ADOPTION OF COMMUNITY RESOURCE MAPPPING TO ADDRESS ISSUES IN THE K-12 PROGRAM IN THE PHILIPPINES

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ABSTRACT

The Enhanced Basic Education Law (RA No. 10533) or the K-12 law, was mandated and implemented beginning 2013 to align the Philippines with the global 12-year basic education program. But the abrupt introduction of K-12 programs brought teachers serious challenges in instruction due to shortage of basic resources and lack of experience in teaching integrated courses due to disciplinal training in teaching degree programs in the country. With the government's call to strengthen partnerships with private organizations in order to improve the quality of education in the country, the education sector is encouraged to solve K-12-related problems by tapping on the rich resource in the community. This study adopted community resource mapping to solve issues on lacking resources teachers have to deal with as the K-12 program during its first implementation. Along the process of the 3-cycle action research, the study revealed that community resource mapping also helped teachers provide students with opportunities for authentic, contextual, socially constructive, and learner-centred learning that promote 21st century skills. This paper highlights Sustainable Development Goals 4 and 17 which discuss the importance of partnerships between school and community to attain good quality education. Most importantly, this paper promotes the call for incorporating relevant trainings in teacher education programs and professional development to provide experiences that support current and future teachers in developing community resource mapping skills to be used as part of their teaching practice.

Keywords: Issues in the K-12 implementation, Partnerships for sustainable development, authentic learning, Professional development for teachers, 21st century learning.

INTRODUCTION

In a report published by the Department of Education (DepEd) in cooperation with Southeast Asian Minister of Education, Organization, Innovation and Technology (SEAMEO INNOTECH) in 2012, the Philippines is one of the two countries in the world that requires 10 years of combined elementary and secondary education prior to entering a college or a university. The congested curriculum, according to DepEd, is partly to blame for deterioration in the quality of basic education, which is reflected in international tests such as Trends in International Mathematics and Science Study (TIMMS). The Department also pointed out that the two-year deficit contributes to graduates' unpreparedness for work, and to poor recognition of college degrees that consequently curtail their contributions to overall national development. As a response, the DepEd since started pushing for the passage of a law that will implement the so-called K to 12 program which will institutionalize pre-school (or kinder) and add two more years of high school in the country's basic

education program (Senate Economic Planning Office, 2011). With the goal of (1) decongesting the curriculum, (2) preparing students for higher education and (3) labour market, and (4) comply with the global 12-year basic education program, The Enhanced Basic Education Law (RA No. 10533) more popularly known as K-12 law, was mandated and implemented beginning 2013 (Philippine Congress 2013). Among the features of the new K-12 program is the integrated and seamless learning, or spiral progression that aims to provide sufficient time for mastery of concepts and skills particularly in core subjects like mathematics and sciences (Abulencia, 2015). And though DepEd has already restructured the contents, duration, quality, and standards of educational offerings in line with the broad frame of global educational systems prior the implementation, the abrupt introduction of K-12, according to critiques, causes teachers face serious challenges in instruction due to shortage of basic resources and lack of training. Because of the restructuring of basic education courses, particularly Sciences and Mathematics in high school, the integrated sciences in the K-12 program are designed to be taught in a spiral, interdisciplinary approach, putting together four basic sciences per year level. This means that an Integrated Science course would have Biology, Chemistry, Physics, and Earth Sciences from grades 3 to grade 10. (Department of Education, 2016). Given that not all teachers are experts at everything, teachers have deep-seated anxieties about handling all subjects in a class. Those who have specializations and are subject-experts for a number of years, are having hard time adapting to the new spiral, integrated approach. In some cases, teachers who had long years in service in teaching with a certain specialization try to solve this issue by collaborating with their fellow teachers to handle topics out of their specialization. Though transition is inherently difficult for any teacher, teaching science in an integrated approach requires specific training. Critiques of the K-12 programs pointed out that it is not worthwhile introducing a curriculum that cannot be possibly implemented correctly. **(**Resurreccion & Adanza, 2016).

