

## **K12 Science Program in the Philippines: Student Perception on its Implementation**

**By:**

**Prof. Darryl Roy T. Montebon**

*Faculty, Institute of Teaching and Learning  
Philippine Normal University*

### *Abstract*

*The Department of Education in the Philippines implemented the new K to 12 Curriculum which started last school year 2012-2013 by virtue of the Republic Act 1033 or the Enhanced Basic Education 2013. The new science program has many innovations in terms of the arrangement of competencies, integration of each branch of science in every grade level, mode of instruction, and learning pedagogies.*

*It is the aim of this research to determine the perception of students on the new science curriculum in terms of the concepts they learn, the skills they acquire, and the values and attitude they develop. This research also aims to assess how judicious science teachers implement the new curriculum. To achieve such goal, a qualitative survey method was utilized. The respondents of this research are 216 grade 8 students of the selected schools in Metro Manila.*

*Upon the analysis of the data gathered it has been found that most students agree with the items in the questionnaire as regards the three learning domains being evaluated (Mode = 4). The students also perceive that teachers judiciously implemented the new science curriculum (Mode = 4).*

Keywords: K to 12 in the Philippines, Science Education, Student Perception

### **INTRODUCTION**

The Philippines implemented a new curriculum which started last school year 2012-2013. This is the shift from the Basic Education Curriculum to the new K to 12 Curriculum. The said innovation in Philippine education has been made legal by the Republic Act 1033 or the Enhanced Basic Education 2013. There are many innovations introduced to the curriculum such as the extension of years spent in school. From the old 10-year scheme, Grade 1 to 10, it has been modified to 12 years. Among the different subjects or disciplines, Science is one of the subjects that which undergoes major revisions.

## Literature Review

### *Science in the K to 12 Program*

The new science program has many innovations. One of which is the decongestion of the competencies and arrangement in spiral progression manner. In the old curriculum, a specific discipline is being offered per grade level. First year will take up general science, the second year will deal with biology, the third year will study chemistry, and the seniors will master physics. But in the new science program, the different disciplines in science which are life science, chemistry, physics and earth science, have been incorporated in every level.

In terms of instruction, the science program shifts from traditional methods of teaching to a more innovative exploration that emphasizes the enhancement of the students' critical thinking and scientific skills. The new curriculum utilizes learner-centered approach such as the inquiry based learning pedagogy. Concepts and skills are being taught by providing pedagogy which will enable them to enhance their cognitive, affective, and psychomotor domains.

According to the *K to 12 Curriculum Guide Science 2013*, the aim of the science curriculum is to produce scientifically literate citizens who are informed and active participants of the society, responsible decision makers, and apply scientific knowledge that will significantly impact the society and the environment. Specifically, the science curriculum is designed to enhance three learning domains of the students. These are performing scientific processes and skills, understanding and applying scientific knowledge, and developing scientific attitudes and values. These learning domains are the basis for drafting the survey questionnaires in this study. With the improvement of the various learning domains, it is the goal of the K12 curriculum to produce students who possess the following qualities.

1. Critical/creative problem solver
2. Responsible Steward of Nature
3. Innovative or inventive thinker
4. Informed Decision Maker
5. Effective communicator

### *Student perception and Curriculum Change*

Perception is defined as a way of translating information gathered by the senses to generalize and make coherent meaning about the world (www.businessdictionary.com, 2014). Though perception is oftentimes associated with making meaning out of material things or occurrences, it is more of an internal operation. Thus, perception becomes an abstraction (Angell, 1906). Even if perception is based on incomplete and unreliable information, it is equated with reality and it influences a person's behavior in general. Also, perception enables a person to make use of the information gathered by the senses like interpreting the sounds being heard or making sense of the letters which make up a word (www.education-portal.com, 2014).

In a study by Jennifer Adams and Tanja Sargent in 2012, they discussed the different perceptions of students in the curriculum change that happened in China. The Chinese government also made a move to change their curriculum from subject-centered to student-centered scheme. Their study showed that the curriculum change in China reduced the student stress level but increased in student participation. With these results gathered, it is assumed that the new curriculum entails a better way of learning for students since their perception of the curriculum has significantly shifted from the traditional to the new one.

