NARRATIVE EXPERIENCE OF SEASONED TEACHERS IN TEACHING SCIENCE USING SPIRAL PROGRESSION CURRICULUM

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ABSTRACT

The study aimed to know the experiences of the seasoned teachers teaching science in Junior High School using the spiral progression approach. The study involved five seasoned science teachers of Bahay Pare National High School, Candaba, Pampanga, whose teaching experience is 10 years and above. It utilized the narrative case study design to describe the following: views of teachers in spiral progression approach, the practice of seasoned teachers using spiral progression approach, and the challenges and barriers experienced by them using a spiral progression. An in-depth interview was used with the individual participants with open-ended questions from guide questions that allowed further probing. The study found out that the majority of the specialized seasoned teachers were not appeased about the spiral progression approach in science. However, two teachers showed enthusiasm: General Science major and a non-science major. Seasoned teachers narrated their experiences under spiral progression they encountered such as unavailability of learning resources, scarcity of laboratory equipment, struggle in preparation their non-specialize topic, integration of Information and Communications Technology in their pedagogic practice and the intervention made by the administrator such as mentoring and coaching. It was recommended that a school administrator may provide the seasoned teachers with necessary training/seminars appropriate to them such as content and ICT, and procure necessary learning resources for science learning. Also, the administrator may understand the views of the seasoned teachers and provide appropriate stimulator to them, so that they can adapt the approach easily.

Keywords: Curriculum, K to 12 programs, qualitative method, a seasoned teacher, spiral progression

INTRODUCTION

The changes in the curriculum play an impact on the whole education system, especially to seasoned teachers. The Philippine education system has undergone several changes in the curriculum. Currently, the Philippines has implemented the K to 12 programs, believing that these additional years in basic education can meet the demands of 21st - century education and become globally competitive. Before the implementation of K to 12 programs, the Philippine educational system was using the Basic Education Curriculum (BEC) in 2002 and the Secondary Education Curriculum (SEC) in 2010. The BEC 2002 centers on the progress of skills in reading and values of self-sufficiency and nationalism. It also practiced the interactive and integrative approaches that adapted competencies and values across the discipline. While the 2010 SEC, according to DepEd Order No. 76, s.2010 also known as Policy Guidelines on the Implementation of the 2010

Secondary Education Curriculum, focuses on teaching and learning that follows the Understanding by Design (UbD) framework. Furthermore, it aims to produce a learner that are ready and have an urge for work and lifelong learning (SEAMEO INNOTECH, 2012). However, the old curriculum, like BEC (2002) and SEC (2010) were too congested. The two curriculums are equipped with so much knowledge and skills that need to be learned by the learners within a restricted period. Likewise, the learning was fragmented and disintegrated since learning is more engrossed on the content, thus, failing to learn the required proficiencies and attain the skills essential for productive life (SEAMEO INNOTECH, 2012). The Department of Education (DepEd) remains to progress all the subject areas by means of presenting innovations, approaches, and practices to teachers. The progress in subject areas influences the attitude or the insights of the teachers, specifically, the seasoned teachers. The paradigm shifts in the curriculum create a challenging situation for teachers. Consequently, the introduction of spiral progression in the K to 12 programs indeed creates a different reaction to some. The science subject before the implementation of K to 12 programs is specialized every year: First-year high school students focus on Integrated Science; the second year on Biology; third year are concentrated on Chemistry and Physics for the fourth year. The linear approach to the science subject disciplines makes a convenient practice for science teachers. This shows that seasoned teachers are better in the field of their specialization. As such, the linear approach to science discipline has been more expedient for the teachers because they handle the subject of their specialization. Integrated science or the Earth Science taught on the First Year, which covers the basic concepts of Earth Science, Biology, Chemistry, and Physics woven together for the better understanding of the learners in each discipline. Biology in the second year focuses on life science and how it interacts with one another; Chemistry in the third year deals with different chemical reactions, matter, chemical changes, and atoms; and Physics in the fourth year, deals mechanics, thermal and mechanical properties of matter. Teachers who are more focused on their specialization has ample time to prepare activities suited to the needs of the diverse learners. As such, Science before the implementation of K to 12 is more concentrated on the specific discipline; thus, learner's retention to the previous topics are easier for them to remember. The concentration of teachers in their specialization helps the learners to understand the lesson or the topic teachers is employing fully. K to 12 programs is the latest effort of the government to uplift the education system in the Philippines to meet the 12-year global standard. K to 12 program means Kindergarten to 12 years of basic education in elementary to high school. The additional years in Basic Education in the Philippines make a huge impact on the whole nation. Concerning this, Republic Act No. 10533 or the Enhanced Basic Education Act includes the mandatory Kindergarten, Elementary which takes six years, Junior High School with four years and the additional two years for Senior High School. The K to 12 programs started its first run in School Year 2012-2013 wherein the first-grade levels undergone were Grade 1 and Grade 7, followed by Grade 2 and Grade 3 in School Year 2013-2014, and so on. For its aim, RA 10533 will produce a basic functional education that creates productive citizens equipped with appropriate skills, competencies, and tenets for lifelong learning and employment. The learning goal of K to 12 programs, according to SEAMEO INNOTECH (2012, as cited by Okabe, 2013), is the attainment of the 21st-century skills that are good in learning and innovation skills, Information and Communications Technology, communication skills and life and career skills. Furthermore, this curriculum aims to produce a holistic Filipinos with 21st-century skills, mid-level skills, who are entrepreneur ready, and ready for higher education upon graduation to high school.

