

## Research Article

# Learning and Teaching Disaster Readiness and Risk Reduction in the Senior High School STEM Strand: Challenges and Opportunities

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**ABSTRACT**

A higher education institution in Batangas offered the senior high school program starting in 2014, two years earlier than its mandated nationwide operation. This research study assessed the challenges and opportunities of taking up the Disaster Readiness and Risk Reduction subject as observed by the senior high STEM school students, with teacher reflections focusing on teaching experiences. This is a qualitative type of research study. Data were acquired through focus group discussions among 27 former SHS students and were analyzed using IBM SPSS Text Analysis Software. The Key Components of Integrated Course Design and the Disaster Education and Disaster Risk Reduction Framework served as the theoretical frameworks. Based on the results, the challenges of learning the subject included adjusting to the academic setup and complying with the requirements of the course; taking up many lessons with limited avenues for application; putting up with class schedules; and learning about numerous scientific terms in relation to disasters. Opportunities included integrating concepts learned in the course with other subjects, applying what is learned in real-life situations, improving preparedness actions among students, and extending the benefits for safety to include the students' families and communities. An action plan to improve the delivery of the subject was included in the last part of this research study.

**INTRODUCTION**

On May 15, 2013, Republic Act 10533, otherwise known as the “Enhanced Basic Education Act of 2013,” was signed into law for the ultimate purpose of adding two more years to the Philippine basic education curriculum and making the Philippine educational system at par with global standards (Lim, 2014). As the last country in Asia and one of the only three in the world still with a 10-year basic education curriculum, the Philippines has set the K-12 curriculum to be fully implemented in the country starting the school year 2016-2017. A 12-year curriculum is the best time frame for basic education and an educational standard anywhere in the world (Department of Education, n.d.).

In its thrust to be a leading educational institution not only in the Batangas province but also in the CALABARZON Region of the Philippines, a higher education institution (HEI) in Batangas was one of the first few schools in the country to obtain a permit from the Department of Education and to operate a senior high school (SHS) as early as 2014. The early implementation of SHS has brought numerous changes in the educational system of the HEI, much as it brings forth revolutionary changes in the overall structure, curriculum, and assessment of Philippine secondary education (Okabe, 2013).

As much as the SHS has brought forth changes in



school management, it inevitably poses several learning challenges to students who are considered primary stakeholders in its effective implementation. For one, students are compelled to go through two more years of basic education before finally being able to step into college (Commission on Higher Education, n.d.). That would entail more years of learning which equally yields more expenses for parents and their children, whether they attend a private or public school (Anakbayan, 2015). Likewise, Mateo (2015) reported that only 3,839 of the 7,976 public high schools nationwide expressed the intent to offer senior high school. This figure meant that many public high school graduates would thus be constrained to transfer to private senior high schools and shoulder the burden of the added costs of education.

Additionally, SHS affects the nature of the work of teachers as one of the key players in its effective implementation. Teachers must upgrade their skills and credentials to become credible senior high school teachers (Lacamiento, 2014). In addition to the new tasks they had to accomplish, teachers may consider handling a new subject in the SHS an added challenge compared to those assigned to teach a relatively similar subject previously.

One new subject offered in the senior high school program is Disaster Readiness and Risk Reduction (DRRR). This core subject is taught in two strands under the academic track: Science, Technology, Engineering, and Mathematics (STEM) and the General Academic Strand (GAS). While concepts of disaster risk reduction and management (DRRM) are integrated into existing subjects at the elementary and junior

high school levels, the introduction of a full-fledged disaster education course in the SHS is deemed beneficial since it can provide young Filipinos with a stronger grasp of DRRM to prepare themselves and their communities better, and to decrease their vulnerability to numerous natural and man-made hazards happening in the country (Manalo & Manalo, 2020).

