

# Experiences of Science Teachers in Implementing Spiral Approach

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## Abstract:-

**Purpose:** This action research was conducted to identify experiences of science teachers in implementing spiral approach. It includes the teachers' strategies used to cope with the trend and ways to strengthen the implementation of the approach. Science teachers must be equipped in dealing with different challenges in the development of the educational system. Students' achievement is reflected how science teachers really understand the practices provided to the learners. The researcher believes that the result of this study will greatly help the science teachers in their journey.

**Design/Methodology/Approach:** The respondents in this study were science teachers from the Junior and Senior department of Paharang Integrated School. The study used the descriptive quantitative method of research with the questionnaire as its main tool in gathering data. The items in the questionnaire were scored based on four options Likert Scale to collect the desired data from the participants.

**Findings:** Findings revealed that all of the respondents agreed that the learner materials provided by the government are not enough and their way of coping to the trend was to modify the activities. Furthermore, among the ways to strengthen the implementation of spiral approach, respondents strongly agreed that being resourceful and give students a choice on how they learn are essential.

**Research Implications:** The researcher believes that this study could be useful to ensure maximum opportunity in assisting science teachers in facilitating the lesson. The findings from the research are expected to enhance students' learning in different areas of Science. Moreover, this study may help students improve student's abilities and skills since multiple intelligences are considered in implementing the spiral approach.

**Originality or Value:** No part of this study was copied, falsified or fabricated. Studies were cited properly. The respondents of the study are science teachers and it utilized descriptive method of investigation.

**Keywords:-** Experiences, Science, Spiral Approach.

## I. INTRODUCTION

In the Philippines, there is a decreasing performance of Filipino students in many subject areas according to education analyst. This observation prompted the need to change the country's educational system. One of these modifications is the implementation of the K-12 curriculum which started in 2012. The Philippines is said to be the last country in Asia and one of the three countries worldwide to implement the K-12 Curriculum. One of the features of the new curriculum was the spiral approach to learning believed to provide a smooth transition between grade levels (DepEd, 2012).

Spiral approach is the method used in teaching high school students. It refers to the ladder developmental approach of discussing concepts especially practiced by science teachers to ensure the development of teaching-learning experience. It involves progression and continuity in learning science. According to Resurreccion and Adanza (2016), progression refers to students' individual educational journeys and the ways in which they learn, apply, and grow skills, expertise, and understanding in increasingly difficult circumstances.

Paharang Integrated School has an enrolment population of more than a thousand with eight science teachers. In order to ensure the effectiveness of understanding science concepts, spiral approach should be mastered by teachers considering their experiences in implementing such in conducting the lesson. As stated by Houtz (2008), teachers need to educate themselves in such a way as to help prevent their students from having the same attitude.

The experiences of teachers will identify their difficulties which can be remediated right away that will help teachers to easily implement it and for students to easily understand science. These experiences will teach other teachers to somehow learn and enhance their skills in effective way thus, this research study "Experiences of Science Teachers in Implementing Spiral Approach" is conceived.

**II. STATEMENT OF THE PROBLEM**

The study aims to answer the following questions:

1. What are the experiences of science teachers in implementing the spiral approach?
2. What are the strategies used by science teachers to cope with the trend?
3. What are the ways to strengthen the implementation of spiral approach?

**III. METHODOLOGY**

In this study, the researcher applied the descriptive research design in gathering and collecting data. The respondents of the study are the science teachers from Paharang Integrated School. The researcher conducted an interview about the respondents' experiences in using the design. The research instrument was conceptualized through reviewing different concepts and studies about spiral approach. The dialogue also serves as basis in the construction of validated self-constructed questionnaire composed of teachers' experiences in implementing spiral approach, strategies to cope with the trend and ways to strengthen the implementation of spiral approach. The questionnaires were personally distributed by the researcher to eight science teachers.

**IV. RESULTS AND DISCUSSIONS**

**Table 1**  
**Teachers' Experiences of Implementing Spiral Approach**

	<b>Teachers' Experiences of Implementing Spiral Approach</b>	<b>Weighted Mean</b>	<b>Verbal Interpretation</b>
1	Teachers find difficulty in connecting topics from grade to another grade.	2.50	Agree
2	The learner materials provided are not enough.	2.80	Agree
3	They observe that students show difficulty in recalling concepts learned during the previous grades.	2.60	Agree
4	Activities are not easily carried out because some parts requires knowledge learned from the previous grades.	2.70	Agree
5	The teachers repeat the lesson from the previous grade before discussing the present lesson.	2.60	Agree
Composite mean		2.64	Agree

As shown in table 1.1, the science teachers agreed that the following experiences are observed in implementing the spiral approach in teaching science.

