

Developing Learning Skills through 5X+Y Shepherding Style

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ABSTRACT: This study is an action research grounded on the assumption that collaborative learning is an effective strategy for assisting students with very low achievement level in Mathematics. The main purpose of this action research was to describe the implementation and effects of the 5X+Y shepherding style in improving the academic performance of selected students in Mathematics VI within the structure of a remedial class. The 5X+Y strategy involves the pairing of one high performing pupil (Y) with five least performing pupils (X) who need assistance to upgrade their achievement level. The quantitative and qualitative approaches were used to address the main purpose of the action research. The one group pre-test/post-test strategy was done to assess and compare students' performance before and after the intervention while interviews were conducted to determine the students' ideas and reflections on the use of the intervention approach.

Keywords: Collaboration, peer tutoring, shepherding style

Introduction

There is a need for teachers to evolve their teaching strategies in order to address the needs of 21st century learners. It is then

important that teachers try emerging and innovating teaching strategies to promote students' learning. With the advent of the age of digitalization and social media in the current century, there seems to be a lot of opportunities for facilitating student learning through peer collaboration as they could be done both inside and outside of classrooms. Teachers need to maximize such opportunities for collaborations and use them as educational interventions. This study is an action research that aimed to assess the effectiveness of an intervention program called "5X+Y Project" where students with different achievement levels and sections join together and collaborate with one common goal – to achieve a satisfying achievement results. These students were expected to be partners in and out of the school where they could also use technology to better understand the lesson.

The 5X+Y shepherding style matches the least performing students with a high performing pupil who serves as their leader/tutor. Mastropieri, et al. (2006) described this style as groups of two or three combining lower achieving students with higher achieving students for assistance. Colvin (2007) suggested peer tutoring occurred within same societal groups and may be formal or informal, may be one-on-one or in small groups, and may involve furthering classroom discussions or solving specific problems. The "X" describes pupils with low to very low achievement test results and have achievement levels that are below the 50% percentile rank. The "Y" are the pupils with very high achievement levels and they belong to the 90% percentile rank in a class.

An intervention program utilizing the 5X+Y approach was designed by the researchers with the eagerness to uplift the quality of Mathematics Education in the school of the main researcher which incurred a 10-point decrement from 74.00 to 64.00 in the 2014 National Achievement Test. The intervention aimed to improve the performance level of the Grade VI students in his school as they prepare for the

incoming National Achievement Test 2016 which is regularly held every last quarter of the academic year.

Area of Focus

The main researcher was concerned with the students lack of mastery in Mathematics skills, especially in addition and subtraction of dissimilar fractions with and without regrouping. Based on the results of previous summative and periodic tests, these skills were found to be the consistently the least mastered skills in Mathematics. The main researcher has tried to look for strategies to improve the achievement levels of students' by reading recent research literature on teaching and learning then applying these studies' recommendations or proposed strategies in teaching Mathematics. However, there seems to be no improvement on the students' performance.

As the main researcher was challenged by the very poor students' Mathematics achievement, he prepared an intervention program to address the problem in consultation with the other researcher. Thus, the purpose of this study is to describe the implementation of the 5X+Y shepherding style as an intervention for improving the academic performance of students in selected topics in Mathematics VI.

Purpose of the Research

The main purpose of this action research was to describe the implementation and effects of the 5X+Y shepherding style as a classroom strategy in improving the academic performance of students in Mathematics. In this study, the 5X+Y strategy is the intervention designed and it involves the pairing of one high performing student (Y) with five least performing students (X) who need further assistance to upgrade their achievement level. Pairing of students was regardless of gender and age as long as the X and Y

students come from the same grade level. In addition, the 5X+Y approach involved the use of learning strategies that tapped multiple types of intelligence. Making a Mathematics learning effective is a great challenge and the researchers hoped that the intervention will be successful. The result of the study would be used to determine how the intervention can improve and facilitate learning.

Methodology

This action research utilized both quantitative and qualitative methods to attain the purpose of the study. A total of 25 Grade VI pupils served as X-participants of the study while five pupils served as the Y-participants. In addition, two teachers other than the researchers, served as implementers of the intervention. The main researcher identified the “Y-students” from one section and the X-students from another section. Informed consent was solicited from the pupils and their parents. The one group pre-test-post-test strategy was used to determine if the pre-test performance of the students improved after the intervention program. Interviews with the students and teachers/implementers were conducted to gather qualitative data that could further achieve the purpose of the study.