As previously mentioned, the HEI embraced the execution of the SHS program two years ahead of the national mandate for its formal implementation. While it may be advantageous for the HEI in many aspects, the move also had its challenges. For one, the teacher handling the DRRR subject, guided by the course standards set by the Department of Education, designed the topics, learning activities, and course requirements from various sources, which are mostly foreign in the absence of available textbooks and local learning resources at that time. On the other hand, the students have found immersion in disaster risk reduction and management through this subject equally challenging because of the need to understand many scientific concepts that serve as backbones for most naturally occurring hazards and disasters and the course demands via its requirements. Taking into account these observed challenges and the limited existence of research studies about disaster education in the Philippines, this research paper looks into the student experiences of taking up Disaster Readiness and Risk Reduction as a new subject in the STEM strand of the senior high school. Particularly, the challenges and opportunities of learning this new subject in the light of the early implementation of SHS at the HEI are focused. Additionally, this study will include reflections on the experiences of teaching this subject.

The study aims to enumerate the challenges and opportunities experienced by STEM students in taking up Disaster Readiness and Risk Reduction. Specifically, it seeks to answer these questions:

1. What are some of the challenges experienced by the senior high school STEM students in taking up the Disaster Readiness and Risk Reduction subject?
2. What are some identified opportunities after learning Disaster Readiness and Risk Reduction?
3. What are some significant teaching experiences in handling the subject?
4. Based on the identified challenges and opportunities, what suggestions can be made to improve further the delivery of this subject for the succeeding school years?

The results of this research study become a good reference for further improving the way subjects in the Senior High School of the HEI are taught. This paper is partly accomplished to elevate the quality of SHS education in the HEI. Likewise, the study is significant to the SHS department because it sheds light on some of the accomplishments made in the DRRR subject as experienced by both the students and the teacher, as well as some areas for improvement that the faculty members and the administration consider for the coming school years. This research paper analyses the previous challenges and opportunities experienced by the students in learning this subject, as well

as experiences by the teacher in handling this subject. Hence, the results of this study may be utilized by the bigger pool of teachers teaching DRRR for the next school years. They may devise some strategies to address the identified challenges, create better plans, and use available resources to turn opportunities into concrete gains. Lastly, as partners of the teachers in the learning process, future senior high school students will benefit greatly from this research undertaking, specifically if challenges and opportunities are properly addressed, and corresponding recommendations are acted upon, all for the improvement of learning in this subject.

This study utilizes two frameworks: the model of Integrated Course Design by Fink (2013) and the Disaster Education and Disaster Risk Reduction Framework presented and explained by Asharose and Sasi (2015).

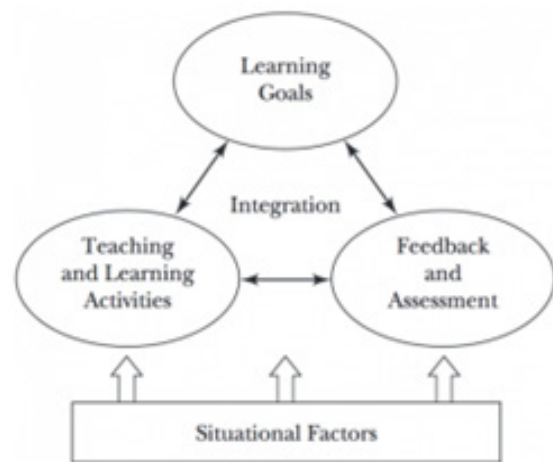


Figure 1. The Key Components of Integrated Course

Source: *Creating Significant Learning Experiences: An Integrated Approach to Designing College Courses*

The model shown on the bottom-left corner of this page explicitly presents the need for a strong alignment among the learning goals of a course, the teaching and learning activities prepared by a teacher han-

dling the said course, and the feedback and assessment activities that translate to the application of learning by the students in the course. While these concepts are likewise discussed in other similar frameworks, what distinguishes Fink’s model is the consideration of the students’ situational factors – which include such aspects as the number of students in the course, the prior knowledge the students are bringing to the course, among others – by which the learning objectives, teaching strategies, and assessments and application activities are aligned.

the said activities follows. The right designation and combination of tasks and coordination among the stakeholders are vital in designing the necessary educational tools while considering the following: the community’s social, economic, and physical vulnerabilities, contributors to disaster risks, and feasible risk reduction measures.

