It is, thus, critically important for waste management in school.

The more reduction in the quantity of the waste through the waste management activities and the more it brings the changes in their behavior toward HSE progressively. Hesitation in the part of students is taken as a challenge in their motivation towards waste management. There might be ample opportunities of changing their behavior to HSE who participate, practice, prolong-engaging and keeps prizes in mind while performing the activities. Hence, 4Ps is a way of changing their behavior toward HSE.

It is equally important to consider that the intersectional initiatives in the course of maintaining healthy school environment, for example- initiative from the closer households, students, teachers, school administration and so on because such intersectional initiatives play vital role to encourage and increase the confidence of the students while they participate in the waste management activities. Their learning in the family also plays a key role to track down their behaviors towards HSE.

Introduction

For a long time I have been noticing that children un/knowingly do many activities in their schools which produces waste both inside the classroom and also on

the school grounds. In course of performing learning activities they use materials like bull/ink pen, pencil, notebook, inkpot, eraser, sets of geometric equipment and so on. They throw the waste of these materials

carelessly in their school premises. They set their habit of throwing waste papers, broken pencils, cover of dots pens, etc. carelessly mostly from their family environment. Likewise, the children in the rural community/village are not taught about the waste management. People in the village are not so conscious about the waste management and sanitation. Hence, a question always pinched me what could be the best way to change students' behavior in such context.

Similarly, while the children are having snacks during their Tiffin break they often eat packed foods like noodles, biscuits, chocolates and so on. After having these food items they throw the food packages or box (made up of plastic) on the school ground. As I have calculated, if every child eats a chocolate everyday there would be around 400 chocolate covers. These wastes, within and around the schools, make the school environment ugly, messy and unmanaged. Since many of the schools are closer to community, it also influences the environment of the community as a whole. Very often it has been observed that the community people also throw the unused domestic appliances around the schools. It is thus important to launch waste management program for both the children at schools and community members. According to Enrico, U. Baula ^[1] collaborative approach also makes use of community involvement in waste collection, segregation, storage and recycling (2010). It is hence important to make the closest households be aware of the consequences of making their surrounding dirty. If the children/school hasn't got the higher degree of awareness in such problem and weaker waste management system in school then it is greater challenge for maintaining Healthy School Environment (HSE). The HSE means a riskless environment that contributes in creating physically, psychologically sound environment, safeguards from the health risk and keeps beauty. To sustain such condition there should be multidimensional initiatives in healthy school environment e.g. initiative from the closer households, students, teachers and school administration. But, it requires motivation which conceptualizes internal process of believe, values, perception and interpretation on environmental condition.

Glancing on my own school premises

Being a student of Environment Education and Sustainable Development (EESD) and also having long experiences of teaching 'health, population and environment education' in junior high school to secondary level (grade 6-10) in a rural school of Nepal, I have been observing that our school environment has been polluted with various types of waste materials. As result, it was more often seen that the wastes produce through various activities of the children and the closer households of the school environment. Simultaneously, I have been thinking about the best possible ways of changing students' behavior to maintain healthy school environment.

As a tool to drag students' attention, I drew a 'school health map' (as given in the page) and showed it to them.

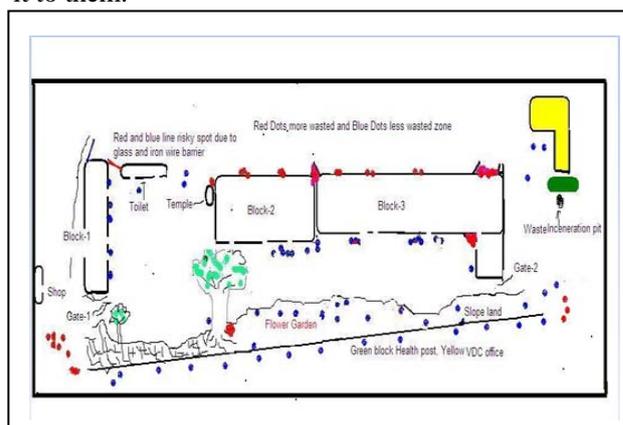


Figure-1: School Environment Health Map

They were surprised after seeing the map and realized that they have to be responsible without any further delay. They studied the 'school health map' and took part for a long discussion. Finally, they were committed themselves to remove the wastes from the school premises. I myself made a commitment to lead them. We all together came into a decision that made a clear role of each and every individual for the project.

