(Stem Community Immersion and Engagement in Nurturing Curriculum and the Environment): A Journey of Commitment and Consistency

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ABSTRACT

Continuous and consistent enhancement of the curriculum in the learning context enables learners to gain in-depth knowledge, skills, values, and attitudes. In this regard, this study is focused on the evaluation of Project SCIENCE a strategy employed by the research among grade 11 STEM students of Cuenca Senior High School together with all other stakeholders in conductingcommunity immersion, engagement, and disaster readiness practices in this school year 2022-2023.

The study employed a descriptive research design wherein a survey questionnaire is the main instrument used. Percentage, frequency, and mean were utilized to rate the implementation of Project Science activities.

The study reveals that among all the activities performed in the course of the project- ensuring the safety of the participants during the clean-up drive, training, and community-based disaster symposium ranked first. Moreover, the participants rated Project Science feedback and evaluation processes as ranked 1. It was also found that the participants experienced difficulty in time management, insufficient fund, and materials, lack of manpower and support from the whole community. Thus the study recommends the implementation of a redesigned Project Science proposal for the next school year and open it to all students of Cuenca Senior High School.

Keywords: Community, Immersion, Engagement, STEM

I.CONTEXT AND RATIONALE

It takes a village to raise a child- (African Proverb). Students acquire in-depth knowledge, skills, values, and attitudes through continuity and consistency by enhancing the curriculum. Making the curriculum relevant to the learners through contextualization and enhancement. Teaching andthe learning process can be strengthened by using appropriate strategies that best fit the needs and current situation ofstudents. As defined in the PPST, 2017 learning environment is referred to as a classroom and other physical areas outside of it. It is the goal of the teacher as the curriculum implementer to expose and expound students with strategies and approaches together with the help of stakeholders. This is also linked with the RPMS, 2021 Objective 13 that proficient teachers need to maintain a learning environment responsive to community context.

In this regard, Project SCIENCE is conceptualized by the proponent to pursue the activity wherein STEM students will be allowed to expand their learning in selected subjects through community engagement and disaster readiness practices. Moreover, this project empowers students to understand the required competencies through direct application in the community that enhances their responsibility towards the environment and disaster.

According to the findings, most stakeholders agreed that the project science activities that were mostly participated in were as follows ensuring the safety of the participants during the course of activities like clean up drive, training, and community-based symposium while the least participated was to attend the a series of training about disaster risk reduction last March 2023. Furthermore, it can be noted that Feedback and Communication ranked 1 among all the processes involved in Project Science followed by the Implementation processes. The results are supported by a study by Aminu et al (2023) that states responsive feedback from stakeholders greatly helps the continuity and success of a program.

The participants, on the other hand, experienced difficulties in performing the whole year's activities of Project Science in terms of time management, lack of materials and funds, less number of other participants, unawareness of the community with regard to the project, and the location and time for the community engagement is to be performed. Moreover, there is a desire to redesign the action plan of Project Science with the whole year's activities aimed to promote awareness of the Stem community immersion and engagement. Furthermore, monitoring and evaluation of the various activitiesare to be implemented as a basis for improvement and success.

II. INNOVATION, INTERVENTION, AND STRATEGY

The environmental situation we are experiencing now all throughout the globe has a huge difference over the past decades as proof of a deteriorating earth. A reason for this drastic change is the technogenic activity of people that results in damage to natural elements. Education plays a significant role in the development of the ecological culture of youth. Emazarov (2021).

As a form of intervention,Project SCIENCE was crafted with the main goal of meeting the challenge as expected by the department in producing lifelong learners that are stewards of nature and at the same time disaster ready. This goal is anchored in conceptualizing the required competencies of selected subjects among Grade 11 STEM students with the integration of community context and the curriculum, strengthening community partnerships to attain the goals of the project activity, and inculcating students' responsibility in protecting the environment through civic activities connected to curriculum competencies.

III. ACTION RESEARCH QUESTIONS

Specifically, this study seeks to answer the following questions:

1. What are the activities performed by the stakeholders in the said projects?
2. How can the stakeholders rate the project in terms of
    - 2.1 Objectives
    - 2.2 Planning
    - 2.3 Implementation
    - 2.4 Monitoring and Evaluation
    - 2.5 Feedback and Communication
3. What are the encountered difficulties by the stakeholders during the course of the project?
4. What redesigned project may be proposed for the next implementation of the activity?

IV. ACTION RESEARCH METHODS

a. Participants and other sources of Data and Information

This research covers all STEM students, teachers, and parentsof Cuenca Senior High School. This also includes volunteered local government officers and non-government representatives.

b. Data Gathering Methods

A descriptive method of research with a questionnaire as the main tool in gathering the data was used to assess the quality and involvement and sustainability of the program. According to Shuttleworth (2016), is believed to be the most appropriate type of research since it is a valid method for researching a specific subject and a precursor to more studies.

The quantitative method was utilized through the use of a rating scale while open-ended questions for qualitative descriptions. A teacher-made questionnaire that contained all the needed questions was distributed using google forms to all the participants of the project.

c. Data Analysis Plan

The data gathered were recorded, tallied, and tabulated for better presentation and interpretation of the results. Simple statistical treatments used in this study are frequency, ranking, and mean. Frequency was used to

determine the number of occurrences a respondentchose a specific indicator. Mean was used to identify the general responses in each item in the questionnaire. Meanwhile, the responses from the open-ended questions and survey interview were thematized. Each theme was described, and a conclusion was drawn from the result of both quantitative and qualitative approaches.

