
Cell Group Review: An Intensified Review Strategy for Programme International Student Assessment (Pisa) 2022 Takers of Tacunan National High School

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Overview— This action research aimed to determine the students' significant effect before and after taking the Programme International Student Assessment using Intensified review strategies and interventions. A quasi-experimental quantitative design was used. Forty-two (42) students of different grade levels of Tacunan National High School, Tacunan, Tugbok District, Davao City were the participants and at the same time the recipients of this study who were chosen. Test questionnaires were utilized from the Davao City division through a google form link. Results revealed that PISA takers have a significant effect in administering before (pre-test) and after (post-test) the test. Pre-test and post-test results were the basis for analysis using the mean, standard deviation, and the T-test in the study. Results revealed that Cell Group Review showed that there was a significant effect in the students' test scores which implies that cell group review is an effective method that enables students to work in small groups to achieve a common goal. Cell group review learning supports students' comprehension skills, their participation in the learning process, creative problem-solving skills, socialization, and language development. The formation of groups is a critical process in effective learning environment (Chan et al., 2010). Moreno et al. (2012) state that having the effective cell group review learning provides a high level of interaction between group members and is important to achieve the desired learning outcomes.

Keywords— PISA takers, Grade ten students, peer support, group review, intensified review, adopt-a-learner, remedial class, psychosocial

I. INTRODUCTION

Assessment is crucial in education, not only to develop pedagogies, line up curricula, and inform policy decisions but also to reduce stress for the students and schools when standardized assessments are used, most especially during a pandemic. Tacunan National High School was one of three schools selected in Davao City for the 2022 Programme for International Student Assessment, an OECD assessment that evaluates the competencies of 15-year-olds in 85 countries (Arens et al., 2020).

PISA assesses literacy in reading, mathematics, and science. For each cycle, one is emphasized. For 2022, mathematics was the focus, while creative thinking was the novel subject. This test measures realistic problem-solving rather than a mere memorization of school curriculum (Pipan, 2008). The students were reluctant to participate after a long absence, citing issues with their confidence and financial situation. Most had low retention and minimal exposure to digital presentations of testing.

According to research, most students expected lower performance based on their pandemic experience; hence, they thought of having low grades and getting increased difficulties in assignments (Aucejo et al., 2020; Patricia Aguilera-Hermida, 2020). However, evidence indicates that this effect can be partially mediated by self-efficacy as the performance results from cohorts in 2020 are stronger compared to previous years.

To better prepare students, Tacunan National High School improved "Cell Group Review," a peer instructional method with designated teachers who teach PISA competencies. This is an intervention that has been proven to increase interaction, understanding, and interpersonal skills in the classroom (Moreno et al., 2012). Support was also given to parents; however, socioeconomic factors affected its stability (Hattie, 2009).

a. Proposed Innovation, Intervention, and Strategy

The study introduced the "Cell Group Review," an intensive peer-based review program, tailored to prepare students for PISA. This approach, typically used in religious contexts, was adapted for educational use to foster collaborative learning and provide individualized support through small group dynamics (Henson, 1993). Students were grouped and as-

signed teacher-mentors in math, English, and science who provided content-based reviews aligned with PISA competencies.

This strategy emphasized interactive and interdependent learning, enhancing students' problem-solving and comprehension skills (Chan et al., 2010). Supplementary activities included psychosocial exercises to alleviate exam stress, as well as peer support and remedial classes for academic reinforcement. Parental engagement was encouraged to support equitable learning, recognizing the differing levels of support that socio-economic backgrounds afford (Hattie, 2009).

The Division of Davao City contributed additional teachers to assist with the review sessions, reflecting an effective community-driven approach that demonstrated positive impacts on student motivation and preparedness (Ainley and Carstens, 2018).

II. METHODOLOGY

This research used both quantitative particularly quasi-experimental and qualitative methods. The combination of these two methods will help the researcher to test the effectiveness of the intervention given. This study involved forty-two (42) participants came from the different grade level of Tacunan National High School had taken the pretest and the posttest. Basically, these students were taking series of English, Math, and Science courses as core subjects under the Basic Education K to 12 curricula. The respondents were chosen randomly by the division office of Davao City through Learners Information System (LIS) to complete the forty (42) heterogeneous students being studied.