Ways of Crossing the Border

I, as a researcher, scheduled verities of tasks and informed the students, e.g. observing to the critical (most wasted area and risky wastes like bottle and sharp goods) spots, collecting the waste, segregating the waste as per the nature of waste, scaling/counting up, filing, imaging, video recording, and finally disposal of waste as per the

nature of waste. All these activities were as taken under the **methodology** of the project. Some major methods/activities adopted for the project are stated as follows:

- a) Observation helps to know the critical spot,
- b) Collection helps to remove the wastes,
- c) Segregation helps to know the nature of the waste and enhance the skills how to segregate,
- d) Scaling/counting up helps to maintain the file (record) for analysis,
- e) Imaging and video recording helps to retain the evidence for further understanding and
- f) Disposal of the waste helps to know how disposal can be done- dumping, incineration etc.

In course of observing the several spots of the school premises according to the 'school health map' these were taken as the most wasted spots which can be seen through the pictures presented below:



Image-1: School Environment Glimpse Before Project

Observation is a way to see the phenomena from the very close proximity which gives an essential knowledge on what is happening there. According to Vishwakarma ^[2] field observation is learning by seeing from the real field (2011, p.10). Teachers' observation is essentially crucial to preserve the school environment. According to Caroline A. Gaurdino and Elizabeth Fullerton ^[3] through the observation teacher can identify that which physical aspects of their classroom need to be improved to contribute to increasing academic engagement and decrease the disruptive behavior of the students. It helps to think critically upon the surroundings (2010, p. 1). It

requires self-motivation in the part of teachers and students to make observation and feedback fruitful. If the children from very beginning could see the school health problem then they can take some initiatives to resolve the problems. This can be taken as an example of motivation.

Key Activities

The research aims to know ways of changing student's behavior to maintain HSE. It was, thus, taken seriously and all the activities were carefully monitored in order to find how they observe and perceive the existing school environment, what/how do they do? Are they self-motivated to perform the task? As a teacher and a researcher, my focus was on adopting an effective way to bring changes in student's behavior to maintain HSE. I, therefore, designed all the activities in such a way which motivated and guided the students to change their existing behavior towards the healthy growth and maintenance of the physical environment of the schools. I presented the unmanaged solid waste in the surrounding of the schools in picture which induced them and helped them realize to take some initiatives to make the school environment clean, healthy and pleasing.



Image-2: Various stage of Waste Management Process

As the major activities performed under the project were collection and segregation of the wastes, scaling/weighting up the collected wastes and disposal of wastes. These activities were performed once every week. As a result, it reduced the wastes and changed

their behavior gradually. These activities helped the students to bring desired changes in their actions and in their behaviors particularly in relation to the management and disposal of the wastes materials. So, I believe that if the children were motivated to do anything else they can perform well and give better result but it requires performing all the activities duly and also essentially for a proper waste management. It also promotes the health status of the school environment and school family as well. According to Kendra A. Morrison^[4], he has argued that proper waste management will ensure a safer school and protection of human health and the environment (Morrison, K.A., 2006, p.2).

Moreover, I have experienced that as the norms and values of an action research- planning and implementing, analyzing and comparing, re-planning, re-implementing, re-analyzing and re-comparing are the ways of getting improvement which is continuous process in course of conducting action research. The prolong-engagement of the students has helped them change their patterns of behaviors and actions towards creating healthy school environment. Some images are presented below to show how the status of school's physical environment before and after the project.

