Community Service as a Teaching Method and Its Impact on Student Performance

Ana Liza P. Caliwag
Teacher Education Department, Northern Iloilo Polytechnic State College
Barotac Viejo Campus - Brgy. Puerto Princesa, Barotac Viejo Iloilo, Philippines
analiza.caliwag@gmail.com

Abstract. This research study employed a quasi-experimental design of two groups using pretest-posttest. Two groups were assigned to different treatments; the Control Group stayed inside the classroom while the Experimental group was exposed to community service. The manner of groupings was based on the randomized design lottery method technique. Results revealed that there was a significant difference in the student academic performance of the BS Biology students after the intervention using community service as a teaching method. Furthermore, the data gathered were triangulated using Focus Group Discussion (FGD) from the respondents, specifically personal reflections, observations, and in-depth interviews to the students and the residents of Barangay Daculan, Estancia, Iloilo. This implied that the conduct of the intervention brought significant effects to the student academic performance — likewise, the people of Brgy. Daculan has widened their perspective, awareness, and familiarity towards their surroundings after the series of lectures conducted in the community. Therefore, it can be stated that community service, when used as a teaching method, was highly effective to both students and community as revealed in the post-test results of students’ academic performance, the intervention improved the quality of instruction when used as a teaching method through community services.

1. Introduction
Learning transfer is a psychological construct that, in general, describes how learning by students is transferred from one context to another. It is also commonly called transfer of learning, transfer of training, transference, or simply transfer. Transfer of learning takes place in multiple domains, such as knowledge, attitudes, or skills. An example of the transfer of cognitive ability occurs when a student is able to use arithmetic skills learned in a classroom to estimate the time it takes to drive to a given location. In addition, classroom activities can be very rewarding and fulfilling when learning does not only confines in one area of the room, but it is best learned when concepts are being put into practice like conducting community services, learning visits and fieldwork activities. Community services can be conducted to ensure that learning brings a holistic and positive effect on the learner as well as to the community with whom they share the concepts and skills they have acquired from the classroom.

One of the major goals of science education today is fostering problem-solving, decision-making, critical thinking and practical applications. It is widely agreed that in order to achieve this end, science teaching must be shifted from traditional schooling to more behaviorist, constructivist-oriented instruction. Learning transfer through community services can be introduced as a new teaching method at finding out significant effect on the students’ performance.
[1] defined learning transfer as a psychological construct that, in general, describes how learning by students is transferred from one context to another.

In the study of (PEPA, 2000), 90% of the learning experiences of the students are a direct engagement to purposeful activities where they are given a chance to express what and how they feel when they are given a chance to conceptualize, connect and act appropriately to their environment. One of the many effective and essential strategies that will motivate students to learn is by allowing them to transfer what they have learned from classroom to the community and get involved into such community program to enrich their full potential and to extend help on others [2].

Thus, education as a field of discipline, is tasked in the cultivation of individual’s abilities, skills, attitudes, values and character traits using certain methods to allow students to explore both the real world and be themselves not only for pragmatic reasons but because they personally find these skills and ideas inherently valuable and applicable to real life situations [3]. For education to serve its purpose, it must contribute to the development not only for the learner but to the people to whom the products of education are intended to be realized.

1.1 Theoretical Background
This study was anchored on the "Behaviorist Learning Theory," by Watson which state that the changes in human behavior have resulted from the stimulus-response association made by the learner. Behavior is directed by stimuli. Individual select responses from another because of prior conditioning and psychological drives existing at the moment of action [4]. Behaviorists assert that only behaviors worthy of study can be directly observed, and replaced by new behaviors, that is when it is new. According to this, three assumptions are held to be true. First, the focus was on observable behavior rather than on internal cognitive processes. If learning has occurred, then some sort of observable external behavior is apparent. Second, the environment is sharper than that of learning and behavior, not individual characteristics. Third, principles of contiguity and reinforcement are central to explain the learning process. The behaviorist orientation is fundamental to much current educational practice, including adult education.

Most theorists agree that learning cannot be studied directly, but its nature can be inferred from changes in behavior (apart from B.F. Skinner who claims that behavioral changes are learning and therefore no further process need be inferred). The majority of learning theorists share the following basic definitional assumptions about learning:
1. Learning is referred to as a persistent change in human performance or potential True whether or not they actually have an opportunity to exhibit the newly acquired performance
2. To be considered learning, a change in performance must come about as a result of the learner’s experience and interaction with the world Some changes (e.g., fine motor control) can be attributed to maturation and therefore may not be considered learned.