#### *Issues in the K12 Program Implementation in the Philippines*

The initial implementation of the K12 curriculum has raised some social concerns. In a paper written by John Mark Burila (2012), he cited some concerns of the community in the implementation of the K12 program like the readiness of the Philippine Government to undergo transitions such as the poverty in the Philippines, availability of technology, teachers training, and even the low salary of the workforce of the academe have been cited. In an online forum, Dr. Flor Lacanilao (2012) of the University of the Philippines Diliman, also presented some critiques on the K12 program where he based his arguments on the stand of Filipino scientists and non-scientists. According to Dr. Lacanilao, scientists do not agree with the implementation of the K12 program because it does not answer the real problem of the Philippine education system like the number of dropouts recorded each year. Also, the inclusion of the kinder level is not scientifically proven that it contributes in the enhancement of student learning. Moreover, Dr. Lacanilao stressed that upon his readings, those who agree with the K12 implementation, are not scientists or educators.

With all these clamors on the K12 implementation, what is the stand of the people? Clara Masingag (2012) reported in Interaksyon.com (October, 2012) that the K12 program has gained acceptance from the Filipinos according to the Social Weather Stations (SWS) survey. In her report, 72% percent of Filipino adults believe that the new curriculum will prepare students in their college education even in their field of work. Sixty nine (69%) of the respondents believe that students will be encouraged to continue their study in high school because of the additional 2 years that is equivalent to college level even if it will cost them more money and time.

Now that the K12 is being implemented for about three academic years some issues are raised like the lack of training of teachers to implement the new program. With these, Senator Antonio Trillanes makes a move to stop implementing the K12 Program which he referred to as *overly ambitious* because of perennial issues in the education system of the Philippines. In an article in Inquirer.net of Maila Ager (2014), Sen. Trillanes elaborated that upon his country-wide inspections, he found real problems like the availability of classrooms and low wage of kindergarten teachers. He also foresees the problem of the number of college professors that will go through retrenchment because of the lack of enrollees for school year 2016. Sen. Trillanes also mentioned that backlogs in the education system are still present even if the department of education declared that there is none.

### **Significance of the Study**

In view of the different literature cited, this study seeks to help the Philippine education system reflect on the implementation of the K12 science program. How students view the importance of the contents of the curriculum, how it is being implemented, and how it affects their lives play an important role in achieving the goals of the curriculum. Thus, this study will enable the schools to reflect on the impacts of the new curriculum to be implemented.

This paper is not to address or decide if the new K12 curriculum is successful or not. Instead, the results of this research can be utilized by educators to determine areas for improvement to maximize the impact of the new K12 curriculum.

### **Purpose of the Study**

It is the aim of this study to find out the perception of students on the science program being implemented in the new K12 Science curriculum. This study also seeks to evaluate if the goals in the different learning domains in the new science curriculum are being met as perceived by the students. Moreover, it is the goal of this research to help educators assess areas that may be of concern with regard to curriculum implementation. Specifically, this research seeks to:

1. Determine the perception of students on the implementation of the K12 science program in terms of developing them to:
  - a. learn science concepts,
  - b. acquire scientific skills, and
  - c. develop scientific attitude and values.
2. Distinguish which learning domain students agree the most.
3. Assess if the curriculum and the means that it should be implemented are met.

## **METHODS**

### ***Sampling and Locale of the Study***

The samples of this study are Grade 8 students in different public schools in Metro Manila. The participating schools were purposely selected by the preservice teachers who conducted the field research. The table below shows the demographics of the respondents and the participating schools.

School	City	Total
Culiat High School	Quezon City	28
Mandaluyong High School	Mandaluyong	40
Rizal High School	Pasig	57
Parañaque High School – La Huerta Annex	Parañaque City	47
Pasay West High School	Pasay	44
<b>TOTAL</b>		<b>216</b>

### Instrument and Research Design

This study is qualitative in nature and a survey method was utilized. The contents of the questionnaires were based from the overall goals of the learning domains as stated in the K12 Science Curriculum Standards. The survey questionnaire follows a Likert scale with the following legend

Value	Response
1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly Agree

The survey questionnaires consist eighteen (18) perception statements which deals with the three domains of learning and one (1) question to assess how judiciously the teachers implement the science curriculum in class. The table below shows the distribution of questions in the survey questionnaire.