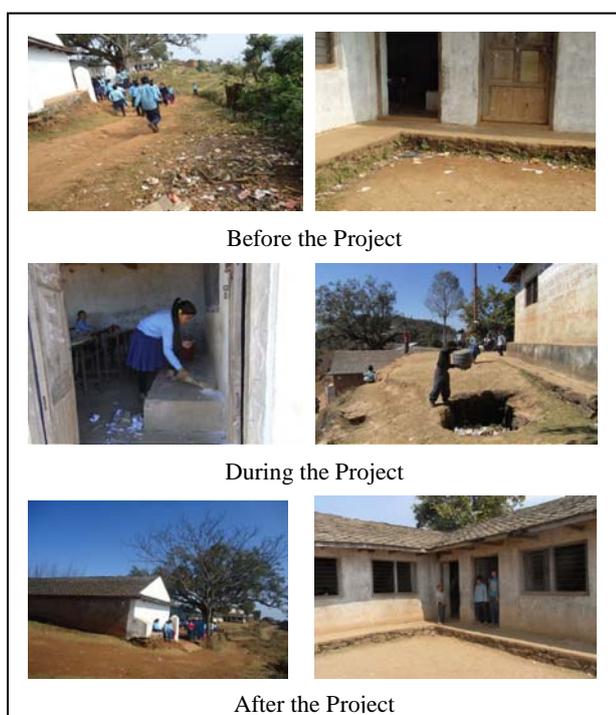


Image-3: Pre-scenario and Changed Scenario

These pictures show the evidence of changing behavior and the improving of school environment as well. From the middle two images (collecting the wastes and dumping into the incineration pit), it is seen that they are paying attention to the school environment. As a result, the school environment is being healthy due to continuous effort by the student themselves. Such key activities really help not only maintain healthy school environment but also contribute to gain knowledge-how to collect the wastes, how to segregate the wastes, how to record the data, how to develop audio-video of the activities, how to identify the issues of the solid wastes in the school and its surrounding. During their active participation in such activities the students equip themselves with knowledge, skills and attitudes which help them reform their social behavior such as cooperation, coordination and leadership. Before this research most of the students used to depend on the classroom sweeper. There used to be wastes inside the classroom and outside as well. They used to neglect the proper management and disposal of the dirt in the schools. They used to think that waste management of school was not the part of their duty. However, while they were engaged in the research project they became aware to the school environment. They incessantly appeal to keep the dustbin inside the classroom and started to pick up the cover of chocolates, packets of biscuits, noodles and so on from the school ground and its surrounding. They became conscious towards school sanitation.

Ways of Behavior Change

Changing behavior in the part of students is not easy. It requires rigorous procedure of performing typical tasks. This action research took place focusing to transform the students' behaviors conducive to healthy school environment. Because of participating in various activities of the project students succeeded in changing their behavior patterns towards school environment particularly through serious attention for observing, communicating to each other about waste problem, collecting the wastes cooperatively, segregating, recording and disposal (dumping, incinerating and reusing). It really evolves a way of cooperative working skill and progresses in learning. It, methodologically, slightly differs from a previous

research which was conducted in a school of Kathmandu Valley in 2010 in which focus was given in both (observation and interview) to the subject (health, population and environment) teacher, student and principal but in this research focus was strongly given in the participative observation. However, a progressive step of the previous research in terms of methods and objective. And, it was exactly different in terms of school setting as culturally and environmentally. Hence, an action can be extended as step by step either in the same research area or the different area to understand its applicability to solve (same/different) problem in the future.