However, this transition in the education system in the Philippines drew negative reactions from different groups of society. They say that the Philippines is not yet ready with this significant shift in the whole education system and the additional two years in secondary level will cause a burden to parents and learners. Despite the calls to suspend this, the government remains firm on this new transition, believing that the additional years in education will put the nation especially the learners, to meet the standard of the global market. Meanwhile, the Science framework for Philippine Basic Education contains three curriculum component, (1) Inquiry skills, which explain and discover physical phenomena; (2) scientific attitudes, which refers to the values and habits of mind; and (3) content and connections, which give meaning to the context of the subject matter that is under exploration (SEI-DOST & UP NISMED, 2011). On the other hand, this study focuses on the use of the spiral progression approach in teaching science by seasoned teachers. This study aimed to recognize the experiences of the seasoned teachers teaching Junior High School Science using the spiral progression approach. According to Resurreccion and Andaza (2015), the curriculum is a dynamic process, and the development means systematic changes. Changes require a positive outlook, shared common goals, and planned and common progressive goals. Seasoned teachers must adapt with this transition in the education; they must understand that teaching the learners of today the same way they taught before are not helping the learners, they are just molding the learners in conformity. Thus, the huge change in the pedagogic practice requires them the intellectual ability in their specialization and considered not an issue or challenge, but the concern is all about the changes and materials needed for this transition Curriculum change will take years of implantation to identify effectiveness. Spiral progression approach, according to de Ramos-Samala (2017), follows the progressive type of curriculum which is anchored on the idea of John Dewey's on the learning experiences of the learners. Meanwhile, Johnston (2012) stated that the spiral progression allows logical advancement from basic to multifaceted ideas. Moreover, teaching new learning to prior knowledge produces better learning in most of the students, regardless of their age or development level. According to Martin (2008), as cited by Resurreccion and Adanza (2015), the spiral curriculum helps the teachers to develop activities, lessons, and projects that target the developmental thinking of students which do not stop only at identification. Spiral curriculum as again cited by Johnston (2012) is based on the cognitive theory of Jerome Bruner (1960), who wrote, "we begin with the hypothesis that any subject can be taught in some intellectually honest form of any child at any stage of development." Hence, even complicated information can be understood by the students if the lessons were properly presented and structured. Furthermore, instructional approaches such as interactive, manipulative, and concrete can be utilized in the early grades to introduce complex topics in almost any subjects. SEAMO INNOTECH (2012) cited that the science curriculum aims to develop scientific literacy among learners that will influence social, health and environment by applying the scientific knowledge gained by learners. Moreover, the curriculum connects science and technologies to preserve the diverse culture of the country. Science subjects in the new curriculum are integrated across the different disciple such as English, Mathematics, Health, Araling Panlipunan and MAPEH for Grades 1 to 2 while for Grades 3 to 6, science follows the spiral progression which covers the content of the four science disciplines (Earth/Space Science, Biology, Chemistry, and Physics) every quarter. K12 science is a learner-centered and inquiry base that accentuates the utilization of evidence informing explanations. The concept in science education (Earth Science, Biology, Chemistry, and Physics) are presented in a spiral progression, wherein the complexity of the content is increasing from each grade level,