Area	Location	Total Number of items
Cognitive	6, 12, 13, 15, 16, 17, 18	7
Affective	2, 4, 5, 7, 10, 14	6
Value	1, 3, 8, 9, 11	5
General perceptions	19	1
<b>TOTAL</b>		<b>19</b>

The survey questionnaire has been subjected to face and content validity by PNU professors handling curriculum courses. Upon pilot testing, the instrument was subjected to reliability tests using the Spearman Brown formula which yields a coefficient of  $r_{sb}=0.89$ .

## RESULTS AND DISCUSSION

The data gathered has been tallied and tabulated. The percentage of perception of the respondents in the different learning areas in the questionnaires were determined and graphed for analysis. To get the over-all perception of students on the different learning domains, the mean scores for each was determined.

### Science Concept Formation

The first learning domain analyzed in this study is the cognitive area in which the researcher wants to find out how the science concepts taught in the classroom are being perceived by the students.

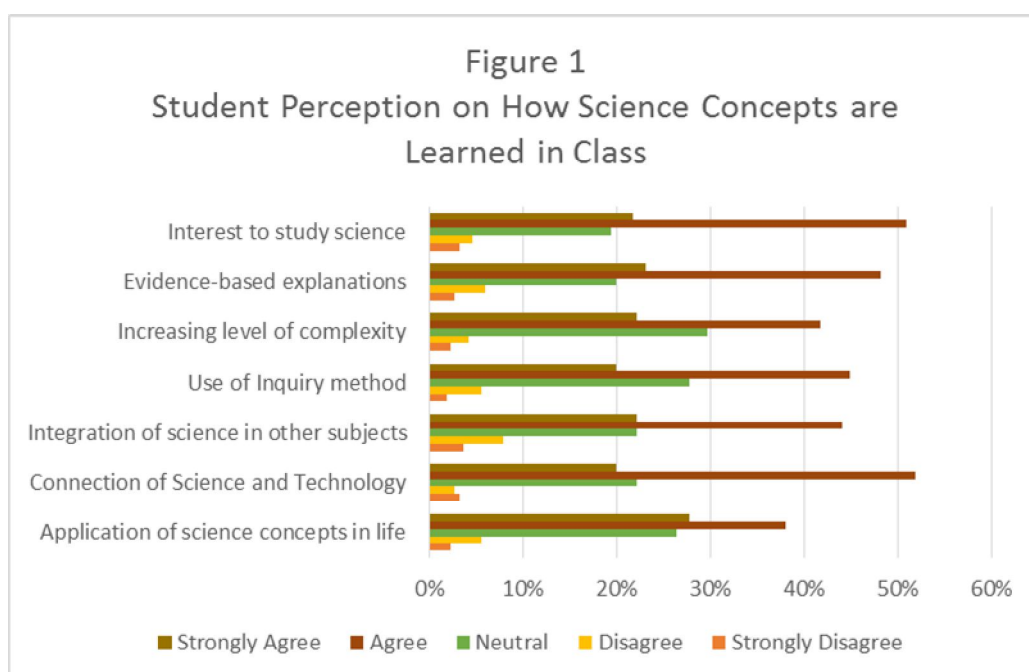
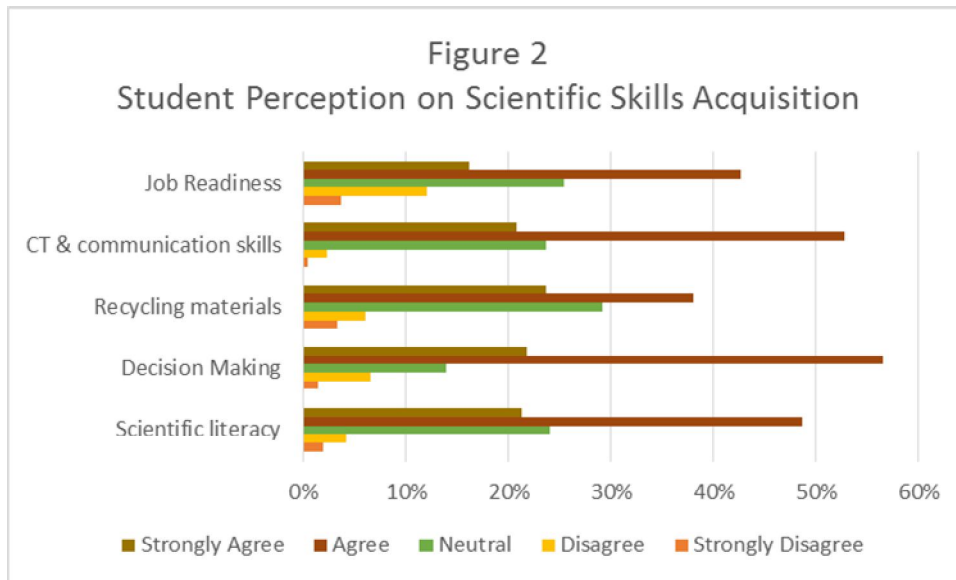