As I have experienced from this action research, the key way of changing behavior of the students is possible with 4Ps (participation, practices, prolong-engagement and prizes). The 4Ps takes place in a cyclic order. Such activities contribute to change the behavior of the small kids gradually because they see the activities from the senior students. As I have observed all the small kids became interested to collect waste materials for them. Likewise, self-motivation can play effective role to activate 4Ps. According to Sam Redding and Herbert J. Walberg^[5], the strength of motivation can be measured by a person's willingness to engage in an activity and persist in it (2012, p.12). Motivation energizes and inspires the participants for their meaningful participation. Cycle of 4ps has presented here:

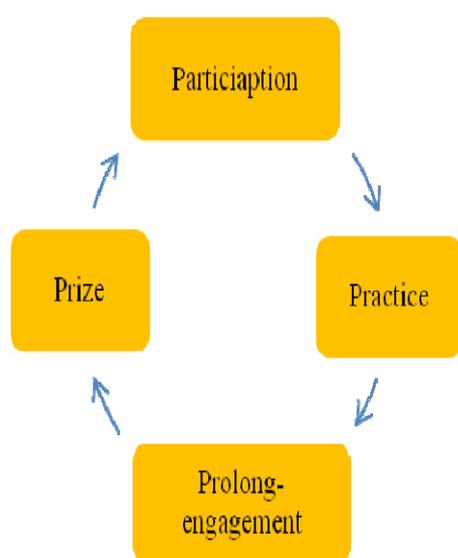


Figure-2: A Comprehensive Cycle of 4Ps Concept

Participation: It is very crucial to have experiences from the real set up. While the students take part in such activities of maintaining healthy school environment, they will have ample chances of enhancing their skills, knowledge and attitudes towards the situation-as theory of pragmatist John Dewey (learning by doing). Self motivated observation helps them think for their actions and intentions seriously. As a result, they motivate themselves towards the school environment. It also helps them design and implement various sustainable waste management plans as well.

Practice: It stands the repetition of the specified actions or behaviors for a long time and time and again. This helps them create knowledge through the process of trial and error- as theory of B. F. Skinner (learning is a trial and error). As I have experienced from this study, the children whoever participated in the project with self motivation they got success to change their behavior toward HSE. Planning, re-planning and re/implementing are taken as intervention to change their behavior, knowledge and skills in intended form. As define by Glanz, Lewis and Rimmers^[6] designing interventions to yield behavior is best done with an understanding of behavior change theories and an ability to use them in practice (1990, p.19). While students observe, participate, perform and practice the activities it lets ample chance of enabling themselves to change their behavior gradually.

Prolong-engagement: It is a way to change the behavior of the children. If the children self committed it may contribute excessively to maintain HSE. As a result, it brings desired changes in their behavior. In the course of prolong-engagement student compel to be tolerated themselves until they get the success which is the product of self-motivation. If the activities are based on certain research project then such project-based learning helps children be realistic and practical. It, however, takes a long time and needs active participation. According to Phyllis C. Blumenfeld et al^[7], project based education requires active engagement of student's effort over an action (Blumenfeld, Phyllis C. et. al, 1991, p. 4).

Prize: It is a best way for motivating the students. However, it somehow might be critical because it may influence the self-motivation. It plays vital role to

motivate the children while performing the activities. If the prizes are already announced it inspires children for participating, practicing, prolong-engaging. The children who participate s/he sees the prizes very beginning and repeat the action more (practice) which convince them for prolong-engagement and brings changes in their behavior progressively. Prizes might be different, e.g. words (thanks, well done, excellence, congratulation etc.) and goods (money, materials) which give social recognition among the students who gets it.

Challenges and Opportunities

Conducting the action research is both essential and crucial in the field of teaching and learning activities because it is believed that the key aim of the teaching learning process is to reform the behavior of the children. However, it is very much critical matter. Hence, all the school activities are performed with the aim of changing the behavior of the children for a complete career development and HSE.

There might be several ways to teach and change the student's behavior because it is needed to change the attitudes, enhance their capacity, skills and knowledge. But some of the activities are difficult to conduct because of student's perception, believes, attitude and behavior and socio-family background. During this research I faced several challenges because feeling of self-motivation- when/how does it come, difficult to know and retaining it for a long.

There might be a fluctuated motivation which stands as a challenge for 4Ps. Similarly, if they were not motivated, the teacher guidance does not work. The teachers need to specify the time, duties for each participant. Hesitated behaviors of the children can also be a challenge. Hesitation causes less interest in participation. Those who hesitate take long time to be in track of behavioral change throughout such activities. The participants of this project have experienced and have also obtained skills which gradually changed their behavior towards HSE and also contributed to safe school family lives, increased beauty of the environment as well.