All students who served as participants of the action research took a 25-item teacher-made test that served as their pre-test. The results of the pre-test validated the researchers’ selection of the students as the X-students got much lower scores compared to the Y-students. Five X-students were then matched with a Y-student, leading to the formation of five groups with 5 X-students and one Y-student per group for the intervention program. The students were given daily tasks that they needed to accomplish at the end of the 2-hour intervention classes which lasted for three months. Two teachers served as implementers of the 5X+y approach and facilitated the

intervention approach while the researchers served as observers. As expected, the students engaged in collaborative learning and the Y-students serving as leaders and tutoring the X-students in their group as they accomplished the given task every day. This action research was conducted during the first four days of the week outside of regular classroom hours as summative tests were given every Friday to evaluate the achievement level of pupils per week. The same 25-item teacher-made test given in the pre-test served as the pupils' post-test after the three-month intervention.

Results and Discussion

Table 1. Weighted Mean of Pupils' Pre-Test and Post Test Scores

Student-Participants	Weighted Mean	
	Pre-Test	Post-Test
X- Students	4.28	11.40
Y- Students	12.24	13.76

Table 1 shows that the pre-test scores of the X-students increased by 7.12 in their post-test. The Y-students also increased by 1.52. This implies that the X+Y project made a positive effect in the performance of both the X and Y student-participants, and even more for the X-students. These results are consistent with the assertions of Nguyen (2013) that peer-tutoring in Mathematics is effective in improving Mathematics performance. Hence, the results provide some support for the effectiveness of the intervention in improving student performance. The presence and assistance of a high achieving Y student seems effective in facilitating collaborative learning among the students leading to the improvement in performance among the low achieving X-students. The results give the researchers the impression that the 5X + Y approach is a feasible, innovative way of

conducting collaborative learning and learning through peer facilitation in Mathematics.

Moreover, the results seem to imply that the intervention program was effective in accommodating diverse students within a classroom. According to Nguyen (2013), diverse learners in a classroom can be helped through differentiated learning which provides students with varied opportunities to acquire knowledge and master skills, which can be difficult to implement in a traditional classroom setting. The result indicating that even the Y students improved after the intervention suggests that even high achieving pupils may benefit from collaboration with and tutoring of low achieving students.

The results of the interviews with the students provide further support to the usefulness of the intervention. One student said that he was motivated to attend the intervention program and answer modules even if it was outside of regular class schedules because they were given the freedom to ask their leader (Y-students) about the process on how to answer the Mathematics questions correctly. This response is typical of the other students and suggests that the students learned from the Y-students because of the chance to ask how to best answer a given Math problem. The researchers believe that being able to provide low achieving students opportunity to learn from the mentoring of a more knowledgeable peer is one of the strengths of the 5X+Y approach- For instance, several student-participants said that some of the modules required them to draw their own design and model using color pens and all of them in their respective groups understood the topic through their leaders. The positive effect is that even the Y-students reported a sense of enjoyment and satisfaction from mentoring peers.

Most of the student-participants reported that they enjoyed the intervention classes and the modules with the

teacher-implementers. Since the implementers spoke in English as they cannot speak the Filipino language, the students were forced to speak with their group mates in English as well. The students themselves reported that their collaborative and communication skills were developed. The researchers realized that providing opportunity for developing rapport and camaraderie among members in a group could be another strength of the intervention approach. Lastly, some students mentioned that they developed their creativity during the conduct of the intervention program because some of the modules required them to draw and visualize fractions using their own design and models.

Nevertheless, the students reported some problems during the intervention. One pupil reported that he was frequently absent in the intervention classes because according to him, needed to help his parents earn a living after the regular class. He was very much willing to join the session with the collaborators but had a limited chance of joining the group because of the economic situation of the family.

Another students said that he had a hard time analyzing the given word problems in the module because they were written in English. The incapacity of this particular student to comprehend problems is common among most of the student-participants so the Y-students and the two teacher-implementers provided support to the pupils in this area. Another pupil, who was identified as the least performing student among the participants is not a regular attendee of the program because she felt ashamed of her group mates because of her age. The researchers then realized that students' age must also be considered in forming their respective groups.