During this transition period, the Philippine government called to strengthen its partnerships with private organizations in order to improve the quality of education in the country. Then Senator Edgardo J. Angara, the Chair of the Senate Committee on Education, Arts and Culture, said public-private partnerships (PPPs) play a vital role in the delivery of education services to the public such as with teachers training, management, curriculum design and infrastructure development (Senate of the Philippines, 2012). Moreover, quality education, and partnerships for the goals, are two among the 17 emerging themes of the 2030 Agenda for Sustainable Development Goals (SDG) that the United Nations has begun promoting among its members since 2015 (United Nations Department of Public Information). The importance of partnerships between school and community to work towards a shared vision is among the benefits of the community resource mapping (DePetris, T., & Eames, C. 2017). However, partnerships in the educational context have been used less frequently in classroom set-up, probably because at present, there are few academic literatures look at school-community partnerships and its impact on curriculum and instruction, particularly in the Philippines. This study adopts community resource mapping to solve issues on lacking resources and training teachers deal with in the transition phase of k-12 program implementation. The process of community resource mapping is grounded on the idea that the goals of academic success are best achieved through the cooperation and support of schools, families, and communities, as explained by Epstein's theory of overlapping spheres (Willems and Gonzalez-DeHass 2012, Yamauchi, Ponte, Ratliffe, and Traynor 2017, Daniel 2011).

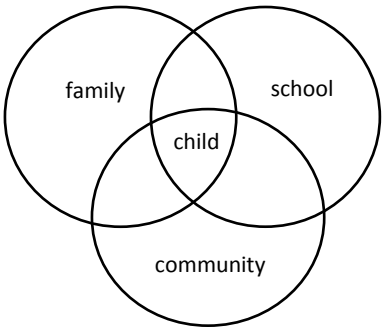

Figure 1. Epstein's theory of overlapping sphere of influence

Figure 1 illustrates that each of the elements surrounding the child share the responsibility of educating the child, and the degree of overlap depends on the level of involvement of the element in child's education. Anchored on the idea of this shared responsibility among these elements, this research aimed to discuss the importance partnerships between community and school help solve issues related to teaching Integrated Science classes towards attaining quality education. It discusses the initial steps in forming connections between school and community in building synergistic relationships and identifies the benefits these partnerships bring to positively impact a child's education. Community resource mapping according to Crane and Mooney (2005) is an asset mapping to align resources in relation to specific goals and expected outcomes. It is best noted as a system-building process used to align resources and policies in relation to specific system goals, strategies, and expected outcomes. This process, as Crane and Mooney said, works best by acknowledging the fact that individuals, organizations, and local institutions all have the capacity to create real change in their communities, but that no agency can do it alone. There are varied procedures on how to conduct resource mapping, but most researchers agree on these four-step guidelines: (i) pre-mapping, (ii) mapping, (iii) taking action, and (iv) maintaining, sustaining, and evaluating. Harvard Graduate School of Education (2008) published a free resource to help educators jumpstart this process. A more detailed version of these steps is also discussed in the book written by Crane, K., & Mooney, M. (2005) entitled *Essential tools: Community resource mapping*.

A. Pre-mapping Activities

Pre-mapping stage highlights strategies to establish a task force for your mapping efforts and how to set realistic visions and goals (Crane and Mooney, 2005). The first step is to set goals and visions for this resource mapping endeavour which may be institutional, departmental, or personal if you have the freedom to do so in your own class. It is during this stage that the teacher looks at the school's mission-vision, content and performance standards, and competencies.

B. Mapping Activities

In this step, the outlined visions and goals during the pre-mapping stage are used to identify and evaluate resources available and needed (Crane and Mooney, 2005). Resource identification may be done physically by visiting offices or institutions nearby, asking people for referrals, or electronically through the internet. Undeniably, the easiest and most convenient way to start community scan is by using Google, a powerful mapping tool. Mappers must agree on certain criteria in choosing community resources in order to attain the goals of both parties. These

resources, according to Harvard School of Education (2018), may include programs, services, agencies, space, people, equipment, materials, supplies, technology, infrastructure mechanisms, and more. Crane and Mooney (2005) suggest that diversity among partners and variations in forming activities involving community partners help keep students engaged and the community committed.