In disaster education, the flow of information, knowledge, and feedback must be two-sided (from the stakeholders to the target groups and back to the stakeholders) so that the educational tools being used can be modified as needed promptly. Policy reforms are added to better implement disaster risk reduction and management practices. Anyway, disaster education and disaster risk reduction are complementary.

Illustrated below in the input-process-output structure is the conceptual framework of this research study.

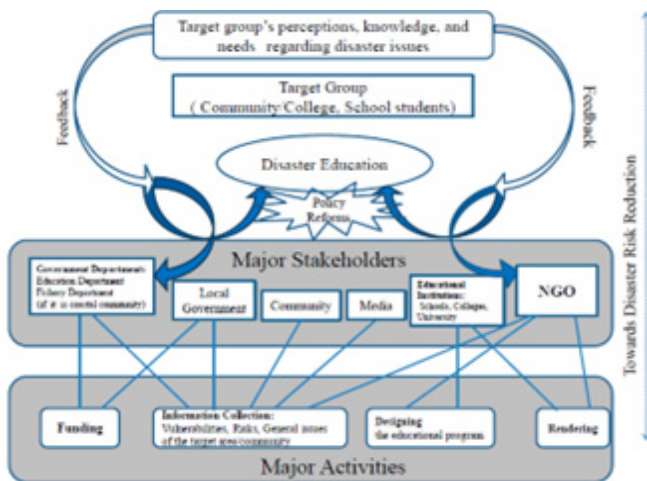


Figure 2. The Disaster Education and Disaster Risk Reduction Framework

Source: Awareness Workshop as an Effective Tool and Approach for Education in Disaster Risk Reduction: A Case Study from Tamil Nadu, India

The next framework shown on the previous page stresses the need for effective collaboration among educational institutions, the community, and other significant stakeholders to plan and implement awareness programs and contextualized and community-based disaster education programs. As seen at the bottom of the diagram, the first step to realizing the goal of effective disaster education is to determine the major activities to be accomplished. Identification of the agencies or stakeholders capable of performing

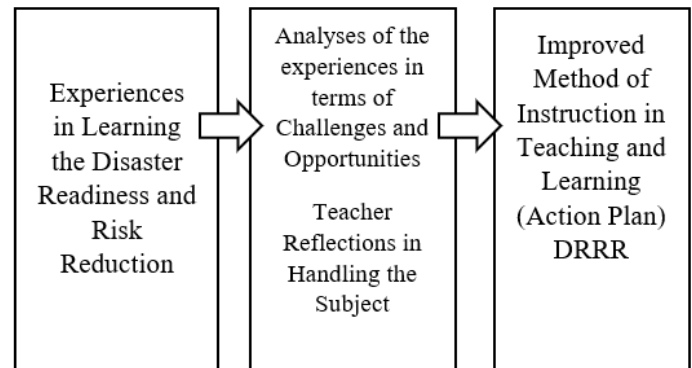


Figure 3. The Conceptual Framework of the Study

As seen in the diagram, inputs will come in the form of the shared experiences by the students in learning the Disaster Readiness and Risk Reduction subject for the past two school years, focusing on the challenges and opportunities encountered in the sub-





ject. Analyses of such challenges and opportunities will be made, and reflections on teaching the subject will also be determined. Based on the identified challenges and opportunities, as well as the teaching experiences, points of suggestion in the form of a written action plan to improve further the delivery of the subject, especially during the full implementation of the K to 12 curricula, will be made.

## **MATERIALS AND METHODS**

The study is a qualitative type of research. According to Pathak, Jena, and Kalra (2013), this type of research utilizes a humanistic and idealistic approach in describing beliefs, experiences, attitudes, behavior, and interactions in non-numerical ways. Data come from worded responses or statements usually gathered through focus group discussions, individual interviews, and participant observations. More specifically, this study is classified as phenomenological research. Neubauer, Witkop, and Varpio (2019) refer to this type of research as a way to explain a specific phenomenon through the lens of those who experience it. It aims to give meaning to a phenomenon based on what was experienced and how people experienced it.