Behavior changes (e.g., search for food when hungry) are explained on the basis of temporary states but don’t imply learning.
Learning requires experience, but what these are, how they’re used, & how they bring about learning to constitute the focus of every learning theory [5]. According to the social learning theory [6], behavior is learned from the environment through the process of observational learning. It posits that people learn from one another, via observation, imitation, and modeling. The theory has been called a bridge between behaviorist and cognitive learning theories because it encompasses attention, memory, and motivation.

1.2 Statement of the Problem
This study determined the effect of community service as a teaching method and its impact on student performance.
More specifically, it sought answers to the following questions:
1. What are the BS Biology curricular offerings that are closely related to community services?
2. What is the level of the academic performance of the BS Biology students in terms of these curricular offerings?
3. What are the pretest and posttest scores of the BS Biology students?
4. Is there a significant difference between the pretest and post-test scores?
4.1. Within group?
4.2. between group
5. What are the perceived hindering and facilitating factors that may influence the community service as a teaching method and its impact on student’s performance?
6. What are the intervention schemes that can be recommended based on the findings of the study?

1.3 Hypothesis

4. There is no significant difference between the pretest and post-test scores
4.1. within group
4.2 between group

2. Methods
This research study employed a quasi-experimental design of two groups using pretest-posttest. Two groups were assigned to different treatments. The control group composed of 20 students that went through the traditional classroom experience and the experimental group were exposed to community service as the teaching intervention and had conducted a series of lectures in the community. The manner of grouping was based on the randomized design lottery method technique. On the qualitative aspect, data were triangulated by Focus Group Discussion (FGD) wherein information from the respondents specifically personal reflections, observations and in-depth interviews with both the students and the residents of Barangay Daculan, Estancia, Iloilo was conducted after the posttest and the said intervention. Furthermore, the study utilized two sets of instrument used for quantitative and qualitative data. For Phase I, administering the pretest to the respondents using the teacher-made questionnaire which contained topics in four subject areas as part of the curricular offerings namely: Biological Science, Earth and Environmental Science, Plant Morphology and Science, Technology and Society. The said questionnaires had undergone validation from the science experts and one English professor to ensure the validity and reliability of the instrument. It was the first pilot tested to the BS Biology students of Philamer Christian University at Roxas City, Capiz before the conduct of the said pretest to the actual respondents. For Phase II, Open-ended questions were prepared and validated by the same group of experts for the qualitative phase under Focus Group Discussion which was utilized by the selected student respondents after their posttest and the selected residents of Brgy. Daculan, Estancia, Iloilo after exposing them to the said intervention.

In answering the research questions, the following methods were used for the analyses and interpretations: Frequency Counts and Simple Percentage were used to determine the distribution of the respondents while meaning, simple percentage and the standard deviation for descriptive analyses. The mean was used to determine the level of academic performance of the BS Biology student respondents whether they are excellent, very satisfactory, moderately satisfactory, and low performance while t-Test was used to determine whether there is a significant difference between the means in two unrelated groups. The manner by which scores were interpreted was based on the standard the school for a 50 items test whereby the results would guide the researcher towards assessing the performance of the student respondents before and after the intervention. Data gathered were tabulated, analyzed and interpreted using statistical tools. The difference was tested for statistical significance set at 0.05 level.

3. Results and Discussion
Table 1 shows the BS Biology curricular offerings that are relevant in the conduct of community services as a teaching method to the community residents of Barangay Daculan, Estancia, Iloilo. The selected topics from the lecture were based on these curricular offerings. As reflected on the table, Biological Science, Earth, and Environmental Science, Science Technology and Society were 3 unit subjects while Plant Morphology is a five-unit subject offered during the 1st Semester intended for the second year BS Biology students. This implies that in the questionnaire most questions came out even in the final draft were mostly in Plant Morphology subject.
### Table 1. BS Biology Curricular Offerings that are Closely Related to Community Service

| Subject Code | Descriptive Title                  | Units | Sem/Curr. Year |
|--------------|-----------------------------------|-------|----------------|
| Bio.1        | Biological Science                | 3     | 1st Sem./1st Year |
| Sci.2.       | Earth and Environmental Science   | 3     | 2nd Sem./2nd Year |
| Bio. 3       | Plant Morphology                  | 2     | 1st Sem./2nd Year |
| Bio. 8       | Science Technology & Society      | 3     | 2nd Sem./3rd Year |