C. Taking Action

Once the goals have been identified and available resources were lined up, developing an action plan to implement the map is next. Action planning aligns the resources with the goals outlined in order to come up with the desired map with minimal or no gaps or duplication (Crane and Mooney, 2005). Some may write letter of request (for the specific need or resource), set up meeting with the target institution, prepare memorandum of understanding or agreement, depending on the need of the involved parties.

D. Maintaining, Sustaining, and Evaluating Mapping Efforts

This final step in resource mapping is definitely necessary in order to take a critical look at the process and its impact on the stakeholders. This is done in every step of the process to determine the maintenance and sustainability of the project. As Crane and Mooney (2005) emphasized, *"measuring success in meeting your goals is a constant throughout the mapping process".*

METHODOLOGY

This study adopted action research approach employing qualitative data gathering procedures and interpretive paradigm to understand the stakeholder's experiences and constructed meanings about the processes and outcomes associated with resource mapping for science classes. The process of community resource mapping for high school science classes requires this research paradigm because it incorporates personal observations and reflections every step of the way to provide deep, meaningful results. This reflective process, as Sagor (2000) suggests, progressively solves problems throughout the course of project implementation, thus sustains positive changes towards continuous improvement of the situation-of-interest. This study involved two heterogenous grade 9 classes of a laboratory high school. Student-participants were randomly assigned to sections upon enrolment. Because the process of action research goes through several cycles of planning, acting, observing, reflecting, and revising throughout the whole term of implementation, the researcher conveniently chosen her own class as participants to ensure authentic and practical classroom practice that emerge during the conduct of this research (Eilks and Ralle, 2002). The study underwent three cycles of implementation as shown in Figure 1. To attain the goals of this research, data from direct observation, student feedback, survey questionnaire, and anecdotal evidence from teacher-researcher were gathered and triangulated.

Context of the Study

The first cycle of this action research is motivated by the problem identified: the shortage in basic resources - not just infrastructures and teachers, even teaching materials which are fundamental to instruction are scarce (Abulencia, 2015). This, aside from lack of ample time to prepare or train for the new K-12 program offering motivated the researcher to resort to resource mapping. Add to

this some major natural disasters that hit the country in 2013, most notably Super typhoon Yolanda and other local typhoons that hit the region (Ong and Flores, 2013). Fuelled with the intention to educate students about the importance of meteorological information and its impact to society, the resource mapping activity began in 2013 with the Agro-Met UPLB as the first resource identified. AgroMet, short for Agrometeorogical Station is a project of the Department of Science and Technology (DOST) that gathers and provides routine basis simultaneous meteorological and biological information, agricultural meteorological advice, warning, forecast bulletin and other important information needed by farmers. Data gathering procedure continues as the study proceeded to cycle 2 with evolving plans and actions based on the learnings from previous cycle. As the process progresses to cycle 3, one senior high school class of the same school were involved in the study to do community immersion that evolved from the reflections in cycle 2.

RESULTS AND FINDINGS

The primary goal of utilizing community resource mapping in integrated science classes is to solve the issues of shortage in resources that goes along with the implementation of K-12 curriculum in 2013 as proposed by Abulencia (2005) and personally experienced by the researcher. As this strategy is adopted in integrated science classes, the participants learned more about other benefits the school can gain from school-community partnerships that community resource mapping brought. The impact of this asset mapping on student learning and lesson planning is discussed in the following sections where emerging themes arose:

Community Resource Mapping Process Solves Shortage in Basic K-12 Resources

During the first cycle of adopting community resource mapping, institutions surrounding the schools were tapped to solve classroom issues experienced by the teacher-researcher (Cycle 1A in Figure 2). Table 1 shows the initial community resource map done for Grade 9 Integrated Science curriculum from school years 2013-14, and 2014-15. Guided by the *Essential tools: Community resource mapping* guide from Crane, K., & Mooney, M. (2005), these initial resources were identified to match the topics which the teacher-researcher felt need most resource generation to meet the standards and competencies of the subject.