Teachers find difficulty in connecting topics from grade to another grade. This is because some of the teachers failed to finish the allotted coverage of the content. What the respondents shared was they recall or revisit the previously learned knowledge of the students before adding new concepts. The teacher provides the information and the students were asked to analyze and organize ideas to discover learning. In light of the discoveries of Resurreccion and Adanza (2016), state funded teachers think that it's hard to handily adjust to the new educational program, especially educators who had long a long time in help in instructing with a specific specialization. In any case, they are giving a valiant effort to adjust to it by utilizing new innovations, perusing more books and assets, going to workshops and by teaming up with their kindred educators.

The learner materials provided by the government are not enough. Although it's been years since the implementation of K to 12, the shortage of supplies is still observed. Through the initiative of the science teachers, managing the class is done accordingly. Using the library

and engaging oneself to technology became their partners in supplying all the data they need.

They observe that students show difficulty in recalling concepts learned during the previous grades. Respondents believed that the students' foundation in the subject was not that deep. They thought that interest in the subject and study habits were the factors behind this problem. This is associated in the investigation led by Hazel de Ramos-Samala (2017) it was shown that vertical enunciation was difficult to follow altogether the regions of science, for the explanation that the understudies would in general fail to remember what they have gained from the past grade level.

Activities are not easily carried out because some parts requires knowledge learned from the previous grades. The activities are important part of the teaching-learning process because the learners' skills are enhanced. But if the students failed to recall or connect information from previous grade, they might feel bored and incomplete. It is always been a challenge for teachers to devise an exciting and engaging task for students especially in teaching science subjects for them to experience a worthwhile period all throughout the year.

The teachers repeat the lesson from the previous grade before discussing the present lesson. The respondents believed that students need to understand the reason of attending the subject, not only to comply with the requirements but also to realize of its need. This act may help to save time and effort on the part of the teachers in a way that they could focus on the present lesson and maximize the period in deepening the subject matter. In this

regard, as perceived by the teacher-respondents of the study by Samala (2007), vertical and horizontal articulation of spiral progression were not easy to be traced based on learning competencies. Having students with various degree of understanding, not every person is capable of recollecting their previous exercises that prompted the need of audit before the beginning of the new exercise particularly in the territories of Physics and Chemistry.

**Table 2**  
**Strategies Used by Science Teachers to Cope with the Trend**

	Strategies Used by Science Teachers to Cope with the Trend	Weighted Mean	Verbal Interpretation
1	Cooperative Learning	3.00	Agree
2	Sharing of techniques with colleagues	3.00	Agree
3	Modify the activities	3.30	Agree
4	Online research	3.10	Agree
5	Localization of materials	2.90	Agree
	Composite mean	3.06	Agree

It can be gleaned from table 2 that teacher-respondents agreed that the following strategies were used by science teachers to cope with the trend of using spiral approach in teaching.

**Cooperative learning.** It is an instructing technique that assists students work while at the same time learning. The primary objective for this methodology is to add to the accomplishment of the group. Respondents likewise accepted that students can likewise upgrade their social abilities for they will work with their companions in accomplishing regular goal. As demonstrated by Gillies (2007), teachers expect a fundamental part in developing accommodating learning in their investigation corridor. Associated with this is a commitment in regards to ensuring that the social events are throughout coordinated so understudies will team up and advance each other's learning and that the get-together assignment is relevant and open and divulgence based, anticipating that understudies should talk together. Samala (2017) added that agreeable learning is legitimate and convincing in instructing science. This shows that this learning could be used in science. Subsequently, the students, if were permitted to work cooperatively they discover learning alone. With proper instruction, it is simple for the students to review the activities. For these strategies to be incredible, the educators need predominance of the activity and think about what thoughts the understudies need to rule.

This resembles the different assessments saw by Merza, et. al (2018) on their investigation. Nastasi (1999) the usage of CL raised suspicions the more events pleasing learning was used in the homeroom. Students were encouraged to participate in conversation, which will undoubtedly improve motivation and mindsets toward learning. Right when motivation and mindsets toward learning were changed, understudy's assessments began to extend (Putnam, 1997). Baloch (1998) communicated that to raise the presumption level of a homeroom the teacher

expected to connect all understudies by giving them obligations inside the supportive social affair.

On the other hand, respondents agreed that sharing techniques with colleagues is an approved strategy to cope with the trend. In the field of teaching, working with colleagues improve one's perspective. Techniques shared or suggested by co-workers may upgrade the teaching-learning process into another level. In the book composed by Jacobs et.al (2002) referred to a portion of the advantages of cooperative learning among educators. These are improved time on task, expanded capacity to appreciate viewpoints, and more prominent freedoms for the educator to notice and survey students' learning.

