

# **SCIENCE FUN DAY AS A SERVICE LEARNING ACTIVITY: EVALUATION, EXPERIENCE, AND PERCEPTIONS OF SCIENCE PRESERVICE TEACHERS**

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## **ABSTRACT**

This paper discusses the self-evaluation, experiences and perceptions of the preservice teachers on their Science Fun Day program as a form of service learning. Service learning is a pedagogy that allows participants to extend service to the community. It is the utilization of extension programs in academic context to develop social skills, sense of responsibility, and self-efficacy of the participants. In teacher education, service learning is a promising tool to be utilized in molding a teacher with excellent content, exemplary skills and a community responsive disposition. In this research, science preservice teachers designed a service learning activity entitled Science Fun Day and implemented it in their chosen community. The planning for each Science Fun Day includes community survey and informal needs assessment. After which, an extension program was carefully planned to help the community with their needs such as literacy, hygiene, and nutrition. Activities that students will enjoy have also been implemented.

**Keywords:** Service Learning for Preservice Teachers, Science Fun Day, Teacher Education Preparation, Extension Program for Preservice Teachers

## **INTRODUCTION:**

Service learning is an approach that can be utilized to enable students incorporate service related activities with their academics (Bates, 2009). Through service learning, students can improve their self-esteem, self-efficacy, and social responsibility (Conrad & Hedin, 1991; Wade, 1995; Bates, 2009). In teacher education, service learning has a powerful role to play (Durbin & Marchel, n.d.). Service learning allows pre-service teachers to experience situations that will make them mature both in their personal and professional life (Chambers & Lavery, 2012). Teacher education should incorporate service learning to open up the minds of future teachers to develop a commitment and be sensitive to the needs of the society.

The Philippine Normal University as the National Center for Teacher Education in the Philippines has been assigned to spearhead innovations that will help improve the teacher preparation programs in the country. One way of extending service to the country is through extension programs. Hence, the preservice teachers who are the subjects of this research have been enabled to do extension programs in their selected communities.

In this research, the extension program called 'Science Fun Day' is a form of service learning activity that preservice science teachers participated. This research has been undertaken to evaluate the activities during the implementation of the 'Science Fun Day' through self-evaluation of the preservice teachers themselves. The experience of preservice teachers on the said service learning activities were also determined. Preservice teachers perceived implications of the service learning to their future practice was also investigated.

The results of this research will be important to teacher education institutions in the Philippines to evaluate the possibility of integrating service learning activity in their course programs. With the challenges faced by the Department of Education on literacy and malnutrition, service learning facilitated by preservice teachers maybe a potential source of help.

## **REVIEW OF RELATED LITERATURE:**

Service learning is the utilization of community oriented activities in academic context (sonoma.edu). The modus-operandi of service learning is experiential learning by rendering service (Crew, 1995; Chambers & Lavery, 2012). It is a pedagogy that allows students to directly apply the concepts they have in community outreach programs.

Service learning positively affects students in different ways. Astin, Vogelgesang, Ikeda and Yee (2000), through their longitudinal study, described that students who participated in service learning developed different outcomes like academic performance, values, and self-efficacy. Through service-learning, students are able to possess a sense of ownership that created difference in the way they understood concepts in the classroom (Bates, 2009). Spencer, Cox-Petersen, and Crawford (2005) described that compared with traditional teacher training, service learning provides a rich context of teaching and learning for preservice teachers. With these positive effects of service learning, many institutions around the world have opted to adopt the pedagogy in different disciplines for its viability to enhance the quality of education (Billig, 2003).

In teacher education, service learning encourages teachers to develop both their personal and professional careers (Chambers & Lavery, 2012). Preservice teachers described that through service learning, they are able to learn course contents that they are taking (Castellan, 2011). Bates (2009) described that service learning is an important pedagogy to be experienced by preservice teachers as well as the university faculty members not just for personal growth but for the impact that teachers can do in the classroom through the said type of learning. Kezar (2005) sees service learning as a potential social justice enterprise that can help students develop positive attitudes through meaningful experiences in their classes making them become responsive and active citizens.