Table 1. Community Resource Map for Grade 9 Integrated Science for 2013-2015

Topic	Standards	Competency	Community Resource	Type of resource requested
Climate	Understand factors that affect climate and the effects of changing climate and how to adapt accordingly	Explain how different factors affect the climate of an area	AgroMet UPLB	People (experts to conduct lecture-demo) Equipment and materials (weather instruments) Technology infrastructure (field observations)
Biodiversity and Evolution	Understand how changes in the environment may	Relate species extinction to the failure of	Museum of Natural History, UPLB	People (experts to conduct lecture-demo)

	affect species extinction	populations of organisms to adapt to abrupt changes in the environment		Services (Integrated Biodiversity Exhibit)
Ecosystems	Understand the structure and function of plant parts and organelles involved in photosynthesis	Differentiate basic features and importance of photosynthesis and respiration	Makiling Botanical Garden	Services and Space (field observations)

Bringing students to AgroMet for lecture-demonstrations and field observation exposed them to direct experiences outside traditional classroom setting. Their exposure to new learning environment brought students excitement and eagerness to learn as they interact with content experts from AgroMet employees who give simplified lecture and demonstrations on weather forecasting and its importance to society, citing in particular the actual forecast that the station had for major typhoons that hit the region. The realization that there are institutions surrounding the school have services that can answer to the shortage in supplies and expertise in the classroom brought the teacher-researcher new perspective in teaching sciences outside of her niche, which is Chemistry. The following quarter about biodiversity, evolution, and ecosystems, the researcher again looked for available institutions surrounding the school where she can bring her students to for field experience. Two neighbouring offices that allow short excursion at a minimal fee were spotted: Museum of Natural History (MNH) and Makiling Botanic Gardens (MBG), both of which have exhibits and experts who assist in students' field observations. From the social constructivist perspective, it is important that students' experiences at school are connected with the world outside the classroom (Santrock, 2011 as cited by Willems and Gonzalez-DeHass, 2012). In addition, students also were given opportunities to manipulate learning tools themselves to see how they work. Slowly, the resources identified got richer as the teacher got more referrals, wider network, and better mapping strategies. Not only the tools and equipment were supplied, so are the expertise in content and skills that the teacher lacks. This shows the importance of identifying and evaluating resources needed and matching it with available resources.

Community Resource Mapping Process Encourages Authentic Learning

During field observations to AgroMet, Museum of Natural History, and Makiling Botanical Garden, students were able to utilize knowledge from different subject areas to make sense of the situations in the field they were in. In this way, students learn by constructing meaning from their experience. When students interact with the objects, they involve more of their senses as they manipulate them. These concrete experiences, according to John Dewey, allow students to make connections through the repeating cycle of reflective observation, abstract conceptualization, and active experimentation that altogether make learning more permanent. The experience students have in the field served as opportunity for them to observe, ask questions, manipulate at some point, and make connections of the classroom discussions to real-life issues they learned like climate change, species conservations, and environmental preservation. This brought community resource mapping to a new level, now entering cycle 2 of the action research. In this stage, the

teacher-researcher deliberately planned to involve communities in student learning for their student investigatory projects. Now on their third quarter, students were tasked to conduct mini studies on whatever problem they are interested in and immerse in institutions that allow high school students to conduct experiments. Two particular groups worked on oil extractions for possible insecticidal properties. Since the school laboratory does not have glass wares and reagents for these projects, students were escorted to two institutions where they worked for at least two days: the Institute of Chemistry, and the Institute of Plant Breeding, both in UP Los Baños in Laguna. Authentic tasks that involve real-world problems contextualizes academic learning that mimic the work of professionals enhance students' motivation enhances deep understanding (DePetris, T., & Eames, C. 2017). Students working in laboratories of the two institutions mentioned is authentic learning because they not only get to practice their skills in the laboratory, but they also work on relevant problems in the community. Because their experience engaged them in self-directed inquiry, students grow from passive to active learners more motivated to acquire new knowledge and skills. Authentic learning encourages teachers to target inquiry skills, critical thinking skills, and metacognition and allows students to see the meaningfulness of academic subject matter and its relevance beyond the classroom setting (Willems, P. P., & Gonzalez-DeHass, A., 2012).

Community Resource Mapping Process Meet Mutual Benefits for All Stakeholders

Experiences from the cycles 1 and 2 resulted in the realization that partnerships formed with the community achieve each of their institutional goals. As DePatris and Eames (2017) noted:

> "partnerships lead to a mutually beneficial program enabling all stakeholders to work towards achieving a shared vision or goal to resolve a local issue, while simultaneously achieving their respective organisational objectives".