### **1. Participants**

The respondents of this research study were the two batches of STEM students during the early implementation of the senior high school curriculum at the HEI. There were 20 STEM students for SY 2014-2015 and 7 for SY 2015-2016. At the time data was gathered for this research study, the student-respondents were already in college. Regarding the teacher re-

flections, the teacher who handled the subject for the past two years was likewise included as a participant.

### **2. Data Gathering Procedures**

The research study entailed the challenges and opportunities in learning DRRR in senior high school. Data were gathered through two planned sets of focus group discussions (FGD) among the students who, as previously mentioned, were senior high school students who took up the Disaster Readiness and Risk Reduction subject for the last two school years. The researcher asked for colleagues to act as facilitators (male and female faculty members) and recorders (female academic staff) during the FGDs. They were oriented about the steps of conducting an FGD and provided a PowerPoint presentation containing the necessary questions to elicit the participants' responses regarding their perceived challenges and opportunities of taking up the said subject. The FGDs were accomplished in the 6th-floor classrooms of the Mabini Building, where proper ventilation and multimedia equipment are readily available.

On the day of the FGDs, the moderators welcomed the participants and briefed them about the process of this academic exchange. They reiterated among the participants that they would speak one at a time, and there would be no right or wrong answers. They also informed the students that although the dis-



ussions would be recorded, confidentiality would be upheld, and their identities would remain anonymous. As discussions started regarding the challenges experienced and opportunities seen by the students in taking up the DRRR subject, the moderators effectively managed the FGDs by maintaining focus, giving equal chances for all participants to express their opinions, ensuring that the target questions were answered and making double checks with the recorders if they were able to capture the responses through both audio-recording and note-taking. The session ended with a closing statement of gratitude from the moderator. The recorders then accomplished computerized transcription of the students' responses in Microsoft (MS) Excel format. Data were subsequently analyzed using a software (IBM SPSS Text Analytics Software) made available by the Office of Research and Publications of the HEI. About the FGDs conducted and the direct experiences of learning in the subject, reflections were also made by the teacher and were incorporated into the discussions. Suggestions for improvement in the form of an action plan were constructed based on the challenges, opportunities, reflections, and categories or themes determined.

### 3. Instrument

The first three open-ended questions discussed as the specific objectives of this study constitute the data gathering tool of this research undertaking.

## RESULTS AND DISCUSSION

The use of the IBM SPSS Text Analytics Software facilitated interpreting the transcribed word-for-word responses by identifying the frequencies of similar words from various statements and building categories or themes. With the transcription of responses prepared in MS Excel format, text analyses of responses for the two major questions of the FGD (about the challenges and opportunities experienced by the students in taking up the DRRR subject) were accomplished.

As regards the challenges experienced in learning through the Disaster Readiness and Risk Reduction subject, students identified that the academic set-up of the course posed much of the challenge. For one, student 7 recounted that learning was challenging because “no books or references” on disaster readiness and risk reduction were readily available. Since senior high school in the HEI was implemented two years before the required nationwide implementation, the lack of DepEd-prescribed Filipino textbooks on disaster readiness was expected. As a result, lectures, activities, and assessments were prepared through available disaster textbooks and print and online resources. The students consequently relied on handouts provided by the teacher and on their online research from foreign sources, which still call for contextualization in the Philippine setting. The teacher who handled the course agreed with this response, stating that “lessons were prepared with reference to online resources and various textbooks on physical, geological and meteorological sciences and disaster preparedness measures by foreign countries;” in addition, “no senior high



school-based textbooks on disaster readiness for Filipinos were available during that time.” These responses align with the findings of a study that assessed the gaps between disaster pedagogy as reflected in the syllabi and disaster education in classroom practice. It was found that besides lack of teacher training, inadequate teaching and learning materials contributed to the said gap (Apronti et al., 2015). Likewise, the statements by the students expressing their perceived usefulness of textbooks affirm the findings by Hadar (2017) that the use of textbooks facilitates better attainment of curricular goals. Textbooks facilitate effective teaching and independent learning (Mithans & Grmek, 2020). Second, the time frame through which the subject was set was also identified as a challenge. Student 11 shared that “one semester is not enough,” which was seconded by Student 1, who related that the subject was squeezed in “one semester, full of lectures without time for the application process.” Based on the DepEd mandate, DRRR is a four-unit course scheduled in the HEI for two hours a day, twice a week. Given the learning objectives set for each topic and unit of the course, most of the two-hour sessions were fully devoted to lectures and classroom activities to ensure that all learning competencies were fully attained. Regarding the students’ experiences, learning in the DRRR course happened mostly inside the classroom.