Castellan (2011) described the two models that can be utilized in integrating service learning on teacher preparation programs which are the regular and the cascading model. The regular model involves activities that meet the identified needs of the school. Examples of activities in the regular model include tutoring, administrative assistance, and classroom management. In the cascading model,

preservice teachers together with their students planned activities to be rendered to the community based on the identified needs of the community. Cascading model moves beyond school needs and is focused on community partnership. In cascading model, preservice teachers become part of the process in doing service as well in meeting their academic needs. The activities that are examples of cascading model are cleaning the playground area, preparing activities for lower-level classes, and letter-writing project for senior citizens.

In this research, cascading model of service learning has been utilized. The activities involved in the service learning programs have been carefully planned by the preservice teachers themselves. They have surveyed the need of the community and identified ways how to help them. The program falls under the cascading theory since it goes beyond the Institute of Teaching and Learning of PNU where they are having their preservice trainings.

The study of Chambers and Lavery (2012), through discourse analysis, revealed different themes that illustrate preservice teachers' experiences on service learning. These themes are empathy, leadership, self and societal reflection, confidence, professional practice and knowledge and skills.

*Empathy* is the ability to understand others. It is a way to comprehend the situation of other people, though coming from a different perspective. Empathy is important for teachers to be sensitive to their students. Empathy enables teachers to look at students as different individuals coming from different aspects of life and understand them as they are.

Tonkin (2004) stated that service learning is inevitably associated with *leadership* that promotes change. Leadership through service learning is a shared vision for a better society and a more responsible sense of citizenship. Teachers should be leaders of change that they want society to become. At the present state of the education system, the leadership of teachers to improve its quality will be a great help.

Another critical component of service learning is the reflection of *self and society*. According to Chambers and Lavery (2012) self-reflection provides an insight the way people see themselves compared to others that enables them to change their values, thoughts, or understandings. It also echoes the challenges encountered by individuals. On the other hand, societal reflections is an act of contemplating beyond one's immediate experience and realize how such experience may impact the society as a whole.

Service learning also enables preservice teachers to have *confidence* in teaching (Chambers & Lavery, 2012). It provides people to respond to situations that are new to them and confront such situations proactively. By doing so, service learning nurtures a person's confidence in facing different situations.

The aim of any service learning is to allow participants to find connection with service learning activities and their aspired profession (Donnison & Itter, 2010). Simply put, service learning should *impact professional practice*. For teacher education programs, service learning aims preservice teachers handle varied students. By doing so, they are able to practice their teaching skills like classroom management and facilitating instruction (Chambers & Lavery, 2012). McDonald and his associates (2011) stated that preservice experiences in a community based activity will enable them practice handling students of different backgrounds.

Lastly, service learning enhances the *knowledge and skills* of preservice teachers. This aspect has been described by Chambers and Lavery (2012) to be more specific and individualized compared with that of the professional aspect area.

With all these areas that help preservice teachers to improve with, why is service learning hard for others to do? Anderson (2000) cited several reasons:

1. Service-learning is not perceived as aligned with institutional mission, goals, roles and rewards.
2. Some faculty and administrators are not interested in service learning.
3. Faculty members are unprepared to use service-learning as a teaching method.
4. Teacher education faculty lack time necessary to implement service-learning.
5. The preservice teacher education curriculum is already overcrowded.

### **RESEARCH OBJECTIVES:**

This research seeks to investigate the experiences of science preservice teachers in facilitating service

learning activities. Specifically, this paper aims to achieve the following objectives:

1. Determine the self-evaluation of preservice in terms of
  - a. their performance in their service learning activities,
  - b. student participation with service learning activities,
  - c. and areas to be improved with the service learning activities.
2. Describe the experience of science preservice teachers' on service learning activities.
3. Describe how preservice teachers perceive the importance of the service learning activity in their future professional career.

## METHODOLOGY:

### *Subjects:*

There were three sections of preservice teachers involved in this study. Each section was assigned a specific community to extend service learning activities. Out of the seventy-five (75) preservice teachers who participated in the service learning activities referred in this research, twenty eight(28) have been purposively chosen to be the subjects of this study. As to class distribution, there were eight (8) General Science majors, ten (10) Biology for Teachers Majors, and ten (10) Biology majors.