From the teacher's end, the partnerships which were built help achieved the school's goal to meet the standards and competencies the curriculum dictates. But this incidental reaching out of the teacher to these organizations happened to also give opportunities to the supporting institutions share their resources to solve her classroom problems brought about by the abrupt implementation of K-12. More importantly, this experience allowed for students to be active member of the society and showed them opportunities for diverse roles in community that hopefully will inspire them to pursue careers in the institutions visited. This is supported by Epstein's theory of overlapping spheres of influence which states that goals for student academic success are best achieved through the cooperation and support of schools, families, and communities (Willems and Gonzalez-DeHass, 2012). As emphasized by Auerbach in his paper about conceptualizing leadership for authentic partnerships:

> "schools should be open to more participation from various stakeholders and that educators should be willing to share responsibilities for student learning with families and the community" (Yamauchi, Ponte, Ratliffe, and Traynor 2017).

Community Resource Mapping Improve Planning and Organization Skills of Teacher (Lessons from Experience)

While it is true that teachers usually conduct community resource mapping as part of their non-teaching task, particularly in organizing school activities, the adoption of this asset mapping process in lesson planning helped in deliberately involving the community in educating the children. At first, resource mapping was a result of helplessness the teacher experienced as the K-12 implementation pushed her to teach sciences with limited school resources available. Though the examples given in this study are limited to science institutions, (but that is because the community that the school is in is already rich in science resources), this does not mean that one cannot use this process in another local setting. Some other teachers not only have limited tools and equipment, rather limited training and content knowledge due to the specialized training they had in their degrees that some resort to co-teaching or team-teaching by swapping classes on a quarterly basis depending on their specialization. This may also be considered internal resource which the school can use to identify resources based on professional expertise of the pool of teachers. In fact, resource mapping of "co-teachers" may extend to the community by requesting resource persons like a local baker to explain the role of yeast in baking as part of your lessons in cellular respiration, or maybe a local carpenter to share experiences in building projects to complement your lessons on measurements. Using community resource mapping as part of lesson planning encourages the teacher to make conscious effort to tap available resources in the immediate community to enrich everyone's learning experience through improved student engagement.

With professionals who know very well what they are talking about, making it easier and so much more interesting for students to understand and be curious about. Students' experience outside of school was a great experience because it raised their awareness of the different roles each one play in the community, made them see that there are institutions that support them, and helped them realize that there are shared responsibility between school and community for achieving common goals. In the same way, reaching out to community for help improved communication, planning, organization, and logistic skills of the teacher, being the main person involved in facilitating and coordinating with community partners DePetris and Eames, C. (2017) call these personnel the *boundary broker,* one who must have the ability to work across organisational cultures, foresee program opportunities that satisfy multiple needs, and clearly articulate ideas across a variety of audiences. Basing on Epstein's theory of overlapping influence, a modified framework is drawn to show that teachers, who are boundary broker, play a very important role in holding the spheres together to maintain and sustain the healthy relationship the three institutions as shown in figure 3.

