Published every February and August ISSN 1979-7877

EDUCARE
International Journal for Educational Studies

ROLDAN S. CARDONA

Teachers and Students' Knowledge, Beliefs, and Observations on the Implementation of Grades 7 and 8 K-12 Mathematics Program

ABSTRACT: *Education at all levels is an avenue for economic, political, social, and cultural mobility. The Education for All movement, having the education for all and millennium development goals, has the ultimate aim of sustainable development. Hence, teachers and students are some of the keys to achieve the vision of K (Kindergarten) to 12 years education program from the Department of Education in the Philippines. This descriptive study sets out an initial attempt to investigate teachers and students' knowledge, observations, beliefs on the benefits, and the potential threats in the implementation of grades 7 and 8 Mathematics program. From 29 selected high schools in the province of Isabela, a total of 60 Math teachers and 265 randomly selected grades 7 and 8 students participated in the study during November 2013 to May 2014. A 4-point Likert questionnaire consisting of impact statements was prepared, developed, thematically analyzed and validated. Findings revealed that Math teachers and students have equally agreed on dimensions knowledge, observations, and benefits. Teachers claimed greater potential threats of the program than students. Students and teachers' knowledge about the program largely influences its level of implementation. The result of this study points out two relevant directions: firstly, the need for program's regular monitoring and continuous professional training to enhance students and teachers' understanding of the K-12 Mathematics program; and, secondly, the need to conduct related studies, explore factors of K-12 program implementation through exploratory factor analyses, and relate it to national performance through path analyses.*
KEY WORDS: *Education for All; Knowledge, Observations, Benefits, and Potential Threats; K-12 Math Program; Level of Implementation; National Performance.*

INTRODUCTION

Education at all levels is an avenue for economic, political, social, and cultural mobility. For instance, the EfA (Education for All) movement, having the education for all and millennium development goals, has the ultimate aim of sustainable development (Alexander, 2008; and UNESCO, 2016). As an initial step towards regional economic integration, the AEC (ASEAN [Association of South-East Asian Nations] Economic Community) targets to achieve a 100 percent primary education among its member-countries by 2015 (Chia, 2013; and Wallar, 2014).

In the Philippine educational system, it was said according to the study conducted by

About the Author: **Roldan S. Cardona** is a Faculty Member at the PNU (Philippine Normal University) in North Luzon, Philippines. For academic interests, the author is able to be contacted via e-mail at: cardona.rs@pnu.edu.ph
Suggested Citation: Cardona, Roldan S. (2017). "Teachers and Students' Knowledge, Beliefs, and Observations on the Implementation of Grades 7 and 8 K-12 Mathematics Program" in *EDUCARE: International Journal for Educational Studies*, Volume 10(1), August, pp.43-52. Bandung, Indonesia: Minda Masagi Press owned by ASPENSI, ISSN 1979-7877.
Article Timeline: Accepted (December 19, 2016); Revised (April 20, 2017); and Published (August 30, 2017).

the SEAMEO-RCEINNOTECH (South-East Asian Ministers of Education Organization – Regional Center for Educational Innovation and Technology) that the then ten-year basic education in the country is designed to be a congested curriculum (SEAMEO, 2012a and 2012b; and Okabe, 2013). Hence, the 10-year basic education is usually seen as one of the factors in the plummeting quality of education. In the international arena, the Washington and Bologna Accord prescribed 12 years of basic education as an entry requirement for engineers and other professionals before practicing their professions (Adelman, 2009; and SEAMEO, 2010a and 2010b).

In response, the Philippines as a member of the ASEAN and being one of the three remaining countries in the world with 10 year basic education shifted from 10 to 12 years of basic education in its educational system (UPSIOA, 2013; and Crisol & Alamillo, 2014), through the K-12 program under the Republic Act 10533 also known as the "Enhanced Basic Education Act of 2013" (DepEd of Philippines, 2010; and Cabansag, 2014).

The K to 12 Program covers Kindergarten and 12 years of basic education to provide sufficient time for mastery of concepts and skills, develop lifelong learners, and prepare graduates for tertiary education, middle-level skills development, employment, and entrepreneurship (DepEd of Philippines, 2010).[1]

The implementation follows several phases. *First*, the universal kindergarten was offered last School Year 2011-2013, which was actually strengthened by Republic Act 10157 also known as the "Kindergarten Education Act". *Second*, DepEd (Department of Education) began unclogging the basic education and had implemented the enhanced twelve-year curriculum starting with the grade 1 students of School Year 2012-2013. Lastly, *third*, the freshmen of School Year 2012-2013 will be the first beneficiary of a free Senior High School education that will be made available by DepEd in public schools beginning School Year 2016-2017.[2]

Electives are to be offered in Senior High School, such as academics, technical-vocational livelihood, and arts and sports. The mechanics and other details of the transition plan will be threshed out with Higher Educational Institutions in coordination with CHED (Commission on Higher Education), TESDA (Technical Education and Skills Development Authority), and other critical stakeholders (Batomalaque, 2010; and *ibidem* with footnote 2).