### *Science Fun Day:*

The service learning activities in this research has a title of Science Fun Day. Each class was assigned to identify a community that they would like to conduct their Science Fun day. The participants then conducted an informal survey and identified the needs of the children in the community. Thus, activities were designed to specifically address the said needs. Also, to ensure that it would really be a Science 'Fun' day, the activities were carefully designed to incorporate science concepts with game-based activities that the student participants will enjoy. Table 1 below shows the program outline of the Science Fun Days conducted.

**Table 1: Science Fun Day program**

<b>Facilitators</b>	<b>Location</b>	<b>Identified Needs</b>	<b>Main Activities</b>
General Science Majors	Barangay A	Scientific Literacy	Science games and experiments
Biology Majors	Barangay B	Sanitation	Lecture-workshop on sanitation
Biology for Teachers	Barangay C	Nutrition	Feeding program

Upon designing the Science Fun Day programs, preservice teachers sought the permission of the barangay chairman for each locale to conduct the activity. The barangay chairmen then assigned a social worker to assist the preservice teachers with their program. Each Science Fun Day lasted for one day only since the permission that was granted is only for such time.

### *Research Design and Instruments:*

This research utilized a qualitative research design employing discourse analysis. The preservice teachers that are the subjects of this research were allowed to write in their reflective journal about their experience on their participation with the service learning activity. Specifically, they were asked the following questions:

1. How will you assess your extension work in general?
2. How did the children respond to your activities?
3. What areas for improvement did you find in your program?
4. How do you feel doing the extension work in the community?
5. How is extension work important to being a teacher?

## **RESULTS:**

### ***Pre-Service Teachers' Self-Evaluation of the Service Learning Programs:***

The service learning activity in this research utilized the cascading model as described by Castellan (2011) in his paper. The preservice teachers themselves designed the extension program that they will implement on their chosen community. This section discusses the self-evaluation of teachers based on their observations and experiences during the planning and implementation of the program.

The respondents of this study generally perceived that their service learning activities were successful. Such perception have been supported by their observations that the students were actively participating and the through the positive comments of the community stakeholders. Some respondents said that their program was successful because they have attained the objectives that they have set for the program. Other respondents also said that the people in the community praised them for the help they have extended to the community.

Such notion of a successful activity has been further concluded by the respondents through the active participation of the children involved in the activity. Respondents said that the children were very ecstatic during the program and that they all enjoyed the activities prepared for them.

The General Science preservice teachers described that the students were very eager in listening to the explanations on science magics (experiments) that they have done. The students also answered their questions with wit and intelligence. Biology majors described that the children were also very attentive in their hygiene activities such as washing of hands and brushing of teeth. Biology for Teachers majors also had the same experience. The students really enjoyed their feeding program and some even asked for more.

*"Actually, I was really surprised that they could participate actively. They are so smart! They answered all the questions in the stations and they seemed to be happy and excited until the end. I think that our activity was very successful!"* – Respondent 7

However, preservice teachers cited several things to improve on their service learning activities. First is the funding. Most of the expenses incurred during the activity have been shouldered by the preservice teachers themselves because there are no available sources of funds. With the short budget, preservice teachers felt that the help they extended was not enough. Respondent 20 narrated that *"I think the part that I found problematic was when we are about to finish giving the meals. They asked for more but we could not give them because if we do, the others will not have any. I felt bad for them but I could not do anything."*

The second problem that the preservice teachers realized that needs to be improved is the venue. Five(5) respondents acknowledged the said factors. Most of them conducted their activities in an open area at the community where they are subjected to disruptions like vehicles crossing that could be a hazard to the children participating in their activities. Respondent 24 reported that during their service learning, garbage collection has been on going, thus disrupting their program implementation. However, preservice teachers admitted that the location given to them was not carefully studied since they have set the activities with conflicts on the venues of other possible venues in the community.

The last area that preservice teachers saw that has to be improved is managing the participants. Since the students were very active they tend to be restless and move around with their peers. The preservice teachers found hard to control particularly the small children. Letting students behave in one corner, listen, and just focus on the activity has really tested the preservice teachers' classroom management skills. There were nine (9) preservice teachers who cited the said problem. A sample response is shown below.

*"The area that I found challenging with our extension activity is keeping children in one place since they are young they tend to be restless and play around."* – Respondent 27

### ***Preservice Teachers Experience on Service Learning:***

Preservice teachers have varied experiences in their service learning activities. In this section, the experiences of preservice teachers were classified according to the themes on service learning experiences that were identified by Chambers and Lavery (2012). However, out of the seven themes

identified by Chambers and Lavery (2011) only four themes emerged in this section of the results. Table 2 below reports the summary of responses of the preservice teachers.