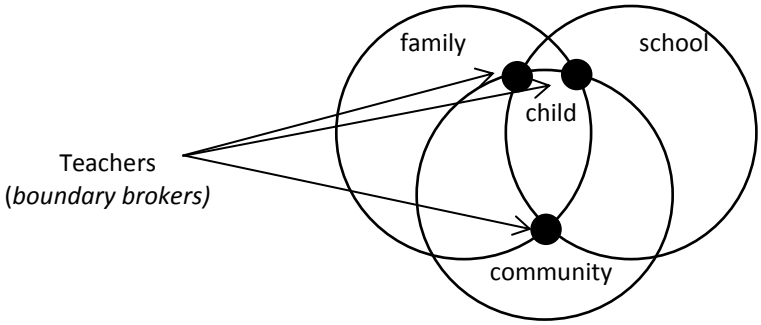

Figure 3. Teachers as boundary brokers between overlapping spheres of influence

Community Resource Mapping Process develops 21st Century Skills

From the combined learnings from cycles 1 and 2, students improved their observation through field observations, and practiced their communication skills by interacting with experts, working with peers, and asking more questions that they do in normal classroom discussions. These skills have greatly influenced their problem-solving skills as observed during the presentation of their investigatory projects they experimented on in the laboratories and under the supervision of experts of some partner institutions. These changes brought new inspiration for the teacher-researcher to expand more the resource mapping efforts to effect positive experience among learners. The community resource mapping was then utilized in other science subjects, this time involving older students in senior high school department. As part of the final requirement in one of the core sciences, students were required to do community immersion to identify problems or on-going projects that address sustainable development goals. Students in small groups of 4 to 5 members each were given the task to conduct field investigation in immediate communities and prepare short video clips on the results of field work to raise and promote awareness of local units' efforts to contribute to national development. These community immersion activities were evaluated at the end of the school year using a 5-point Likert scale survey questionnaire.

Results from the survey show that students believe the community immersion has improved their creativity (94.1%), boosted critical thinking (91.2%), effectively raised awareness about community issues and problems (97.1%), motivated students to contribute to solving problems in the community (91.2%) and provided students with opportunity for meaningful, life-long learning (97.1%). These were among the most important skills necessary for 21st century learning according to an organization called Partnership for 21st century learning. More popularly known as P21, this organization put together sources and come up with the 21st century learning framework beginning 2002. Apart from mastering the core subjects, the organization has stressed the importance of life and career skills, information communication and technology skills (ICT), and the learning and innovation skills known as 4C's: critical thinking, communication, collaboration, and creativity. As today's life and work environments require far more than thinking skills and content knowledge, P21 recommends the focus on these essential skills to help students navigate and succeed in this globally competitive information age. Based on students' personal accounts in their journal logs, the community immersion activity positively impacted them as learners by engaging them in a different classroom setting that teach them skills deemed necessary for 21st century learning. From the collective experience of students and the teacher-researcher, school-community partnership has the ability to enhance the quality of learning in the levels of social, emotional, and intellectual development. The social context of learning where community co-teaching is grounded include authentic and contextual learning, social constructivism, and learner-centred instruction.

Authentic and Contextual Learning

DePetris, T., & Eames, C. 2017 stressed that school-community partnerships assist educators to develop and deliver authentic learning opportunities based on current local issues and problems in order to connect teachers and students with real-life local contexts. Evident in student journal logs that their experiences in the community are more of *"application to real problems today, making this seemingly more relevant (S8)", n*oting that the science project *"was beyond just atoms and molecules.. it tackled social problems* (S25)", that taught them *"to empathize more (S12, S21, S23)*", "*to cooperate and to work professionally with other people* (S19)", noting that "*cooperation*

within a community is very important in achieving desired goals (S6)". Students also mentioned how crucial it is to "*think outside the box (S3*)" and to "*look at things in different perspectives (S18)*" as they deal with real problems in the community. From the social constructivist perspective, it is important that students' experiences at school are connected with the world outside the classroom, that is authentic and contextual learning. Authentic instruction and problem-based learning hold great promise for effective instruction that will complement more traditional teaching. Willems and Gonzalez-DeHass (2012) said this cause students to see the meaningfulness of academic subject matter and its relevance beyond the classroom setting.

Social Constructivism

As stated in Vgotsky's social constructivism theory, knowledge is constructed when individuals interact socially, and that these social experiences reflect that of the world outside the classroom. (Santrock, 2011 as cited by Willems, and Gonzalez-DeHass, A. (2012). Students specifically pointed out that because "*we were able to immerse in a community that we were not usually part of (S35)*" the experience taught them "*more on skills that are not usually learned within a classroom (S19)"*. One student also shared how they "*had to actually go out and explore, and we learned from first-hand experience instead of solely library research* (S28)." Another student (S21) affirms this by saying that the experience, "*gave us opportunity to explore places that we don't really go to on a daily basis and find solutions to problems that can be seen in that area*". This community immersion students had enabled them to make sense of the knowledge learned in the classroom and use them to contribute identifying and solving problems in the community. Working collaboratively with peers and people in the community allowed them to improve on their communication skills (55.88%), sense of accountability (50%), leadership skills (23.53%), empathy (20.59%), and adaptability (20.59%). The social dialogue and exploration in an atmosphere of shared learning, foster group reflection and viewpoints, thus promote meaningful learning. Cross (1998) stresses that student retention and satisfaction occur when social connections are part of one's educational experiences when social connections are utilized to challenge thought and to engage students actively questioning and thinking about knowledge. In addition, learning first-hand from people in the community makes a valuable connection for students between academics and the choices they will make, as one student (S13) reflected: *"the experience helped me empathize with marginalized and poor Filipinos. It boosted my passion for changing the world one step at a time and helping the ones who do not get their basic needs."*