Application of the concepts or principles learned in the subject was another challenge the students saw. For this reason, students identify more time of the subject being devoted to lectures than the hands-on application of learning. The following transcribed statements evidence this reason: “the subject was

classroom-based,” “no outdoor activities,” “less application of knowledge,” and “no actual application and more on lectures.” More so, Student 11 even suggested that the subject “should be more on the application instead of a pure lecture,” because as Student 9 recounted, concepts would be “easier to understand if there is the application of what is taught in the lectures.” Again, these statements were noted by the students as they experienced taking up the course with more of the subject hours devoted to lectures and in-classroom activities to ensure that the DepEd-required learning objectives were met. Much of the bases of the discussion concepts for the course rely on science (specifically via physical science and geology); hence, out-of-the-classroom activities could have provided more promising learning experiences for the students. Likewise, course requirements such as hazard assessments and the construction of various hazard maps could have required more time for students to go outside the classroom. Still, in reality, they stayed inside the classroom to listen to discussions and spend time answering pen-and-paper activities. The responses made by the students agree with what Strauss (2015) pointed out, that it becomes a challenge for students to apply the knowledge and skills they learn to other challenges, tasks, and situations inside and outside the school. The teacher’s response to this theme likewise agreed with that of the students, in which he said that “the subject must make a balance between theory and application,” but finds it hard to continuously do so as “the course guide provided by the Department of Education (DepEd) for this subject requires a lot of theoretical concepts given the limited time frame set for each unit.” The teacher’s insight also relates to the finding by Apronti et al. (2015) that



effective disaster education must strike a balance between theory and practice: it needs to integrate diverse and practical techniques to disaster knowledge to create a culture and environment of safety and preparedness, especially among students.

The students viewed the roster of activities that translate to the course's academic requirements as a challenge. For one, Student 16 recounted that "for our final project given by Sir, we need to look for a danger or hazard in a certain area, particularly in our barangay." Student 17 reiterated that "we were challenged by the final project of the subject [hazard mapping] since we cannot identify any hazard in our chosen barangay." Second, Student 19 said, "we also had a hard time in making the weather report since we are dealing with different countries, also, with the video editing and on-cam reporting." The small number of students required to do the activity was likewise seen as a tedious task by Student 18: "We attended a first aid seminar and training. We were only seven in the said training. There were many (actual/practical) activities like bandaging. In this activity, the small number of participants was a challenge. It wasn't easy to do the activities because we were only few." The student's insight on this matter coincides with a disadvantage identified by Schreiner (n.d.) regarding small class sizes. According to her, some academic activities require a minimum number of participants. Activities such as small group projects are much harder to implement in a small class because there are fewer students to divide into groups, limiting students' options. Other options, such as large-scale games, may be impossible in small class settings because there are not enough pupils to allow for gameplay. Based on

experience, the teacher reported that "since a student-centered, activity-based syllabus was required of this subject and all the other subjects for senior high school; the bulk of the activities likewise posed hurdles to teachers in terms of the construction of rubrics for most requirements and the checking of the student outputs themselves." Learning activities in the DRRR course were numerous and varied relative to the many topics reflected in the DepEd course guide. For one, students must come up with an authentic requirement (a family emergency preparedness plan) at the end of each hazard discussion as evidence of their learning of the topic. They are likewise required to undergo basic preparedness training with experts at the end of the course.