Figure 1 shows the perception of students on how science concepts are learned in class. Students generally agree with the statements on the survey questionnaire (Mode =4) although they have varying perceptions in the different items asked. Among the items in the concept formation area, students strongly agreed that science concepts and their application to real life is being stressed in the curriculum (N=216, 28%). The item which has the highest agreement perception where students find that a strong link between science and technology in the way science concepts are taught in the classroom (N=216, 52%). Student respondents gave the highest neutral perception on the increasing level complexity of how science competencies are arranged (N=216, 30%). Although a great number of the respondents (N=216, 44%) agreed on the integration of science concepts in other disciplines, it is in this item where the highest number of disagree response (N=216, 8%) and strongly disagree response (N=216, 4%) has been observed.

Scientific Skills Acquisition

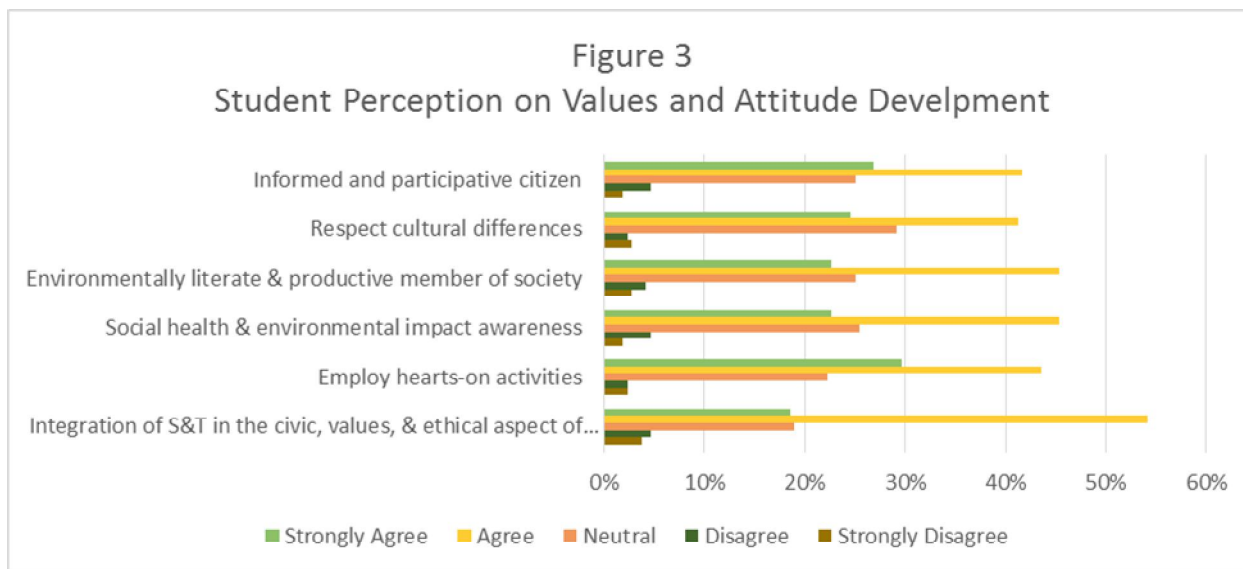
Another domain which concerns the K to 12 science curriculum is the development of the scientific skills of students. The graph below shows how students perceive their science classroom in helping them acquire and develop their scientific skills.