hence the key concepts attained easily by the learners in each grade level are implicit, and retention takes place. This study explored the experiences of the seasoned teachers handling science in different grade levels in the K to 12 programs with different specializations. This study also identified the prevailing problems in science instruction and their implication to education.

OBJECTIVES OF THE STUDY

The study aimed to determine the experience of the seasoned teachers in teaching science using spiral progression curriculum at Bahay Pare National High School, Candaba, Pampanga. Specifically, the objectives of the study were the following: 1) to understand the views of seasoned teachers about the spiral progression approach; 2) explore the practice of seasoned teachers on progression curriculum, and 3) identify the challenges and barriers experienced by the seasoned teachers under the spiral progression approach in teaching science.

METHODOLOGY

This study utilized a qualitative method, which was the narrative case study design. Deborah (2014) cited that narrative case study is a story from real life problems or situations of the respondents that provides adequate background data so that the problem can be analyzed and solved. This method narrated the experiences of the seasoned teachers on the spiral progression in the curriculum was used to recognize their views and practices about the spiral progression approach. This was also used to narrate the challenges and barriers experienced by respondents under the spiral progression approach in science teaching. The instrument used in collecting data was a face-to-face interview. This study involved the five seasoned teachers (teaching for ten years and above) handling Junior High School Science at Bahay Pare National High School (BPNHS), Candaba, Pampanga. The respondents from JHS (four females, one male) were selected through purposive sampling. In this study, the five seasoned teachers were selected based on their length of service in DepEd. The respondents were from Grades 7 to 10 levels (with a different designation (Teacher III to Master Teacher I). The researcher sent a letter of request seeking permission to conduct the study to the principal of BPNHS. Also, a letter of request to teachers to be the respondents and be part of the interview. The research questions answered the experiences of the JHS seasoned Science teachers and were validated by the course professor. The study employed the narrative case study method to generate relevant data in the study. The method helped in collecting rich qualitative data about the experiences of respondents in teaching science using the spiral progression approach. An in-depth interview was used with open-ended questions from guide questions that allowed further probing. The teachers were interviewed for about an hour regarding their insights, views, experiences, challenges and problems in teaching science using spiral progression approach. They were asked to narrate and reflect their preparation on their lessons, instructional materials, activities and home tasks to the approach in today teaching. The interview was recorded using smartphones and was transcribed and analyzed.

RESULTS AND DISCUSSION

1. Views of Seasoned Science Teachers about Spiral Progression

Perceptions of an individual to certain things made an impact on the whole situation, which can make or break the current situation. Teacher's beliefs, attitudes, and practices are vital for understanding and improving the changes in curriculum. Meanwhile, seasoned teachers are intellectually capacitated by the content of their specialization. They can deepen the topics based on the needs of diverse learners. However, the change in

curriculum resulted in changes in the practice of the teachers, specifically to the seasoned teachers. The introduction of the K to 12 program causes the science subjects in Junior High School to be spiral. This approach in the new curriculum believed to help the learners to have the mastery of the subject matter. According to the respondents, their practice before the K to 12 was easy. They were more focused on their specialization. They were only constructing learning materials in their area of specialization, wherein they can modify the materials based on the needs of the learners. Thus, it was very easy for them to do things in their area. According to Orbe, Espinosa, and Datukan (2018), respondents found the spiral progression of the content as learner-centered and holistic learning. When they asked about the curriculum they are using at present, different reactions submerged. As shared by the seasoned teachers:

"There are possibilities that the mastery of the lesson is low since it takes one year to continue the last lesson" (R1)

"I disagree with the spiral progression approach made by the department. It is not easier for me to teach your area of specialization rather than teaching the specialized subject with that case, there is no mastery of subject area we teach" (R4)

"The spiral progression is okay…but it giving me a hard time to teach or you need to study the area you do not specialize...it will take too much of my time. If the time I spent studying the area, I was not specializing was spent only in developing activities that will encourage my students to inquire and think critically. Of course, if that is not my specialization, I will only teach the thing I know. I can't explain it deeper.") (R5)

Seasoned teachers showed disappointment regarding the spiral progression approach in science as they narrated their experiences. Most of the teachers were dissatisfied about this curriculum shift. It revealed that they were having a hard time dealing with other specialization. Though they are science teachers, it does not necessarily mean that they know all the branches of science. Likewise, the preparation they were doing in their specialization differs from another specialization. They said they were not that familiar with the technical terms in another specialization. Though they can teach the other discipline of science, it does not guarantee that the information or knowledge inculcated to the learners met the standards. Furthermore, regarding the content standard of per grade level was challenging and limited, and since the specialization was changing every quarter, the focus was very minimal and the depth of teaching in which the main objective of the spiral progression such mastery and understanding of the content were not met. Thus, the retention of knowledge to specific discipline is not attainable due to the long gap or continuity in the lesson. If other seasoned teachers narrated the spiral progression as problematic, the other seasoned teachers see the potentials of implementing the curriculum. Contrary, others see this as a nice move of the Department. This transition in the curriculum is great, since it is decongested. According to the study of de Ramos-Samala (2018), the spiral progression approach allowed teachers to acquire more knowledge in various disciplines of science. Moreover, it provides a chance for teachers to explore and learn other teaching strategies in science. According to one of the respondents, this spiral progression is not a problem; instead, it is a challenge. One respondent said that this approach would give greater content retention of the basic concepts to higher ideas and meets the no children left behind. This supports the study of Capilitan, Cabili, Sequete (2016), who found that the decongestion of the curriculum helps the retention and possible increase of knowledge of the learners. Also, they concluded that the previous lessons were essential in building up the knowledge necessary for the next lesson. Hence, strengthening of the previous lessons

or basic concepts in the lower grade levels is very essential to have a smooth flow of the next lessons. As shared by the respondents:

"For me, the spiral progression approach is not a problem. It serves as challenges for me to read a lot, to study, to surf the internet to cope up with the new curriculum" (R3)

"Spiral progression approach of the K to 12 Curriculum it is just the right strategy for rapid and growing technology that surrounds us today, from basic or simple concepts to a more complex one in the new curriculum. With this approach, learners will have greater retention of the basic concepts in going to higher ideas (lessons). When the students have mastered the basic concepts, no learners will be left behind in science since performance/products or outputs is less half of the grades per quarter they will love the subject first before the others" (R2)

2. The Practice of Seasoned Teachers using Spiral Progression Curriculum

Montebon (2014), stated that in terms of instructions, the change in curriculum highlights the critical thinking and scientific skill of learners. The K to 12 programs utilizes the learner-centered approach, such as the inquiry-based learning pedagogy. Moreover, the concepts and skills are taught by providing pedagogy in which learners are enhanced in terms of cognitive, affective, and psychomotor. When the respondents were asked about their different practices, most of them stated that they have no major or specialization of the discipline in the curriculum. Worst case, they were not a science major or connected to science. Mizzi (2013) cited that teaching science out the specialization faces considerable challenges in lesson preparation and science teaching. They were advised to teach science during the old curriculum and force or obliged to teach the current curriculum. In light of this, respondents showed self-efficacy, good attitude, and optimism in handling this curriculum. While other science teachers, the spiral progression approach was not a problem because the undergraduate course was General Science. As shared by the seasoned teachers:

"At first, I am very hesitant to teach the spiral progression curriculum because, since I am not a Science major, I don't know Biology and Chemistry. What I did was, I asked my co-teachers to help me with the topic I am not used to teaching. I also read books about Biology and Chemistry. And as time goes by, teaching the spiral progression curriculum is no longer a problem." (R3)

"As a general science teacher, I did not experience much on the adjustment of the learning areas since it was my major in college."(R2)

School leaders are also essential in applying the new method or practice in the school system. They are the ones who will give technical assistance to teachers. Professional development should be provided by the administration to meet the demands of spiral progression. Bennett (2007) cited that changes in the curriculum demand acquisition of new knowledge and skills for teachers, and transformative learning that affects their beliefs about teaching and learning. Thus, the support of the administration is necessary for teachers to feel that they are important and cared. Respondents at BPNHS stated that to cope up with changes, mentoring and coaching were introduced. Teachers in the specialized subject will coach or mentor the non-specialization teachers in their teaching of the science discipline. Also, the practice they were doing was through the inductive method, where they taught first the simple one to a complex one. By administering pre-test also, teachers can identify the needs of the learners and focus on it.

"In our school, a teacher teaches all the division/components (Biology, Chemistry, Physics) of Science subjects per grade level

that's why we implement team teaching a conduct coaching and mentoring." (R1)

"By administering the pre-test (formative), I can diagnose which test items got a low score. In this way, I can make or apply a lot of teaching strategies and have a better plan for the competencies that have low scores. Aside from these ways, I religiously follow and enrich each competency for every module allotted before the performance or output they will make and lastly, a constant review before beginning the lesson." (R2)

"I execute it through teaching first the basic knowledge up to the complex one. For instance, I will first teach the definition then application and experimentation." (R4)

"I keep on studying the lesson which is not my specialization. With the help of my other co-science teachers, I can easily grasp the topic and they were coaching me in making instructional materials applicable to the topic." (R5)

3. Challenges and Barriers Experienced by the Seasoned Teacher using Spiral Progression

The success of the curriculum depends on the challenges and barriers overcame or have adapted to the concerns. Circumstances that do not support the integration or utilization of the spiral progression approach can be considered as barriers. Like the curriculum before, the application of spiral progression in the pedagogical practice relies on how seasoned teachers accept and utilize it. Knowing the benefits, barriers, and challenges, and other factors affecting the respondents would help provide appropriate support, services, and mentoring to teachers. Teaching nowadays is considered one of the noblest and challenging professions. Teachers are expected to be a person full of information and knowledge which are needed by the learners. Teachers must be equipped with different strategies to address the needs of diverse learners. The K to 12 curricula in the Philippines, specifically the spiral progression, plays a significant challenge for seasoned teachers. As such, seasoned teachers must adapt to the trends of 21st-century education and to the needs of 21st-century learners. The change in curriculum requires a change in the practice. One of the methods introduced in K to 12 programs is the utilization of Information and Communications Technology in their pedagogy. As cited by Martinez (2012), there is a lack of administrative support in integrating technology in teaching and learning, but when they receive support from the admin, it is not significant. As narrated by the respondent, integrating ICT in teaching and learning practice is crucial in her situation. Teacher-respondent knows the importance of ICT in teaching practice. Also, seasoned teachers must take into account the new ways of thinking and processing information of digital natives or born in the digital age. Utilization of ICT in a classroom setting is important to provide the learners with the knowledge and skills they need as digital learners. Learning is not one size fits all. Technology can offer a personalized learning environment that is tailored to learner's difference. Content and resources are readily available on the internet. De Los Arcos, Farrow, Pitt, Weller, & McAndrew, (2016) concluded that K-12 teachers do not merely espouse the Open Education Research (OER), instead become accustomed to the open content and modify it to the needs of diverse learners. However, teachers need to change their habits and attitude towards searching for content and sharing resources. Nevertheless, in light of the benefits of ICT integration in teaching-learning practice, the expenses to utilize this technology, such as the use of the internet is very expensive. Martinez (2012) found that teachers face barriers that constrain them from instigating technology no matter what type of school environment they are in. These barriers come from lack of time, access, but most strongly from the self-efficacy of the teachers. Moreover, teachers need support like training from the department for the success of the