Moreover, the students undergo the K-6-4-2 model: kindergarten; six years of elementary education (grade 1 to 6); four years of junior high school (grade 7 to 10); and two years of senior high school (grade 11 to 12). This means as full 12 years of basic education will eventually be required for entry into tertiary level education and will allow every student to discover his/her potential as an individual preparing every graduate for the world of work and be globally competitive in the 21st century (*cf* Henard & Ringuet, 2010; and Cabansag, 2014).

Meanwhile, informal interviews, media reports, observations especially in the grass root level reveal some manifestations of the curriculum's gray areas in the depth of topics, grading system, and delivery approaches, among others. Stakeholders have the inhibitions to paradigm shifting, beliefs about greater risks than benefits, and government's unpreparedness to provide the necessary logistics (Ahmad ed., 2005).

In a recent study on K to 12 science program, M.G.S. Cabansag (2014) found out that the stakeholders put emphasis on education as a tool for sustainable development and this could be directed through varied learning activities in the K to 12 science program (Cabansag, 2014). However, there remain sources of misinterpretations like on the additional two-year program, preparation of teachers, and

[1]See also, for example, "The K to 12 Basic Education Program" in *Official Gazette*. Manila: Department of Education of Philippines. Available online also at: http://www.officialgazette.gov.ph/k-12-old/ [acessed in Manila, the Philippines: October 28, 2016].

[2]See "Implementing Rules and Regulations of the Enhanced Basic Education Act of 2013: Republic Act No.0533" in *Official Gazette*. Manila: Department of Education of Philippines. Available online also at: http://www.officialgazette.gov.ph/k-12-old/ [acessed in Manila, the Philippines: October 28, 2016].

ISSN 1979-7877 *and* ***www.mindamas-journals.com/index.php/educare***

lesson depth and sequencing.

Hence, the researcher attempts to capture the teacher and students' knowledge, beliefs, and observations on K to 12 Mathematics program. This is envisioned to provide additional data on the status of the program's first two years of implementation specifically in the Northeastern part of Luzon, Philippines. It has the following objectives: develop a 4-point Likert scale containing impact statements about the K to 12 Mathematics program; determine the views of teachers and students regarding their knowledge, beliefs, and observations about the implementation of K to 12 Mathematics program; test whether teachers and students have the similar views; and identify which of the factors greatly influence the implementation.

METHODS

The descriptive study covers and is limited to the 29 public and private high schools in the entire four districts of Isabela Province, Philippines (*cf* Cresswell, 2008; Schmitt, 2011; and Locklear, 2012). Isabela Province is the second largest province in the country and is situated in the Northeastern section of the Luzon archipelago. From these schools, 60 grades 7 and 8 Mathematics teachers and 265 randomly selected students participated in the study. The timeframe of the study is from November 2013 to May 2014.

There were four stages in the study. Firstly, the preparation of the impact statements by identifying and selecting accurate sources of information, determining the current trend in K to 12 program, interviewing several Math teachers and school managers in addition to printed materials, and summarizing the information from the interview and printed materials. Secondly, the development of the questionnaire by writing the impact statements, editing, proofreading, consulting to experts and initial revision. Thirdly, the instrument underwent series of expert validation and finally, the final revision. The instrument then was thematically analyzed and was categorized into knowledge, beliefs, and observations. The beliefs consisted of the perceived benefits and potential risks. A pilot testing was done and it revealed that the four dimensions are reliable, .82 α < .92. Fourthly, the investigation was carried out by floating the questionnaire and at the same time the conducting the interview to uncover relevant insights on the K to 12's first two years implementation.

This is limited to students and teachers' perception on their knowledge, beliefs, and observations regarding the onset of operation under the Mathematics field. Respondents especially students were closely monitored and guided during the administration of the scale. Items were translated to their own dialect or in Filipino. Interview was also conducted. Descriptive statistics, independent t-test, eta-squared statistics, and linear regression analysis was utilized in the study (Huck, 2000; Cresswell, 2008; and Warner, 2008).