Upon the analysis of the survey questionnaires, students generally agree (Mode=4) that their science lessons help them acquire scientific skills that they can use in life. Based on the graph, the item that yield the highest strongly agree response is the use of indigenous and recycling materials (N=216, 24%). Students had the highest agree perception that their science lessons enable them to make good decision on the application of the learned science concepts in their lives (N=216, 56%). In contrast with other respondents that perceived that their science class let them utilize materials wisely, the same item got the highest neutral perception (N=216, 29%). The item with the highest disagree ((N=216, 4%) and strongly disagree (N=216, 12%) perceptions is on the statement that the science concepts that they are learning in the classroom will help them land a job that they want someday.

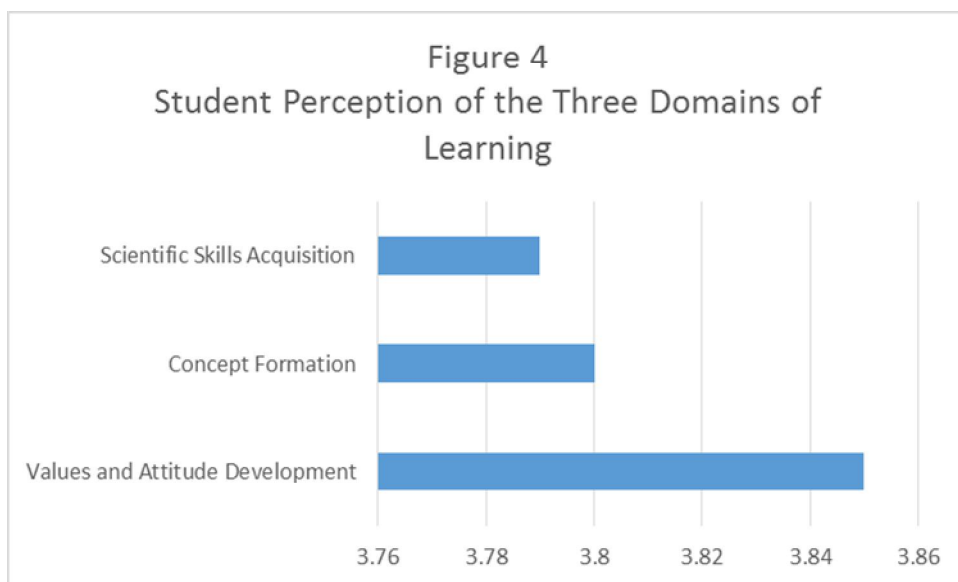
Developing Scientific Values and Attitude

The last major domain that the K to 12 program aims to develop is that the students need to have positive scientific values and attitudes. The result of this survey showed that students generally agree (Mode = 4) that the science curriculum promotes the development of scientific values and attitudes among students.



The result on student perception on the development of scientific values and attitude revealed that students have strongly agreed that their science lessons employ hearts-on activities (N=216, 30%). Also, students yield the highest agree perception that science and technology lessons taught in the classroom integrates civic, values, and ethical aspects in their life (N=216, 30%). However, the same item recorded the highest disagree (N=216, 5%) and strongly disagree perception (N=216, 4%) as well. Respondents were neutral on the item where they were asked if their science lessons help them respect cultural differences (N=216, 29%).