**Table 2: Summary of Preservice Teachers' Experience on Service Learning**

Theme	Frequency
Empathy	3
Leadership	4
Self & Society	22

\***Note:** Multiple responses were given

Based on Table 2, it can be inferred that most preservice teachers who participated in service learning activities perceived that the activity enabled them to reflect on their self and the society. Most of the preservice teachers described that service learning activities enabled them to develop a sense of responsibility and awareness on the issues in the community. Respondent number 1 said that “...I felt a sense of responsibility and awareness to transform ourselves with the obligation, vision, and mission to be the next educators and leaders in the society.” Another respondent stated that service learning made her to become a responsible individual like a real teacher nurturing children’s mind with good values that they will use in the future.

Other preservice teachers had a reflection on their status quo in life. Service learning activities made some preservice teachers realized that they are more blessed and lucky to have their needs met by their parents compared with the children that they have encountered during their service learning activities. Respondent number 14 said that “The extension program made me feel lucky to be able to live the life that I have now. I realized that there is more to life than having the fanciest clothes, gadgets, and the likes. The kids I have observed are contented with what they have, though less. I think they have helped me more than I have helped them”.

Another response that can be classified under the self and society area is the way preservice teachers themselves enjoyed the activity. Respondent 7 said that the service learning allowed her to get rid of the stress she has in her academic and personal life. Other respondents described that the service learning activities made them feel good, happy, and elated. Several respondents described that the experience that they had was overwhelming and they really had fun.

The next area in which the preservice teachers deemed to have an effect on them is leadership. By facilitating Science Fun Day activities, preservice teachers felt that they are leaders in the society and be servants of the community. Preservice teachers described that the service learning that they had is a form of public service that promotes the spirit of volunteerism and in a way are functions of a good leader.

*“Extension program is very important for teachers, because teaching is equivalent to sharing and caring. Sharing our knowledge to those people who needs help and care. Teachers are public servants and a profession that molds a child, a school, a community, a country and a world until it reaches his/her full potential.” – Respondent 8*

Service learning for them enabled them to help the less fortunate and empathize on their situations. As Respondent number 8 described in her response above, service learning enables preservice teachers to empathize with the children who need help in the society. Empathizing with the less fortunate makes teachers more responsible with their tasks.

**Perceptions of Preservice Teachers on the impact of Service Learning on Teaching Practice:**

In this section, preservice teachers were asked “How is doing extension work (service learning) important to being a teacher?” Upon analyzing the responses gathered through the journal analysis, it has been found out that student responses can also be categorized as to the themes described by Chambers and Lavery (2012). Table 3 reports the summary of preservice teachers’ perception on the implications of service learning to their professional practice someday.

**Table 3: Preservice Teachers’ Perception on the implication of Service Learning to their future practice**

Theme	Frequency
Empathy	1
Leadership	6
Self & Society	12
Confidence	3
Professional Practice	9
Knowledge and skills	3

\*Note: Multiple responses were given

As seen on table 3 above, preservice teachers’ perception on service learning are distributed in varied themes but is still focused on self and society. Respondent 6 stated that their participation in Science Fun Day made them realize that teaching is a vocation. Respondent 10 said that service learning enabled them to find happiness in teaching through serving other people. Service learning make preservice teachers aware of the state of the community and opened their eyes to realities according to Respondent 24.

On professional practice, respondent 3 said that the service learning activity they had exposed them to different situations similar to a classroom that enabled them to practice handling students of different behavior and background. Respondent 25 said that the activity they had provided them with ‘authentic’ experience of the students. In doing so, preservice teachers were able to understand why and how students behave in the classroom. Respondent 11 elaborated that the science fun day allowed them to share their expertise with the community. *“I believe extension work has always been a part of being a teacher. Extension work doesn’t just come with time. It needs effort and passion...”* said respondent 26.