Table 2 shows the BS Biology student-respondents academic performance in every subject namely, Biological Science, Earth and Environmental Science, Plant Morphology and Science Technology and Society. Data revealed that in Biological Science N=23 which has a grade of 2.5 - 2.1, n=14 were very satisfied with a grade of 2.0 - 1.6 and three were excellent with a grade of 1.5-1.0. This implies that most students perform satisfactorily in the subject Biological Science.

As to Earth and Environmental Science, N=26 performed very satisfactory, N=22 were satisfactory, and N=4 were excellent in this subject. In Plant Morphology, most students perform very satisfactory N=20, while N=18 were satisfactory and N=2 were excellent. In Science Technology and Society, N=26 were very satisfactory N=5 were satisfactory and N=9 were excellent. The study revealed that among the four subject areas related to community service, Science and Technology and Society subject showed that most number of excellent student performance. This simply shows their interest in this subject matter in relation to community service.

### Table 2. Level of Academic Performance of the BS Biology Students in Terms of Curricular Offerings

| Lists of the Subjects   | Excellent (1.5-1.0) | Very Satisfactory (2.0-1.6) | Satisfactory (2.5-2.1) |
|-------------------------|---------------------|----------------------------|-----------------------|
| Biological Science      | 3                   | 14                         | 23                    |
| Earth & Env’tl. Science | 4                   | 26                         | 22                    |
| Plant Morphology        | 2                   | 20                         | 18                    |
| Science Technology & Society | 9                 | 26                         | 5                     |

Table 2.2 shows the academic performance of the BS Biology students samples. When grouped according to student’s GPA (Bio. Science, Env’tl Sci., Plant Morphology and Science Technology and Society Subjects), 65% (n=26) where those with a GPA of 2.0-1.6 or 85-89, where those with 2.5-2.1 or 80-84, 27.5% (n=11) and with 1.5-1.0 or 90-95, 7.5% (n=3).

It showed that most of the student’s performances were very satisfactory which means that they performed well from the four related subjects they have taken as shown in their grade point average.
Table 3. Level of Academic Performance of the Student Respondents

| Grades | Equiv./Description | Frequency, n=40 | Percentage % |
|--------|--------------------|----------------|---------------|
| 1.5-1.0 | (90-95) Excellent   | 3              | 7.5           |
| 2.0-1.6 | (85-89) Very Satisfactory | 26         | 65.0          |
| 2.5-2.1 | (80-84) Satisfactory | 11             | 27.5          |

Table 3, based on the results, the mean score of the pretest for the control group is 19.5, (moderately satisfactory) with a standard deviation of 4.14, while the mean pretest for the experimental group is 21.25 (satisfactory) with a standard deviation of 3.47. For the post-test, the mean score of the control group is 30.55 (Satisfactory) with a standard deviation of 4.07 while the mean posttest score for the experimental group is 33.60 (Very satisfactory with a standard deviation of 4.31. Data revealed that the control group performed moderately satisfactory from the start while the experimental group had a satisfactory performance as shown in their pretest results. This simply means that they still have in mind their previous lessons. As to the post-test results, both groups had improved their performance. As indicated by the result of the control group, they were already performed satisfactorily while the experimental group improved and performed very satisfactory. This simply shows that the result of the control from the experimental group is not at par even before and after the intervention. The control and the experimental group improved their academic performance. Thus, teachers must put in mind that students are an essential asset for any educational system. The knowledge they obtained greatly affects their current academic performance. The students’ academic achievement plays a very crucial role in producing the best quality graduates who will become great leaders and manpower for the country, thus, responsible for the country’s economic and social development.