*Student Perception on the Three Learning Domains*





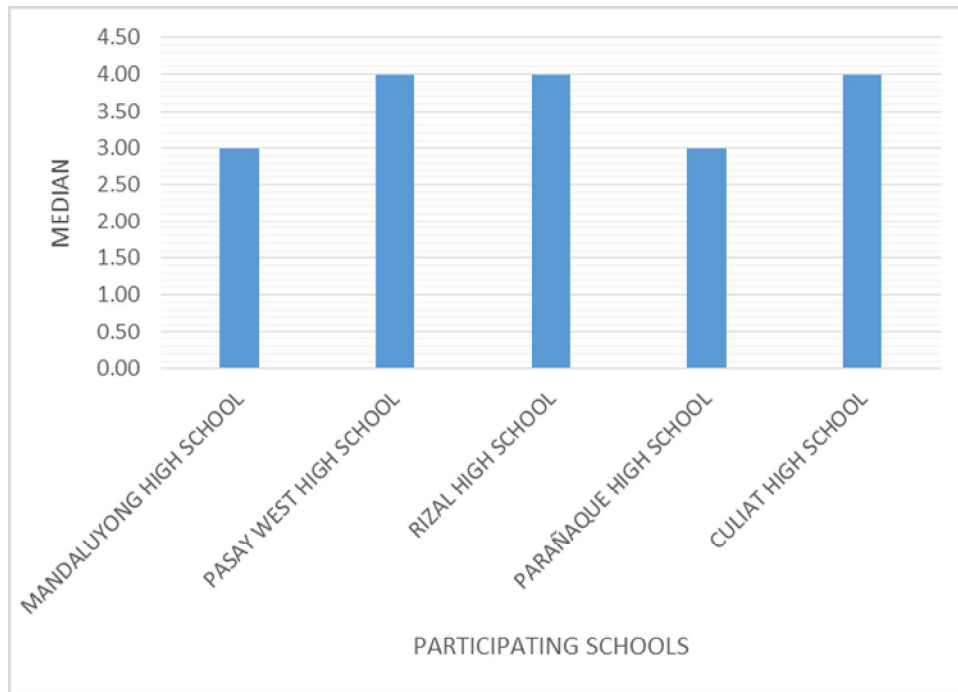
When students are exposed to learning tasks in a classroom, their perception on the different learning areas vary. The result of this research reveals that among the learning domains aimed to be developed when the K 12 science program was designed, students perceived that the science curriculum aimed to develop their values and attitude better (M = 3.85) compared to concept formation (M = 3.80) and scientific skills acquisition (M = 3.79).

*Mode of Implementation of the K12 program in Schools*

The last objective of this study is to determine how students perceive their teachers to judiciously implement the K12 Science Curriculum. Students generally agree (Mode = 4) that their teachers are consistent with the implementation of the science curriculum. To further analyze this objective, the median on the response of the students for each school was determined to see which school is more consistent with the implementation of the program as perceived by the students.

Figure 5

Student Perception on the Mode of implementation of the Science Program



Based on figure 5, it can be inferred that students of Pasay West High School, Rizal High School, and Culiat High School had the greatest agreement (Mdn = 4.0) on perceiving that their teachers are implementing the science curriculum compared to other schools. Students of Mandaluyong High School and Parañaque High School – La Huerta Annex are on the other hand neutral about it (Mdn = 3.0).

## Conclusion

Upon the analysis of the data, students generally perceive that the implementation of the new science curriculum positively affects the way they learn science concepts, acquire scientific skills, and develop scientific attitudes and values. Among the different learning domains that the K12 science curriculum wants to improve, it is the values and attitude formation domain which students agreed to have relevance to them. Lastly, students generally perceive that their teachers judiciously implement the K12 curriculum.

## Implications on Science Teaching and Recommendations

This research is subjected to different limitations. First, the survey was only administered to two hundred sixteen (216) students of the purposely selected public schools in Metro Manila. The results of this study could not be taken to represent the whole perception of grade 8 students taking science subjects in the Philippines. Second, the respondents of this study are grade 8 students only, thus, the results could not represent other year levels which may have a different perception of the curriculum. Lastly, the survey was conducted in the urban areas. Thus, this study does not signify the same perception with those students in the rural areas.

Based on the data gathered, several analyses have been inferred. Although not all respondents gave the strongly agree response, most of them however agreed that the new science curriculum in general is essential to molding them into a holistic person.

The challenge for the teachers and school administrators is to work harder in integrating science with the different disciplines since based on the results of the research, student perception on the said area had the most disagree and strongly disagree response.