This action research observed the following steps in gathering the data: Asked permission for the conduct of the study. The researcher asked consent to the principal to conduct the study, through a letter. Also, consent from the students was asked through letters after the school principal approved it.

Administered the pre-test and post-test. Data was collected through a pre-test and a post-test. Standard test questionnaires from the division office were utilized. Different grade levels took part in this Programme International Student Assessment with the age of fifteen (15) of Tacunan National High School. The respondents took the test beforehand. After that, the various types of cell group review were used during the intensified review for the PISA takers. Test questionnaire used both multiple-choice items and questions requiring students to construct their own answers. Items were typically organized in units based on a stimulus presenting a real-life situation. A total of two hours and twenty minutes of assessment items was created, with different students taking different combinations of the assessment items. After the pre-test, the intervention was given and after a month students took the post-test. Conducted an interview through online. I conducted interview through messenger since most of these students belonged to Blended learning modality. This interview would help the study to deepen the result and discussion. The proceedings of the key informant interview and discussion were transcribed by the researcher. Anonymity and confidentiality of the data were highly considered. For the data gathered through interview, I used the thematic analysis. The researcher transcribed the minutes gathered from the interview to make a general sense on what they had experienced.

Text segments were identified and assigned codes. The coded texts were used for themes. This was used to deepen the discussion that will support the result.

Data was analyzed using tables and T-Test for the average score to see the significant difference between the pre-test and post-test. After having the qualitative result, I used thematic analysis on the students' answers from the interview. This is to give some form of explanation, understanding or interpretation of the people and situations subjected to investigating. This is usually based on the interpretative viewpoint. The indication is to examine the meaningful and symbolic content of qualitative data (Gall et. al. 2007).

III. RESULTS AND DISCUSSIONS

Table 2 highlights the level of the pre-test results of PISA takers of the three core subjects namely: English, Math, and Science. Among the three core subjects, PISA takers obtained the highest mean rating of 10.98 in science literacy, 10.63 in Math literacy and 10.49 in English literacy which is described as low. This implies that students cannot meet the critical, mathematical, and scientific skill competencies.

In analysis of the results, students showed low level in all literacy skills. These findings are like the study of Corley, (2005) among ESP learners in an engineering course which found a low level of skills in most of the students in a classroom setting. These findings are also like other research studies conducted by Shahanaz (2008) and Laurilla (2007). Laurilla (2007) posited that these kinds of results are yielded due to students' negative attitudes towards learning the subject specifically the learning competencies of the core subjects. In addition, the amount of exposure to the target competencies could also have affected students' perceptions of their skills. Thus, Betts, (2006) stated that learning the core subjects like nervousness, difficulty in learning the lesson and anxiety is a normal feeling that individuals can systematically control it while avoidance is almost entirely impossible. A teacher may provide classroom environments that can promote communication at ease using lifelike situations and language learning strategies and providing students with sufficient practice sessions that can allow them to see models and demonstrate their skills and abilities on different subjects' areas.

Moreover, Bygate, (2009) said that the core subjects are said to implicate self-concept in a way that does not occur in other disciplines and to entail a particular kind of anxiety related to a situation. He went on to explain that a student who has formed a belief that he cannot learn the skills, or the literacy is not right. What students feel about themselves will affect the way they approach the learning experience and their relationships with others (Garcia, 2008).

Amidst of the pandemic for almost two years study showed a negative impact on the mental health of students presenting depressive symptoms and impairment in concentration and learning, the latter identified as the strongest predictors of poor academic performances. The study confirms the emerging need to monitor the impact of distance education, which occurred during the school year 2019 and 2020. In addition, the impact of the COVID-19 outbreak on the world has been substantial. Prior studies have shown that negative emotions have a critical impact on well-being

Grade level	Gender		Total
	M	F	
Grade 7	1	0	1
Grade 8	0	2	2
Grade 9	8	14	22
Grade 10	5	12	17
Total	14	28	42