integration of technology and give them confidence in utilizing ICT in teaching. Thus, positive impacts on students, teachers, and school community will be highly evident. As indicated by the respondents:

"As a general science teacher, I did not experience much on the adjustment of the learning areas since it was my major in college. The only challenge that I experienced is by using most of the time, the ICT aided materials using the internet that will be an additional expense on my part. But this strategy I believe, would be most like by learners, so it doesn't matter whether it is costly or not. I cannot say that there is a barrier. Spiral progression a product of change hat is needed to embrace in the K to 12 curricula. If you stop growing as a seasoned teacher, you will be delayed, so change is very much important, and flexibility is a favorable one." (R2)

"For me, the challenging part was answering all the activities proposed in the module, especially those hard activities. As well as integrating ICT in teaching." (R4)

The success of the pedagogy also relies upon the instructional materials and the strategies teachers employ. The spiral progression approach in science requires instructional materials that will help learners to think in a higher order. The materials such as laboratory equipment, learner's module or materials, teacher's guide, and other entities will help in attaining the content standard and performance standard of the curriculum. Orbe et al. (2018) cited that the sufficiency of laboratory materials and equipment are required to facilitate learning. The current situation of the public school is very far from what they are expecting they are introducing the curriculum. Alshammari (2013) found that the challenges faced by the teachers were teachers have work overload, insufficient teaching tools, large numbers of students in classrooms, and the short length of time. The Philippine public education is currently experiencing this scarcity in equipment and materials. As narrated by the respondents,

"The teacher is opted to read...research or study different components of Science to provide challenging activities given during teaching and learning process, which I think quite difficult on the part of the teachers." (R1)

"Students with low competencies and availability of instructional material from the school." (R3)

"The challenging part for me is providing appropriate activities and understanding of the science subject that I do not specialize. Also the availability of learning resources, laboratory equipment and the time in discussing the subjects, because every grading period there is a changes in the specialization." (R5)

CONCLUSIONS

Based on the findings of the study, the following conclusions were drawn:

1. Majority of the specialized, seasoned teachers are not in acquiescence about the spiral progression approach. However, the two seasoned teachers showed enthusiasm because one has a General Science specialization, and the other is a non-science major. It is a significant advantage for the General Science specialization to teach using the spiral progression.
2. Majority of the specialized, seasoned teachers are having a hard time in the spiral progression approach. The in-depth content that should be provided to the learners were not delivered effectively.
3. Seasoned teachers are having a hard time using ICT materials in their teaching-learning processes.
4. The scarcity of the learning module, laboratory equipment, and the instructional materials in science

learning in public school are evident.

5. Coaching and mentoring are the strategies used by seasoned teachers with the help of the administration to address their difficulties with regard to their non-specialization.

RECOMMENDATIONS

In the light of the aforementioned findings and conclusions are drawn, the following recommendations are posited to further help the seasoned teachers in their teaching-learning process under the spiral progression approach:

1. School administrators may give the seasoned teachers more understanding about the lapses of the seasoned teachers and motivate them
2. to embrace the changes in the curriculum by providing appropriate interventions.
3. The teachers may be given additional training on the contents of science to further equip them with the knowledge and skills necessary in the spiral progression approach.
4. Seasoned teachers may be given additional training in ICT equipment and be abreast in using new computer programs/applications.
5. Procure learning resources or give priorities to the equipment needed in the spiral progression. School administrator takes initiative to provide appropriate tools and learning materials.
6. The school may design a long-term plan considering the training/seminars to be attended by seasoned teachers.

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