One of the biggest innovations in the new science curriculum is the spiraling of the competencies in science, however, the findings of this paper suggests that students do not fully realize the said change, wherein thirty percent of the respondents still gave the neutral response. When students don't realize such change, they may fail to comprehend that what they are learning in their science classes are connected.

On skills acquisition, educators should provide more chances to students to use indigenous materials or practice recycling methods in their scientific tasks because the results of this research showed that twenty nine (29%) of the students do not realize such importance. Moreover, the need to make students realize that what they are learning in science are essential concepts in their future should also be considered.

This research also suggests that the contrasting response for the item on integration of science with the students civic, values, and ethical aspects of their lives can be a good area for research. The results of this research also supports the move of the Department of Education to make the K12 curriculum in

general, practice localization and contextualization. In doing so, students may realize the importance to respect to cultural beliefs.

Through the students' perception in this study, it can be deduced that students are seeing the new curriculum helpful to them in a general sense. With this positive perception of students, it is hoped that the science curriculum is on the right track. If the teachers continue to judiciously implement the K12 program the success of the program could be ensured. With the help of the other stakeholders, the new curriculum could work for the betterment of the country.

#### REFERENCES

- Adams, J. & Sargent, T. C. (2012) *Curriculum Transformation in China: Trends in Student Perceptions of Classroom Practice and Engagement* (Working Paper). Gansu Survey of Children and Families.
- Ager, M. (2012). *Trillanes Calls for suspension of 'overly ambitious' K to 12 Program*. Retrieved from <http://newsinfo.inquirer.net/622197/trillanes-calls-for-suspension-of-overly-ambitious-k-to-12-program>
- Burila, JM (2014). *K to 12 Education in the Philippines: For better or for worse?* Retrieved from [http://www.academia.edu/6937076/K12\\_Education\\_in\\_the\\_Philippines\\_For\\_the\\_better\\_or\\_for\\_worse\\_Critique\\_Paper](http://www.academia.edu/6937076/K12_Education_in_the_Philippines_For_the_better_or_for_worse_Critique_Paper)
- Business Dictionary (2014). *Perception*. Retrieved December 6, 2104 from <http://www.businessdictionary.com/definition/perception.html>
- Crisol, LD & Alamillo, JB (2014). *A Comparative Study of the Attitudes between the Students and of Learning Achievement Measures. International Journal of Teaching and Learning in Higher Education*. Retrieved from <http://www.isetl.org/ijtlhe/>
- Gömleksiz, M. N. (2012). *Elementary School Students' Perceptions of the New Science and Technology Curriculum by Gender*. *Educational Technology & Society*, 15 (1), 116–126.
- K to 12 Curriculum Guide Science (2013)* Retrieved from <http://odea.sdb.ph/ODEA/downloads/Kto12Science-CG-as-of-Apr-25-2013.pdf>
- Korb, K. (2014). *Calculating Reliability of Quantitative Measures*. Retrieved from [http://library.uws.edu.au/uws\\_library/sites/default/files/cite\\_APA.pdf](http://library.uws.edu.au/uws_library/sites/default/files/cite_APA.pdf)
- Kuhn, K. & Rundle-Thiele, S. (2009) *Curriculum Alignment: Exploring Student Perception*

Lacanilao, F. (2012). *A Critique of Some Commentaries on the Philippine K-12 Program*. Retrieved from <http://josecarilloforum.com/forum/index.php?topic=2326>.

Masinag, C. (2012) *K-to-12 Gains Acceptance, Survey Shows*. Retrieved from <http://www.interaksyon.com/article/46475/k-to-12-gains-acceptance-survey-shows>

Pazzibugan, D. (2013). *K+12 Still Struggling*. Retrieved from <http://newsinfo.inquirer.net/419261/k-12-still-struggling>

Tapang, G. (2012). *Science and K-12*. Retrieved from <http://opinion.inquirer.net/22527/science-and-k12>.  
*Teachers of Two Public Elementary Schools in Northern Mindanao toward the K to 12 Curriculum Shift*. DLSU Research Congress 2014

Williams, Y (2014). *What is perception in Psychology?* Retrieved from <http://education-portal.com/academy/lesson/what-is-perception-in-psychology-definition-theory-quiz.html#lesson>