Fourth, the schedule of classes for this subject was also determined as another challenge. Some respondents saw class schedule as challenging: "classes happen late in the morning," and "schedule was before lunchtime." Consequently, Student 9 said he felt "hungry while the teacher is discussing the lessons," Student 6 recounted that "students have no focus because they were already starving." As previously mentioned, classes for each subject in the SHS run for two hours twice a week. For instance, in the morning sessions, students spend four hours of classes with a 30-minute break between them. The statements by students agree with the study by Pope (2016) that the time of the day affects student productivity. According to his findings, given a school start time, students learn more in the morning than later in the school day. They also relate to the article by McCarthy (2016), describing that students are facing a "lack of ability to ignore those hunger pangs" and that they are "concen-





trating on how soon until lunch rather than on learning how to read.” As for the teacher’s take on the matter, the schedule was also a challenge because of another reason: “conducting classes for the senior high school then was hard because they coincide with my classes in college; since senior high subjects demand a lot of adjustments – specifically the DRRR subject – in terms of subject and lesson preparation, teaching schedule thus becomes a true challenge for me.” This insight by the teacher relates to an article written by Cox (n.d.) detailing one common challenge educators face – time management. According to her, teaching is indeed a challenging profession, and with it comes the need to balance daily tasks goals, and not to mention an overwhelming amount of paperwork.

Lastly, studying numerous terms (mostly scientific) relating to this subject constitutes another challenge for students. Student 14 said, in the most basic sense, that the “syllabus is a challenge because of a lot of unfamiliar terms.” Student 18 also recalled the “new terms encountered in the subject as challenges,” which was agreed upon by Student 20, who said: “similar to what others are saying, the new words and terms our teacher used became a challenge to me.” In as much as learning new terms was considered a challenge by students, the teacher felt the same: “as someone relatively new in handling such a subject, it also became a challenge for me to learn the concepts of a lot of unfamiliar or new terms which are expected that I master before the actual conduct of the lessons.” Being a science-based course, the DRRR subject is expected to cover a lot of technical terms relative to the hazards discussed and disaster risk reduction and management, which students must understand. Learn-

ing new and unfamiliar terms and vocabulary is a challenge for students taking a science course, for instance, according to Thonney (2016). Many students’ difficulties in grasping abstractions are often masked by their inability to remember and recite technical terms they do not understand. As a result, teachers—from kindergarten through college—sometimes overestimate the ability of their students to handle abstractions, and they take the students’ use of the right words as evidence of understanding.

Concerning the opportunities to learn in the DRRR subject, the students’ responses also yielded various themes. The integration of concepts learned in DRRR with other subjects is one. Student 5 identified the importance of his learning in the course not only with the creation of the hazard map but also in his immersion in the community: “It helped in making the hazard map and accomplishing immersion to the community; it also helped us in witnessing how the local government gave solutions to the problems identified.” Student 16 likewise recounted the integration of learning on chemical hazards with how they conducted experiments in the laboratory: “I was able to apply our learning such as when we had our classes in Chemistry. When we had our laboratory activities, we already knew what chemicals were hazardous and how we would handle them.” Based on experience, the teacher also recounted a course requirement, which was good evidence of its integration with other subjects. According to him, “Hazard mapping opened the doors for the subject to be integrated with other SHS subjects. In a setup termed an ‘integrated performance task,’ teachers from other subjects teamed up with me to identify how our subjects can interconnect



termed an ‘integrated performance task,’ teachers from other subjects teamed up with me to identify how our subjects can interconnect through just one requirement and consequently lessen the burden of numerous projects imposed upon the students. Hence, the hazard map created by the students became an output requirement for DRRR. At the same time, the oral presentation of the output in front of a panel of other teachers and a community representative and the Filipino translation of the accompanying written report were graded for the English and Filipino subjects, respectively.” The statements made by both the students and the teacher agree with the benefits of integration, as discussed by Brown (2016). According to him, curriculum integration increases the engagement of students who become active decision-makers in what they want and need to study in the various subjects or courses they are taking.