Analysis and Discussion

Some of the information has been analyzed statistically which has been shown in the figure below:

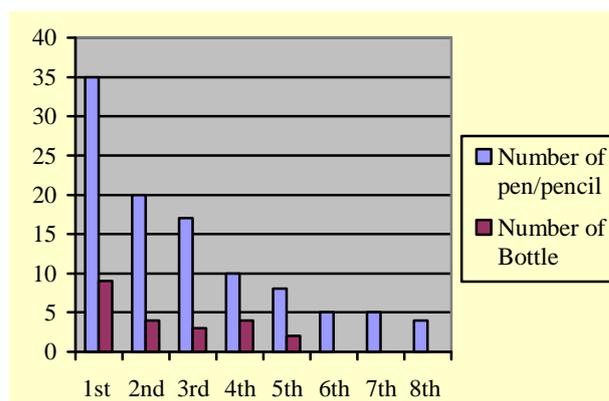


Figure-3: Statistical Analysis Shows Waste Reduction

From this figure it is seen that the use of number of bottle and pen/pencil has reduced. In the first week, the pen/pencil was 55 pieces and bottles were 9 pieces. As a result of research activities by 6th week bottle was found single piece. Only 4 pieces of pen and pencils were found by 8th week. It also indicates that the behavior of the students has been changed towards HSE by reducing the quantity of waste from the school surroundings.

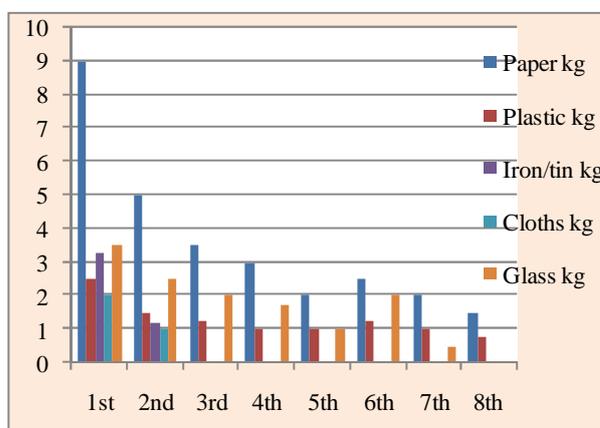


Figure-4: Statistical Analysis Shows Waste Reduction

Similarly, the quantity of these wastes (paper, plastic, iron/tin, cloths and glasses) has reduced. In the first week, collection of waste paper was 9 kg but till the 8th week it has reduced to 1.75 kg. The waste plastic was found 3.5 kg in the first collection but the same reduced to 0.75 kg by the 8th week. Similarly, iron/tin and cloths was found only twice of collection, iron/tin 3.25 kg and 1.25 kg, cloths 2 kg and 1 kg respectively. There was no more glass in the 8th week collection but it was 3.5 kg in the first week. In this way the quantity of waste was reduced due to continuous activities. The

more reduction in the quantity of the waste indicates the changing of students' behavior towards HSE progressively.

Conclusion

Fundamentally, this research has been conducted to explore the ways of changing behavior of the students' toward HSE throughout performing waste management activities. All the activities were done under the guidelines and instruction of the teacher-researcher. However, many challenges were there, e. g. motivating the students, shyness and hesitation to participate in the activities, believe and attitude, however, motivation does important role over such challenges. Their perception, belief, attitude and behavior make sense either positive or somehow negative toward HSE- what they learnt from their family so-far.