TABLE 1: PISA TAKERS

Subject	Number of Students	Mean	SD	INTERPRETATION
ENGLISH		10.49	4.48	
MATH	42	10.63	3.75	LOW
SCIENCE		10.98	4.38	

TABLE 2: LEVEL OF THE PRE-TEST OF PISA TAKERS

(Gross, 2015; Puente-Martínez et al., 2018). Students may experience real and potential loss of resources and a mismatch between task demand and their resource availability (Hagger, 2015). With the increasing negative emotions, their well-being could be affected as they become more concerned about the impact of COVID-19 on their studies. Thus, COVID-19 would lead to students’ negative well-being because students may experience more stress related to uncertainties in their academic success, negative economic impact, and lack of perceived support (Cao et al., 2020). Meanwhile, students would feel the need to deploy more time and energy to protect themselves against and recover from resource loss (Hobfoll et al., 2018). Therefore, there is no reasons why students got a low performance before the implementation of the Programme International Students Assessment (PISA), scientifically their physical, mental, emotional health are affected with the pandemic.

The intervention mentioned above creates a positive impact in the learning environment where students are given the opportunity to express their ideas and point of view to the PISA class and to build confident within them. Students also appreciated for their good behavior to boost their confidence. Respect is given emphasis in every group review, in their remedial class, and in the one-on-one review between review

and reviewer. This conforms to the idea of Frawley and McCulloch (2013) that one approach for improving the academic performance of the students in schools is through positive behavioral intervention and preparing students in terms of their moral, spiritual, emotional, and mental wellbeing as well as the supports coming from the teachers, friends, classmates, and their family.

Table 3 reveals the level of the post-test of PISA takers in the learning of the core subjects. Three main core subjects are presented on the table with corresponding mean and standard deviation; these indicators include English literacy, math literacy and science literacy. The overall result indicated a mean rating of 16.225 with standard deviation of 0.289 which is described as high.

Furthermore, individual result indicated that the English literacy has a mean of 16.26 with the standard deviation of 1.48, Math literacy with a mean of 14.43 with a standard deviation of 2.64, Science literacy has a mean of 16.02 and standard deviation of 2.19 which is labelled as high. All of which are described as moderate. It can be noted however that although the respondents have high level of results in the three core subjects, Math got the highest mean which is 16.43. Science literacy got the lowest mean which is 16.02. It further means that the PISA takers are most inclined in

Subject	Number of Students	Mean	SD	INTERPRETATION
ENGLISH	42	16.26	1.48	HIGH
MATH		16.43	2.64	HIGH
SCIENCE		16.02	2.19	HIGH
Overall result		16.225	0.289	HIGH

TABLE 3: LEVEL OF THE POST-TEST OF PISA TAKERS

problem solving, solving problems is at the heart of mathematics. Mathematics evolved to solve problems of everyday life and has developed to solve many more. The mathematical thinking that supports problem-solving is the quality valued in those who have studied and loved mathematics. They are least in scientific explanations, scientific observations, and measurements, whether experimental or non-experimental by design.

The results suggest that the impact of post-test is highly evident. This is backed by the notion of Everson (2009) wherein the interactions among student, and teachers in the classroom are an essential part of the learning process that influence the lifelong language literacy, scientific literacy, and problem-solving literacy habits of students. This means that applying different strategies and interventions among PISA takers are effective and reliable that every taker built a self-confident, mentally, physically, emotionally, and spiritually prepared as well as there are motivated in their assessment. Thus, we cannot hide the fact that as the result given from their post-test it has a big impact that every taker learned more and more, day by day as they had their different reviews and interventions made by their teachers.