Concerning integration, the application of learning was interestingly a recurring theme, as can be gleaned from the students’ responses, in as much as it was also identified as a challenge of the subject earlier on. Student 10 shared that “learning in the course can be applied, as in the case of bandaging.” Specifically, Student 13 recounted that “sports like basketball becomes an opportunity for us to apply our learning on bandaging.” Besides bandaging, some respondents saw the application of the concepts learned in the subject in interpreting weather forecasts. Student 17 shared, “I can now relate with the weather reports on TV about the symbols used by the PAG – ASA [stands for Philippine Atmospheric, Geophysical, and Astronomical Services Administration] on their weather forecasts.” Student 18 agreed by saying, “I learned the

definitions of the symbols which are used in weather forecasts, especially during typhoons, and the measures that we have to do when there are disasters.” On this dimension, the teacher seemed to agree with the aforementioned statements of the students when he said that “the first aid and safety training scheduled towards the last weeks of the subject almost always became a highlight among students since it provided them with an avenue to apply some of the learning they have acquired in DRRR.” The statements made by the students and the teacher seem to point to the direct relevance of disaster education to experiential learning. Mutasa and Coetsee (2019) found in their study that experiential learning is a method of choice by which teachers can provide more effective DRR education to students aligned with the existing curriculum.

Enhancing their preparedness initiatives and actions was also seen by students as an opportunity. Specifically, student 18 recalled that she “became more aware through the family emergency preparedness plans required by the subject, especially when there are typhoons,” and that “the subject enhanced our idea on the different types of fire, emergencies and rescue operations.” Through his statement, the teacher agrees with the previous testimonials when he said, “DRRR, more than being an academic subject, is also a training ground for students to enhance their preparedness and capability levels to respond to the various natural and man-made hazards happening in the Philippines.” The statements agree with the study made by Mutarak and Pothisiri (2013), which revealed that formal education promotes disaster preparedness because education enhances individual cognitive and learning

skills and access to information.

Lastly, extending help to those in need in the light of disasters was also determined by the students as an opportunity for the course. Student 11 said, “I hope that our learning may be applied some time, and hopefully, we can volunteer and extend our helping hands in actual situations.” The teacher backs this up by reiterating that the “unique feature of the course, which is not only for the sole benefit of the students themselves but also for their respective families and fellowmen in the community; this characteristic thus reinforces the innate conviction of students to help people in need, especially those residing in provinces or municipalities most affected by the most recent typhoons to hit the country.” The opportunity among the youth to share their knowledge on disaster education is a responsibility also recognized by Khorram-Manesh (2017). According to him, societies need to ensure that the youth have access to adequate knowledge and capacity-building activities to reinforce their preparedness and readiness for future disaster events. It was found that the youth with increased knowledge of disaster preparedness and response also actively promoted preparedness in their respective homes and communities.

Concerning the challenges and opportunities in both learning in and teaching the DRRR course as detailed in the previous section, the primary purpose why this study was completed is to recommend an action plan for the Senior High School of the HEI that is expected to improve the delivery of this particular subject for the next school years. Presented below and on the next page is the proposed action plan for such.

Table 1. Proposed Action Plan for the Improved Delivery of the DRRR subject

<p><b>Goals / Objectives</b></p>	<ul style="list-style-type: none"> <li>◆ to make more SHS textbooks on Disaster Readiness and Risk Reduction available for students’ use in the Learning Resource Center (LRC, the school’s library)</li> <li>◆ to integrate more application-based and relevant activities into the DRRR course syllabus</li> <li>◆ to modify the current class schedule or setup of classes in the SHS in coordination with the College Department (specifically with the College of Education, Arts and Sciences - CEAS)</li> <li>◆ to reinforce the disaster training program offered to STEM students as a primary requirement of the course</li> <li>◆ to sustain or even improve the benefits put forward by the course to the students’ families and communities</li> </ul>
<p><b>Activities / Strategies</b></p>	<ul style="list-style-type: none"> <li>Coordinate with the school’s Central Purchasing Department (CPD) to invite more publishing companies to provide copies of their textbooks.</li> <li>Conduct an evaluation by the DRRR teachers of new textbooks forwarded by the different publishing companies to CPD.</li> <li>Recommend textbooks for purchase by the LRC.</li> <li>Make textbooks available for library, photocopy or home use.</li> <li>Review the current syllabus of the DRRR course.</li> <li>Make modifications on the syllabus to include more experiential-learning and application-based activities while taking into consideration the required contents as reflected in the DepEd course guide</li> <li>Review the effectiveness of the current class for most subjects in the SHS (2 or 3 hours straight per day for each subject).</li> </ul>
	<ul style="list-style-type: none"> <li>Coordinate with CEAS for possible re-patterning of class schedules to coincide with the College class setup.</li> <li>Look for potential training agencies that may provide the said training.</li> <li>Review and evaluate the proposals prepared by the agencies to select the most comprehensive, feasible and cost-effective.</li> <li>Meet with the selected training agency to lay down the final plans for the said training program. Conduct the program.</li> <li>Review the current outputs required by the subject among students.</li> </ul>