**Modify the activities.** In connection to this, it is indeed a challenge for science teachers to come up with tasks or experiments which will suit the level and interest of the learners. This is in line with the statement of Donovan (2005) that teachers today face more challenges than simply knowing their state standards in science and making sure they are providing interesting, content based, grade-appropriate science activities.

**Online research.** Since learners materials are not enough, this strategy greatly help the teachers in their endeavour because it becomes their avenue to keep on track. For Fielding, et.al (2016) new methods throw up unexpected challenges and opportunities and place old problems in a new light. It ought not to be failed to remember that new advances likewise move the social relations of scholarly creation. Markey (2015) added that online searching was born to harness the information explosion that sparked new discoveries in science and technology. Despite the difficulty of inquiring early search systems, users were pleased to search for data on their own.

Lastly, respondents agreed that localization of materials is an effective strategy for the teachers to cope with the trend of using the spiral approach in teaching. It is a

process of adapting and designing instructional materials available in the community. As a result, teachers become more innovative while still being able to run a smooth class, and students enjoy learning the concepts they need to know. Students can also learn how to make the most of readily available local materials. Aside from this, the creativity of both teachers and learners will be enhanced. According to Baez (2013) if local educators, say environmental education

committees or perhaps even individual schools, were able to select learning units from a range on offer which they believe it would go a long way toward helping to localize environmental education content if people felt the topics were important to their own region. This type of content is starting to appear in a number of countries, and it provides teachers with another collection of resources to aid in the development of their own locally focused learning units.

**Table 3**  
**Ways to Strengthen the Implementation of Spiral Approach**

	Ways to Strengthen the Implementation of Spiral Approach	Weighted Mean	Verbal Interpretation
1	Provide frequent and timely feedback	3.75	Strongly Agree
2	Be resourceful	4.00	Strongly Agree
3	Make learning active	3.88	Strongly Agree
4	Encourage discussion	3.88	Strongly Agree
5	Give students a choice on how they learn	4.00	Strongly Agree
	Composite mean	3.90	Strongly Agree

As shown in table 1.1, the science teachers strongly agreed that the following ways are means to strengthen the implementation of spiral approach in teaching science.

Provide frequent and timely feedback. Giving feedback is vital to ensure development. The response received by teachers help them to analyse their efforts and possibly provide them with necessary support to become better educators. According to Aquino (2017) enough can't be said about the importance of sharing feedback with students during the learning process. Setting up checkpoints, providing a range of formative tests, and talking about learning in real time are all essential.

Be resourceful. From the gathered information during the interview, teachers believed that materials provided by the government are not enough. Thus, one way to strengthen the utilization of spiral approach is being resourceful. This is a way of attaining a specific task in a creative manner. Zheng (2015) stressed that a resourceful teacher should be able to call upon a wide range of activities and techniques that support teaching and learning. For Mukalel (2007), a resourceful teacher will be contented only with a much broader knowledge that will help him do quality work in the class.

Make learning active. Students of today learn more when they are actively involved in the learning process. This encourages participation which result to acquisition of scientific concepts. Biech (2015) cited that active learning beyond the classroom requires awareness of myriad of details. To make learning active, one must put his learner in a scenario where he can be physically involved early to maximize his full potential and discover one's ability.

Encourage discussion. Shemwell & Furtak, (2010) defined classroom discussion as an exchange of ideas in which multiple participants explain what they think and why. Discussion as teaching strategy has been recognized as one of the most valuable tools in facilitating learning

(Hackling, Smith & Murcia, 2011). This means that to support and to make the application of spiral approach in science learning process a success, it is essential that educators encourage active discussion because students who are participative tends to learn more than those who are not.

Give student a choice in how they learn. The trend of learning process among students nowadays is dynamic. They have different abilities ways of acquiring concepts. According to Cherry (2019), Gardner theorizes that people possess many forms of intelligence, including artistic, interpersonal, spatial-visual, and linguistic intelligences, in order to capture the full spectrum of abilities and talents that people possess. This simply means that incorporating multiple intelligences into the teaching-learning process will help students learn more effectively.

## V. CONCLUSIONS

Based on the findings, the following conclusions were drawn:

1. The teachers have the same experiences in implementing spiral approach in their teachings.
2. The teachers modify activities to cope with the trend of using spiral approach.
3. The teachers are being resourceful in strengthening the implementation in teaching science.

## RECOMMENDATIONS

From the findings and conclusions of the study, the following recommendations are offered:

1. Further study to address the needs of teachers in providing quality teaching-learning experiences.
2. Continuous follow up and assistance to enhance the use of strategies in teaching science.
3. Engage on the identified ways to strengthen the implementation of spiral approach.

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