Table 4 shows the significant effect of pre-test and post-test of the PISA takers of Tacunan National High School. Using paired t-test, the data clearly reveal that the mean score of the takers in pre-test and post-test statistically obtained a t-value of 0.0445. This indicates that the score of the students made a significant effect in their performance as they were taking the division PISA test. Hence, the teachers' made strategies and interventions provide a favorable influence on the PISA takers. This means that amidst of the pandemic teacher-student interactions are also related to student behavior in class. Results show that the more teachers report nurturing good relationships with students, the more students perceive them as enjoying teaching and the better it is for classroom disciplinary climate. In addition, there seems to be clear school patterns of disciplinary climate (Raitano and Vona, 2013). There is a high degree of alignment in different

stakeholders' perceptions of school climate and consistency in the measures taken by school leaders and schoolteachers to address disciplinary issues. The more teachers report disciplinary issues, the more students report the same. Likewise, the less disciplined the classroom climate is, as reported by students, the more frequently principals report collaborating with teachers to solve classroom discipline problems, and the more time teachers report spending on communication and co-operation with parents. This does not necessarily mean that principals and teachers' remedial measures are detrimental to student behavior in class. Rather, this likely means that teachers spend more time on these kinds of activities when they feel students need it (Rangvid, 2007). As we go along to our daily review, we had seen the improvement of our learners specifically on their writing ability, critical mindedness, and their problem-solving ability. In my interviewed on the PISA takers about "What are your experienced during the PISA review? And how do you cope up those challenges amidst of the pandemic? The students answered in a different way. Student A: "my experience during the PISA review is that it helps for me and learn some difficult lessons that I did not learn yet. It was needing a lot of understanding for the three subjects. A also experience difficulties understanding the subjects but I got help from my teachers, classmates, and friends. The challenges I encounter while having PISA review is the solving the formulas. I was able to cope with it because with the help of my classmates and friend. I asked them how to "do it"".

Student B: "My experience during the PISA review was amazing. It was hard but I learned a lot from what the teachers taught. There were also many fun things that happened during the review such as the psychosocial activity conducted by the teachers to reduce the pressure of the students due to PISA and the reinteraction with fellow students after two years, so my experience with the PISA review was fun and learning. The challenges I encounter in the PISA review was answering the test using a computer because I was not very good at using it but because of the efforts of the teachers to

Subject	Number of Students	Pre-test	Post-test	t-value	Remarks
ENGLISH		10.49	16.26		
MATH	42	10.63	16.43	0.0445	There is a significant effect between pre and post test
SCIENCE		10.98	16.02		

TABLE 4: TEST OF SIGNIFICANT EFFECT BETWEEN PRETEST AND POSTTEST OF THE PISA TAKERS

teach us how to use the computer it became easy for me to use it and I am able to answer the tests well”.

Student C. “Based on my experience during the PISA review is I had a lot of fun learning new things and I also felt happy and proud that I got the chance to be one of the participants that took the PISA exam. The challenges po that I encountered while having a PISA review is kung makaya ba nako ang mga lesson ug sabot, then para masabtan po nako ang mga lessons nga itulo-ay is naningkamot ko ug sabot sa mga nalisdan nako then nag pay ug attention sa mga teachers po”. Having these kinds of experienced and challenges encountered by the PISA takers during the intensified review and in preparation for the PISA examination. After more than a month of intervention and strategy applied significant changes were observed in the perspective of the PISA takers. Another good effect of the intervention and strategy applied was the increased involvement of the students in the review class time and performance tasks. The daily sharing of positive thoughts helps students motivated to participate in the class review and even improved their self-confidence in performing different problem solving, and linguistics explanation and scientifically defend their own point of views towards in the

IV. CONCLUSIONS AND RECOMMENDATIONS

Teachers play a dynamic role in the classroom and in the life of the learners. The school is the second home of the learners where they can learn, interact, and study. It is an environment especially where students are engaging different school related activities and performing different academic and non-academic activities. Programme International Students Assessment is one of the unexpected activities of our school. We don’t have computers; we don’t have internet connections and our electrical supply is not enough for the 42 computers. But all those things are not the hindrance to backed out and do nothing. Instead, we are so motivated, challenged, and eager to embrace those challenges that the Department of Education chose Tacunan National High School as one of the representatives among hundreds of public secondary schools in Davao City Division. We are so lucky enough of our principal Dr. Emy B. Goc-ong for being full support of the activity from the beginning, during and until the time of