Table 4. Pretest and Posttest Scores of the Respondents

| Group          | Pretest          | Post-test       |
|----------------|------------------|-----------------|
|                | Mean | Description    | Std. Dev. | Mean | Description    | Std. Dev. |
| Control Group  | 19.5  | Moderately Satisfactory | 4.14       | 30.55 | Satisfactory   | 4.07       |
| Experimental Group | 21.25 | Satisfactory    | 3.47       | 33.60 | Very Satisfactory | 4.31       |

Table 4.1 shows the T-value obtained from the analysis of the mean scores of the pretest and posttest of the control group is -8.515. The result also showed that the p-value or value of significance is 0.000** which is lower than the level of 5%. Thus, the analysis showed that there was a significant difference in the mean pretest and posttest scores of the control group. There is a reason to reject the null hypothesis that there is no significant difference in the mean score of the pretest and posttest of the control group. The posttests score of the control group had improved even without the intervention as seen in their
performance. This could be due to some factors like the advent of technology, availability of media resources which could have improved their knowledge and skills from the topics covered in the test.

| Table 5. Pretest and Posttest Scores of the Control Group |
|----------------------------------|-------|-----|----|-------|-----|
| Source of difference | Mean  | SD   | t-value | p-value | Decision | Interpretation |
|------------------------|-------|------|---------|---------|----------|----------------|
| Pretest                | 19.50 | 4.14 | -8.515  | 0.000** | Reject Ho| Significant    |
| Post-test              | 30.55 | 4.07 |         |         |          |                |

Table 4.2 shows the t-value obtained from the analysis of the mean scores of the pretest and the posttest scores of the experimental group is -9.820. The results also showed that the p-value or the value of significance is 0.000** at the level of 0.05. Thus, the analysis shows that there was a significant difference between the mean score of the pretest and posttest scores of the students. Thus, there is a reason to reject the hypothesis that there is no significant difference in the mean scores of the pretest and posttest scores of the students. The significance at 5% level also implies that the difference in the mean scores of the pretest and posttest of the experimental group of students is due to the effect of community service as a teaching method to the community of Brgy. Daculan Estancia, Iloilo in improving the academic performance of the students, not due to chance.

| Table 6. Pretest and Posttest Scores of Experimental Group |
|----------------------------------|-------|-----|----|-------|-----|
| Source of difference | Mean  | SD   | t-value | p-value | Decision | Interpretation |
|------------------------|-------|------|---------|---------|----------|----------------|
| Pretest                | 21.45 | 3.47 | -9.820  | 0.000** | Reject Ho| Significant    |
| Post-test              | 33.60 | 4.31 |         |         |          |                |

Table 4.2.1 shows the analysis of pretest in relation to a group of student samples. The p-value significance of the t-test is 0.115 which is greater than 0.05. This reveals that there was no significant difference in the mean score of pretest with respect to a group of student samples at 5% level of significance. The result proves that students have basically prior knowledge, footing or grounded information before the start of the experiment.

The results revealed that at the start of the intervention, students have already the skills and concepts stored in their mind, they are intellectually prepared and are able to grasp better ideas in their mind and process these with confidence.
Table 7. Pretest (Control) and Pretest (Experimental)

| Source of difference | Mean | SD  | t-value | p-value | Decision Ho | Interpretation |
|----------------------|------|-----|---------|---------|-------------|----------------|
| Control              | 19.50| 4.14| -1.615  | 0.115   | Do not Reject Ho | Not Significant |
| Experimental         | 21.45| 3.47|         |         |             |                |

Table 4.2.2 shows the analysis of posttest in relation to a group of student samples. The p-value significance of the t-test is 0.027 which is lower than 0.05. This suggests that there was a significant difference in the mean score of posttest with respect to a group of student samples at 5% level of significance. Based on the results, it can be concluded that the transfer of learning from classroom to community had a significant effect for the experimental group compared to the control group.

Table 8. Posttest (Control) and Posttest (Experimental)

| Source of difference | Mean | SD  | t-value | p-value | Decision Ho | Interpretation |
|----------------------|------|-----|---------|---------|-------------|----------------|
| Control              | 30.55| 4.07| -2.301  | 0.027*  | Reject Ho   | Significant    |
| Experimental         | 33.60| 4.31|         |         |             |                |

4. Conclusions

It can be stated that the intervention was highly effective to both students and community as revealed in the posttest results of the students and from the results of the interviews conducted to the residents of the community during the focus group discussion. This simply shows how effective is the intervention to the students the mere fact that they are the one who conducted the lecture. They were driven and motivated to extend the skills they have acquired from the classroom and had to develop their sense of commitment to help the people in the community.

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