	<p>Review the current outputs required by the subject among students.</p> <p>Retain, <u>revise</u> or add requirements which would reinforce the benefits student outputs in DRRR provide to the students, their families and finally their respective communities.</p> <p>Meet with key officials or personnel in the community in order to acquire some more suggestions or recommendations for them.</p>
<b>Persons Involved</b>	CPD staff, LRC staff, SHS Assistant Principal, SHS Strand Coordinators, Learning Area Coordinator for Science, SHS Teachers, DRRR Teachers, College Deans, College Department and Area Chairs, Selected Disaster Training Agency, Selected community officials and personnel
<b>Resources Needed</b>	Textbooks, Evaluation Forms, Recommendation Forms, Copy of the current DRRR syllabus, Available textbooks and other relevant references, College class schedules, Computer laboratories for scheduling workshops, Lecture and Demonstration Venues within the DLSL campus, Program Materials, Honorarium, Food for speakers and organizers, Course syllabus, Multimedia equipment for the meetings, Food for meeting attendees
<b>Time Frame</b>	starting January 2017
<b>Success Indicators</b>	<p>New set of textbooks have been evaluated by the bigger pool of DRRR teachers</p> <p>Previously recommended textbooks along with the new ones are displayed on the shelves of the LRC for students' use</p> <p>Modified syllabus and course outline for students that show evidence of integration of application-based activities</p> <p>Consolidated class schedules between the Colleges (CEAS) and the SHS to accommodate uniform</p>
	<p>teaching load schedules for CEAS teachers handling SHS subjects</p> <p>Effective and smooth conduct of the disaster training program among students taking up the DRRR course, as spearheaded by the disaster training agency in partnership with DLSL-SHS.</p> <p>Enhanced family- and community-oriented activities and requirements for the DRRR course</p>

the following: the academic setup of the course, including the deficiency of readily available textbooks and references during that time and the abundance of lectures over activities; the lack of application-based activities to supplement principles and concepts learned in class; the nature of both major and minor requirements imposed upon the students; the small class size affecting the conduct of some activities; the class schedule; and the overwhelming number of scientific and technical terms alike which both the teacher and the students have to be familiar.

Additionally, the opportunities brought forward by the subject as identified by the students and as confirmed by the teacher included the following: the integration of concepts learned in DRRR with other SHS subjects; the application of learning to various real-life scenarios; the intensification of preparedness behaviors and actions among students; and the extension of the benefits provided by the lessons learned by the students and the requirements they accomplish to their respective families and communities.

The DRRR subject, in its early phase of implementation at the HEI, still has a lot of challenges to overcome. Nonetheless, the continuous improvement of the subject's delivery for the coming school years, now that the SHS curriculum is a mandate in all basic education institutions in the Philippines, may yield more opportunities beyond what has already been experienced and foreseen by the students immersed in it.

## CONCLUSION AND RECOMMENDATIONS

The challenges experienced by the students – complemented by reflections from the teacher – were

Based on the findings of this study, it is thus recommended that the action plan detailed in the previous section be taken into thoughtful consideration by



the SHS department of the HEI to address the challenges and opportunities yielded as soon as possible. Likewise, the study recommends similar evaluations of other subjects in the DLSL SHS to improve how they are delivered this school year and for the next academic years.

As regards the conduct of future similar studies, the following recommendations are made: to supplement the current evaluation of the DRRR subject with quantitative data, especially now that more students are taking it up; to identify specific teaching strategies and academic requirements deemed most useful in the delivery of the units of the course, and to evaluate the effectiveness of subject delivery, perhaps also through its challenges and opportunities, as perceived by the extended beneficiaries of the course – the students' families and their respective communities. ♣

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