CONCLUSIONS

The abrupt implementation of the K-12 program in 2003 bring forth a lot of issues particularly in shortage of basic resources that challenge teaching instruction. One particular problem that surfaced is the restructuring of basic education courses to previously disciplinal in nature, now requires specialized teachers to teach the sciences in spiral, integrated approach. Given that teachers cannot be experts at everything, community-resource mapping may be one of the solutions to help science teachers teach integrated science with the best pedagogical content possible through cooperative action and support between schools and communities. This asset mapping process helps align resources from the community in relation to specific goals and expected outcomes intended by the one doing the mapping. Community resource mapping may be done from specific subject level, to program level, to institutional level. Realizing the potential of community resource mapping to solve issues on lacking resources teachers deal with in the

transition phase of K-12 program implementation, this study utilized action research approach to understand the stakeholder's experiences and constructed meanings about the processes and outcomes associated with resource mapping for science classes. This paper also discussed the importance of partnerships between community and school in bringing sustainable development through quality education and to share how curriculum design involve professionals as human resource is developed to elevate engagement and facilitate meaningful, life-long learning to obtain quality education for sustainable development. The adoption of community resource mapping in teaching integrated science classes was proven to:

- solve shortage in basic K-12 resources, through community content-experts that offer their free services to teach students through lectures and demonstration, close-mentorship and free use of their laboratories, and supervision during field observations;
- encourage authentic learning by giving students opportunity to observe, ask questions, manipulate, make connections of the classroom discussions to real-life issues, and help identify and solve problems in their communities;
- meet mutual benefits for both the school and the community by helping the subject-teacher attain the standards and competencies the integrated curriculum requires while also giving opportunities to the supporting institutions share their resources, inspire students to pursue careers in the institution visited, and most importantly, as government institutions themselves, perform the mandate to serve the people;
- improve instruction planning, and develop organization and coordinating skills of teacher by identifying community resources and deliberately incorporating student involvement in the community; and
- develop 21st century skills particularly creativity, critical thinking, social awareness, problem-solving and student-directed, life-long learning, communication, sense of accountability, leadership, empathy, adaptability, and ICT.

Pedagogical Implications

Effectiveness of community resource mapping is grounded on Epstein's theory of overlapping spheres of influence that highlights the shared responsibilities of families, educators, and other community members that promote child's learning and development. Each community is rich in resources and each member of the community has important roles to play. Their cooperation and commitment to this shared responsibility are keys to success of educational programs and to the well-being and achievement of students. As highlighted in the Integrated Sustainable Development Goals model (iSDG), countries around the world are encouraged to form partnerships for the goals (SDG17) of good quality education (SDG4). This paper promotes the use of community resource mapping to form mutually beneficial partnerships that work towards solving the issues in the K-12 program implementation for a better quality of basic education. This paper supports educational research in concluding that community resource mapping is a key component of a 21st-century approach to education. As P21org recommends in their 21st century learning framework, schools must adjust curricula and instruction to:

- teach 21st century skills in the context of core subjects;
- focus on providing opportunities for applying 21st century skills;

- enable innovative teaching and learning methods that integrate the use of supportive technologies, inquiry- and problem-based approaches and higher order thinking;

This paper highly supports the call for incorporating relevant trainings in teacher education programs and professional development to provide experiences that support current and future teachers in developing community resource mapping skills to be used as part of their teaching practice. This will in turn change the way teachers do lesson planning to intentionally include community experience such as immersion for class activities and requirements. As the adoption of community resource mapping is found helpful in improving student engagement and learning, teachers now play an important role to lead in building partnerships that complement curriculum subject matter and meet the goals of education. This emphasizes the need for effective communication, logistical organization, and strong commitment among teachers to facilitate and coordinate in order to maintain and sustain mapping efforts.

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