Throughout this action research, what I was looking for is- how to change the students' behavior toward HSE. As a result from the complete course of activities I believed that there is certain ways of changing behavior- participation, practice, prolong-engagement and prize are keys to change student's behavior toward HSE. The 4Ps is a way which should be operated in a cyclic order while action research is conducted. By conducting such action research quality of HSE will be improved and student's behavior will be changed simultaneously. Hence, such action research is prolific in the school, According to Vishwakarma^[8], it might be coincide beneficial because on the one hand might be much fruitful for betterment of school environment alongside perception, attitude and responsive behavior might be changed of the school family (2011, p.3). More importantly, if more of such research is done in the school the more benefit will be there- how you intend to change the students' behavior toward HSE and to what extent. I would believe that it's really a better way of changing behavior and a model of transformative learning- planned activities is performed as result behavior changed progressively and keeps neat and beauty. It actually gives better quality output.

Similarly, another important learning is that there should be intersectional initiatives to maintain HSE, e.g. initiative from the closer households, students, teachers, school administration and so on, hence, really

a multidimensional and transformative approach. If as teachers, we really want to change the students' behavior toward HSE; we should motivate our students, to pay attention to the self-motivation in right time, monitor and evaluate their work continuously, encourage, give feedback and also award them at right time without any biasness. But monitor and assessment should be done frequently at the right time. Students' initiative for waste management and the change in their knowledge, skills and attitudes are to be assessed, recorded and analyzed continuously for the future lesson and learning.

Reference

- [1] Baula, Enricho U. School-Based Solid Waste Management Initiative in the Philippines: Lessons and Experiences of the Toyota Auto Parts and Sta. Rosa City Partnership, 4th Asian Rural Sociology Association (ARSA) International Conference. 2010.
- [2] Vishwakarma Lila. A Report on Plastic and Paper Waste Management within Classroom (school premises), Environment Education and Sustainable Development (EESD), Department of Education, Kathmandu University, Nepal, 2011.
- [3] Gaurdino, A. Caroline and Fullerton Elizabeth. Changing Behavior by Changing the Classroom Environment, Teaching exception children, 2010, p.1
- [4] Morrison, K. A. Hazardous waste management for school laboratories and classrooms, Frank Sherwood: U.S. EPA Region 8, 2006.
- [5] Redding, Sam & Walberg, Herbert J. Promoting Learning in Rural School, Center of Innovation and Improvement, Kickapoo Street, Lincoln, Illinois, 2012.
- [6] Glanz, K., Lewis, F. M. & Rimmers, B. K. (Eds.). Health Behavior and Health Education: Theory, Research and Practice, San Francisco, CA: Jossey-Bass.1990.
- [7] Blumenfeld, Phyllis C. et al. Motivating Project-Based Learning: Sustaining the Doing, Supporting the Learning, 1991.
- [8] Vishwakarma Lila. A Report on Plastic and Paper Waste Management within Classroom (school premises), Environment Education and Sustainable Development (EESD), Department of Education, Kathmandu University, Nepal, 2011.

Acknowledgement

First and foremost, I would like to thank to those students who participated in this action research. They have all performed their activities much enthusiastically. They are thus the initiators to change the school environment through waste management.

Similarly, it could be injustice if I would not thank to all the school-staffs who have supported and suggested to the students during this action research. Specially, the consent and assistance obtained from my head teacher remained important for which I would

like to thank him. The very young kids from the lower grade of the school they also have observed the activities and tried to follow, what was done by senior students? I would like to thank them for their progressive educational development. Finally, all the students are the character of having countless thanks in advance. I would also like to thank the community people (especially the households who have been running their shop near the school surrounding) who have helped to improve school environment.

(Received October 11, 2014; accepted April 6, 2015)

Lila Bahadur Vishwakarma

Teacher/Researcher, Kallery Secondary School, Dhading, Nepal

As a part of academia, he accomplished two Master's Degrees in 'Environmental Education and Sustainable Development' from Kathmandu University, and in 'Curriculum and Evaluation' from Tribhuvan University, Nepal. He has 21-year teaching experience in primary to secondary level of government schools in rural area as his professional career. He is currently studying for M. Phil Degree at Kathmandu University. His special research interests are in the area of education for rural development and sustainable school management.