The results of the interviews conducted with the two implementers of the intervention indicated that the intervention

was effective in improving the performance of the students and facilitated their learning. One implementer shared:

"The project facilitates learning because it includes a lot of intelligence not only the Mathematical-logical intelligence...but it also includes artistic intelligence, linguistic intelligence and the logical mathematical reasoning where some students can visualize fractions and can see the definition of a fraction because of some people who have abstraction in their minds."

"Mathematics teachers can develop the students' intelligence by integrating art like for example during the conduct of the intervention as it motivates the pupils instead of the traditional things and teachers can use several things to get their attention before introducing the lesson."

The other implementer narrated her observations of the students:

"I think they were motivated because the students were always asking them if they have this meeting today or if there is a long weekend pupils were saying that they were going to miss the modules for so long and so we think that they were really engaged with the activities."

"I think that critical thinking was developed because the students were given the chance to choose which worksheet they liked to accomplish for the day and there were instances that the students ask permission from us to change the worksheets that they have chosen because they do not know of a concept and have no knowledge yet about this topic."

There is exchanging of ideas among the groups. They are good speakers and can easily understand and speak English well so s/he helped in doing translation and even in explaining the directions in the modules. So I think that's the way they develop communication skills.

However, the implementers also shared the problems they encountered during the conduct of the intervention.

Some student-participants were not able to attend the class religiously that even made us confused of their daily attendance. Lastly is their language. We were surprised that there were lots of students who understand English but there were also some who doesn't speak and understand English so it was a handicap for them.

Conclusion and Recommendations

Based on the findings and discussions, the researchers conclude that:

The implementation of the 5X+Y sheperding style of collaborative learning was effective as indicated by the improvement of the academic achievement of the students-participants as reflected in their post-test scores. Moreover, both the X and Y students who participated in the intervention class enjoyed the conduct of the intervention. The X-pupils, in particular reported how they learned through the Y-students. The students also reported that they were well-motivated in collaborative learning using pair and group activities. The students reported developing their sense of collaboration, critical thinking, and creativity as they were assigned to perform tasks and solve problems together that required them to learn the lesson collaboratively

with the Y students as leaders. The feasibility and effectiveness of the intervention were also emphasized by the teachers who implemented the intervention program. Hence, the 5X+Y shepherding style is an effective and innovative collaborative learning approach that should be adopted by schools as a remedial intervention for low achieving students in Mathematics. The researchers believe that while the present action research was done as a remedial class, the 5X+Y approach can be also used in regular class settings where a more knowledgeable peer can serve as the leader and tutor of less knowledgeable students. The researchers see the value of the approach and commits to include the approach as one of their instructional strategies, not only in Mathematics but also in other subjects where peer learning and collaborative learning could be helpful.

Based on the conclusion above, the researcher would like to recommend some points as follows:

1. Mathematics teachers should consider adopting the 5X+Y approach not only for a three-month intervention plan or for remedial class but as an instructional strategy as regular class year-round.
2. It is recommended that the approach be implemented with a maximum of six groups to allow for more feasible monitoring of outputs and the performance of the least performing students. The teacher who implements the intervention must develop relevant lesson plans or modules by first identifying the least mastered skills. Follow-up activities must be given immediately to see whether or not the students really understood the lesson.
3. If the approach will be utilized in a remedial

class, it is recommended that there must be a discussion with the parents of the student-participants to explain to them the significance of the remedial class and the approach used.

Action Planning

This action research is a stepping stone in the implementation of a school-based intervention program focusing on improving the mastery level of students in Mathematics. The results of the intervention program as used in this action research will be used as baseline data in describing the effectiveness and promoting the use of the 5X+Y shepherding style as an approach in improving the academic performance of students in Mathematics. Given the results, the researchers gained the insight to use this intervention in the conduct of an intensive review for the National Achievement Test (NAT). Hence, the main researcher has begun designing another intervention program using the 5X+Y approach with strategies similar with the ones used in the present action research plus the added twist of involving the parents in the review classes for the NAT for the benefit of all pupils in Grade VI. Meanwhile, the other researcher has started designing a plan to utilized the 5X+Y approach as a core strategy in teaching Research and Statistics courses in the graduate level in the university where he teaches. Both researchers agree to adopt the 5X+Y approach as part of their repertoire of teaching strategies.

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