the assessment. Being a part of the PISA 2022 is a historically amazing to us and memorable experienced to our PISA takers, faculty and staff, our stakeholders, parents, and the community. Furthermore, amidst of the Covid-19 pandemic happened during the PISA 2022 implementation, it is not a burden for us why we cannot continue the assessment, but it gives us the courage to do those things for the success of the activity. To our PISA takers it was a big challenge for them to fight the battle and to test their willingness, their strong determination, and dedication towards to their day-to-day review for the success of the concluded PISA 2022 last April 29. In conclusion, education is important for the growth and development of a nation, and I think we must continue to strive to improve ourselves in terms of good quality of education. Through this, the results of this action research will be disseminated both in the school and cluster levels. A research public forum shall be conducted for students, parents, teachers, stakeholders, and the community for them to be aware of the realities on behalf of the pandemic that we are facing. Specifically, the findings and recommendations of this study and its intervention will serve as the basis for formulating clear school policies about “Cell Group Review: An Intensified Review Strategy for the Programme International Student Assessment Takers of Tacunan National High School. Teachers may adopt and modify the intervention suited to the needs of their own students.

Based on the foregoing results, the following recommendations were suggested.

1. Teachers may provide review sessions that should provide consistency and exposure to the scientific environment – conduct laboratory activities/ science experiments to engage learners in scientific inquiry – appraising presented scientific inquiry through content and procedural knowledge, and analyzing data presentations, and findings patterns and interpretations that can be compared to existing and established research studies. Linguist, mathematicians, and scientists teachers may provide more activities on interpreting scientific data, mathematical data, and linguistic comprehensive analysis and they may expose their learners to different terminologies usually used in Science, English and Math to enhance their vocabulary and provide them oppor-

tunities to express themselves thru written activities to help them organize their thoughts and ideas and respond promptly and teach learners to compare information across texts and to recognize contradictions.

2. Advisers and subject teachers may provide or give more activities to students that leads to their level, skills, background, and culture of the students that are suited to their writing skills and give learners different activities that will help them expound open-ended questions.
3. Teachers, advisers, and school head they may initiate remedial programs for language programs, science program and mathematics program that may address the learning needs of the students in terms of English literacy, mathematics literacy and science literacy skills and may always integrate activities, strategies, techniques, and approaches in enhancing, developing, and improving their scientific, numeracy and linguistic intelligences. Deped officials, school heads, and teachers may be encouraged to come up with development programs that may raise the level of English, mathematics, and science literacy skills of the students such as strengthening the school's Communication Arts or English club, mathematics club and junior earth savers or science club.

4532. <https://doi.org/10.1080/00036846.2013.791020>

REFERENCES

- Ainley, J., & Carstens, R. (2018). *Teaching and learning international survey (talís) 2018 conceptual framework* (OECD Education Working Papers No. 187). OECD Publishing. Paris. <https://doi.org/10.1787/799337c2-en>
- Arens, A., et al. (2020). Online and remote learning in higher education institutes: A necessity considering covid-19 pandemic. *Higher Education Studies*, 10(3), 16–25. <https://doi.org/10.5539/hes.v10n3p16>
- Betts, E. A. (2006). *Foundations of reading instruction with an emphasis on differentiated guidance*. American Book Company.
- Bygate, M. (2009). In *Handbook of foreign language communication and learning* (pp. 401–438). Mouton de Gruyter.
- Chan, D. W., et al. (2010). Perceived academic support from parents, teachers, and peers; relation to hong kong adolescent's academic behavior and achievement.
- Corley, M. (2005). Differentiated instruction: Adjusting to the needs of all learners. *Focus on Basics: Connecting Research and Practice*, 7(100), 13–16.
- Hagger, M. S. (2015). Conservation of resources theory and the strength model of self-control: Conceptual overlap and commonalities. *Stress and Health*, 31, 89–94. <https://doi.org/10.1002/smi.2639>
- Laurilla, R. (2007). Meeting the needs of all students through differentiated instruction: Helping every child reach and exceed standards [[Electronic version]]. *Clearing House*, 81(4), 161–164.
- Raitano, M., & Vona, F. (2013). Peer heterogeneity, school tracking and students' performances: Evidence from pisa 2006. *Applied Economics*, 45(32), 4516–