*“Doing an extension work is important in becoming a teacher because time will come that a teacher will encounter children with financial problem and teachers should never be unkind to them. Teachers are born volunteers for they give service to people without expecting in return.”* – Respondent 21

As preservice teachers manifested in their experience on Science Fun Day as their service learning activity, they have also perceived that it hones their leadership potential. Respondent 22 described teachers to be intellectual leaders of the society. Thus, the development and progress of the community is one of the teacher’s responsibility. Leadership can also be equated with servanthood. Respondent 23 said that the extension program prepared them to be ‘servant leaders’ of all types of people regardless of race and economic status.

Preservice teachers also perceived that the service learning program developed their confidence to become inservice teachers. Respondent 5 said that the extension work that they had improved their interpersonal skills as teachers. She further explained that her communication and socializing skills were also improved.

*“Extension programs helped me become flexible and resourceful because anything could happen at the location of the program. We could not control everything in the place we are not so familiar with so our teaching skills and management skills were really tested. In doing so, our confidence as teachers-to-be was developed.”* - Respondent 7

Respondent 9 described how the service learning activity developed their knowledge and skills in teaching. *“The extension work we had raised awareness for a teacher to realize the need of the community with regards to literacy. It gives ideas to teachers to make learning accessible at any age”*

A notable answer to this section is the realization of teachers that the implication of service learning to teaching practice goes beyond by just making them empathize with the community as only one respondent have noted this observation.

**DISCUSSION AND CONCLUSION:**

From the responses of the subjects of this study, it can be concluded that Science Fun Day as a form of

service learning is an effective method of extending help to the community. In relation to the issues on service learning listed by Anderson (2000) that mostly accounts non-implementation of the service learning to the initiatives of faculty and officials of a teacher education institution, the results of this research showed another issue to be taken consideration which is financial support on service learning programs to support the preservice teachers. Therefore, it is suggested that service learning programs such as the Science Fun Day should be allocated with funds from the university and even the private sectors.

On the community's end, service learning activities should be allocated with a venue that will ensure the safety and sanitation of both the student participants and the preservice teachers rendering the service. A continued patronage on these types of programs is also suggested since the results of this study showed that it benefits both the ones rendering the service and the ones receiving it.

Upon the realization of preservice teachers that student participants are challenging to handle, it is suggested that the flow of the program as well as the activities be improved to keep the students occupied with their tasks and will not cause disturbance to the activities. It is also suggested that activities should be grouped according to age appropriateness to ensure that it caters the needs of the student participants and facilitate a more effective program.

This research agrees with the study of Chambers and Lavery (2012) that service learning enables teachers to reflect on the different areas of their personal and professional career. In this research, most preservice teachers were able to reflect on their self and the society and they have realized how great the role of the teacher is a community. Further, the preservice teachers were able to reflect on their personal lives that they are in a way more blessed than the student participants. Facilitating service learning impacts future teachers and opened up their eyes to a kind of world that really needs their help someday as future teachers.

In the area of leadership, the results of this study revealed that preservice teachers were enlightened with their roles as leaders of the society. Such result agrees with Tonkin (2004) that service learning promotes a sense of leadership. In the present research, preservice teachers revealed that their experience on the service learning activity allowed them to experience how to lead in the community and extend service to the members of the community. With this realization of teachers, it is hoped that they become more responsive with the needs of their future students and integrate service learning programs in their own classrooms.

For their future practice, preservice teachers were able to comprehend the importance of service learning in their profession. Preservice teachers acknowledged that Science Fun Day enhanced their teaching skills particularly in dealing with student having various attitudes. Classroom management is an essential skill to become an effective teacher, and in this study the said skill has been found to really challenge preservice teachers to improve with.

Therefore, based on the results of the present research, it can be concluded that Science Fun Day, as a form service learning, can really help preservice teachers as they prepare to become inservice educators. Thus, Science Fun Day as a form of service learning activity is strongly suggested to be experienced by other science preservice teachers.

### **RECOMMENDATIONS:**

This research is subjected to several limitations. First, only science preservice teachers were the subjects of this research. Thus, a similar activity with Science Fun Day in other subjects is suggested.

The evaluation of how successful the program was determined only by self-evaluation and through reflections of preservice teachers. It is recommended that a formal evaluation checklist to be accomplished by the student participants, barangay officials and the university supervisor be given to determine other areas for improvement and areas for research.

Lastly, Science Fun Day has been held only for a day. Therefore, it is suggested that a program that will help sustain the aims of the extension service be designed. Upon doing so, a longevity study may also be accomplished.

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