VI. DISCUSSION OF RESULTS AND REFLECTION

1. Activities performed by the stakeholders in Project Science

Table 1
Activities of Project Science

Activity	Frequency of Participants	%	Ranking
Attended the stakeholders meeting in planning all the activities of PROJECT SCIENCE.	72	62.6%	9
Participated in the scheduled community clean-up time in the selected location.	78	67.8%	3.5
Initiated the sorting of all collected waste in the activity	77	67.0%	5.5
Work on all assigned tasks in each clean-up drive schedule.	77	67.0%	5.5
Attended a series of training about disaster risk reduction last March 2023	69	60.0%	11
Actively engaged in all the tasks required to accomplish during the training	75	65.2%	7
Planned for the re-echo of community-based disaster readiness in respective barangay	78	67.8%	3.5
Facilitated communication with the respective stakeholders of the activity	74	64.3%	8
Evaluated the effectiveness of all the activities performed in the project	88	76.5%	2
Sought target donors for the funding of the activity	73	63.5%	10
Ensure the safety of the participants during the course of activities like clean up drive, training, and community-based symposium.	93	80.9%	1

From the table, allparticipantsranked the activity ensuring safety in all activities of Project Scienceas the highestamong all other indicators. It gained 80.9 percent with the highest frequency of 93. Moreover attending the series of training about disaster risks gained the lowest rank with a frequency score of 69 and 60 percent.

Table 2
Rating of the Projet Science Objectives

Description	Frequency of Responses					Mean	Verbal Interpretation
	5	4	3	2	1		
The project objectives were aligned with the content and performance standard set by the curriculum.	65	43	5	1	1	4.48	Strongly Agree
The results of the project are tangible and intangible.	34	75	6	0	0	4.24	Strongly Agree
The objectives included are specific, measurable, achievable, realistic, and time-bound	61	49	5	0	0	4.49	Strongly Agree
Overall						4.40	Strongly Agree

Table 3
Rating of the Projet Science Planning

Description	Frequency of Responses					Mean	Verbal Interpretation
The planning of the activities is shared with stakeholders through meetings	48	57	7	3	0	4.30	Strongly Agree
The planning of the activities is shared with stakeholders through meetings	49	53	10	3	0	4.29	Strongly Agree
The project foresees the best, and worst-case scenarios to better include mitigation processes.	55	54	6	0	0	4.43	Strongly Agree
Overall						4.34	Strongly Agree

Table 4
Rating of the Projet Science Implementation

Description	Frequency of Responses					Mean	Verbal Interpretation
The project's implementation process is in line with the objectives.	60	50	4	1	0	4.47	Strongly Agree
The execution of the planned activities is efficient and effective.	57	50	8	0	0	4.43	Strongly Agree
The project is strategic in engaging stakeholders' community immersion and engagement.	57	51	7	0	0	4.43	Strongly Agree
Overall						4.44	Strongly Agree

Table 5
Rating of the Projet Science Monitoring and Evaluation

Description	Frequency of Responses					Mean	Verbal Interpretation
The project implementation was assessed in a timely manner.	43	60	10	2	0	4.25	Strongly Agree
All the activities were rated based on their effectiveness.	58	52	5	0	0	4.46	Strongly Agree
Gaps were identified to better assess the situation.	39	68	7	1	0	4.26	Strongly Agree
Overall						4.32	Strongly Agree

Table 6
Rating of the Projet Science Feedback and Communication

Description	Frequency of Responses					Mean	Verbal Interpretation
Suggestions and comments were collected to be utilized in the evaluation procedure of the project.	61	51	3	0	0	4.50	Strongly Agree
The stakeholders were properly informed throughout the program.	57	51	7	0	0	4.43	Strongly Agree
Feedback processes of the project enable the processes and accomplishments to become achievable.	61	49	5	0	0	4.49	Strongly Agree
Overall						4.48	Strongly Agree

Table 7
Overall Rating of Project Science

Description	Mean	Verbal Interpretation	Rank
Objectives	4.40	Strongly Agree	3
Planning	4.34	Strongly Agree	4
Implementation	4.43	Strongly Agree	2
Monitoring and Evaluation	4.32	Strongly Agree	5
Feedback and Communication	4.48	Strongly Agree	1
Overall	4.39	Strongly Agree	

As seen in the table above all the acquired processes of Project Science received an overall rating of 4.39 mean average. It can be noted that Feedback and Communication ranked 1 among all the processes involved in Project Science followed by the Implementation processes. The result is supported by a study by Aminu et al (2023) that responsive feedback plays a crucial role in the continuous effectiveness and sustainability of achieving the program through the identified engagement of stakeholders.

3. Encountered difficulties by the stakeholders during the course of the project

The following reflects different stakeholders' experienced difficulties in the course of Project Science.

The highest rank with regard to experienced difficulties of the stakeholders in accomplishing all the tasksfor Project Science is time management. Since the tasks required are community immersion and engagement all stakeholders especially students need to invest time after class hours. It also results to conflict in time management since it overlaps with other take-home activities/assignments of other subjects.

It was seen also that the participants commonly experiencedthe difficulty of having available materials and funds for community clean-up and disaster risk reduction symposiums.

It was noted that the lack of additional manpower to work on the assigned tasks per group was experienced. The full support from the community with regard to the advocacy seemed less and the participants found it difficult to deal with. The lack ofawareness regarding the project can be the reason why fewer participants got involved in the respective community project.

Moreover, it was also commented that the participants particularly the students experienced difficulty in the physical condition of the assigned area to clean. It was noted that the time when the immersion will be held is at noon time (hot) whichcontributes to the tiredness of the participants. Some experience allergies and asthma that hinder them to work well. Some participants experienced burnout since the activity was held after classes so they were tired and consumed physically already.

4. Redesigned Project Proposal for the school year 2023-2024

(see attached Project Proposal and Action Plan)

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