RESULTS AND DISCUSSION

***Knowledge, Observations, Benefits, and Potential Threats*.** The developed scale consisted of the students and teachers' knowledge, observations, and beliefs on the K-12 Math program. The beliefs were categorized into the benefits and potential threats. The result of the thematic content analysis resulted to 12 indicators on knowledge, 13 in observations, 11 in benefits, and 14 in potential threats. See table 1.

Table 1 shows that students and Math teachers agree to strongly agree to indicators of knowledge on the K to 12 Mathematics program. Teachers give due emphasis on the constructivism theory as they believed that the program enhances skills through performance task and group work activities, i.e. Mean = 3.57 (Huck, 2000; Cresswell, 2008; and Warner, 2008).

Students, on the other hand, perceived that teachers are equipped with the necessary knowledge, skills, and attitudes in the implementation, i.e. Mean = 3.63. Furthermore, both teachers and students rated the indicator. "The curriculum lends itself to more technological connections (i.e. use of graphing software and Microsoft office)" the lowest, 3.16 and 3.07, respectively.

Interview responses yielded common themes among teachers and students. Both

ISSN 1979-7877 and www.mindamas-journals.com/index.php/educare

Table 1:
Descriptive Statistics of Respondents Perception on K to 12 Mathematics Program According to Knowledge Dimension

Statements	Math Teacher			Student			Total		
	$\bar{x}$	SD	QD	$\bar{x}$	SD	QD	$\bar{x}$	SD	QD
1. Math teachers are equipped with the necessary knowledge, skills, and attitudes needed in the implementation.	3.54	0.54	SA	3.66	0.50	SA	3.63	0.51	SA
2. There is an integration of language, literacy, numeracy skills and values in teaching in the Math curriculum.	3.38	0.65	A	3.38	0.63	A	3.38	0.63	A
3. The Math program promotes effective use of technology to promote student learning.	3.48	0.60	A	3.24	0.68	A	3.30	0.67	A
4. The Math curriculum enhances students' skills through performance task and group work activities.	3.57	0.54	SA	3.60	0.52	SA	3.60	0.52	SA
5. The Math program promotes retention and mastery of topics and skills as the students become more active and participative.	3.47	0.50	A	3.50	0.58	SA	3.49	0.56	A
6. The curriculum lends itself to more technological connections (i.e. use of graphing software and Microsoft office).	3.16	0.68	A	3.04	0.79	A	3.07	0.72	A
7. The Math program provides opportunities for students to share their interest and demonstrate their involvement in learning.	3.32	0.54	A	3.48	0.59	A	3.44	0.58	A
8. Students develop a sound critical thinking and a great deal of competence level in Math.	3.30	0.54	A	3.41	0.63	A	3.38	0.60	A
9. Students are able to demonstrate very accurate, extensive and deep understanding of the topics in Math.	3.30	0.57	A	3.33	0.52	A	3.32	0.53	A
10. Students are able to acquire self-knowledge by showing meta-cognitive awareness in Math.	3.21	0.49	A	3.40	0.59	A	3.35	0.57	A
11. The students are able to independently demonstrate the ability to innovate in Math.	3.23	0.54	A	3.32	0.66	A	3.30	0.64	A
12. The formative or developmental purpose is emphasized in the Math lessons to assure students learning.	3.27	0.56	A	3.41	0.68	A	3.37	0.65	A
Total	**3.35**	**0.33**	**A**	**3.41**	**0.37**	**A**	**3.40**	**0.36**	**A**

groups are aware that the new curriculum embraces the philosophy of lifelong learning and learning by doing (interview with Responden A, 2/5/2014; and interview with Respondent B, 9/5/2014).

In the interview conducted, their participation to the trainings provided by the government armed them with the knowledge relevant to the K-12 curriculum. They stressed, most of them that these trainings should be done on a regular basis, so that feedback is immediately relayed to all stakeholders (interview with Responden A, 2/5/2014; and interview with Respondent B, 9/5/2014).

It is fair to say then that the result is a good indication of teachers and students' awareness and openness to information regarding the need to implement the curriculum (Locklear, 2012; and Muskin, 2015). One could say, in effect, that teachers and students are informed of the need to respond with the educational developments (interview with Responden A, 2/5/2014; and interview with Respondent B, 9/5/2014). See table 2.

Meanwhile in table 2, teachers agreed on the impact statements under the observation dimension. Particularly, teachers viewed that "the Math program is anchored on the principles of inclusive education, learners' growth, teaching and learning, and assessment" as it yielded the highest mean of

ISSN 1979-7877 and www.mindamas-journals.com/index.php/educare

Table 2:
Descriptive Statistics of Respondents Perception on K to 12 Mathematics Program According to Observation Dimension

Statements	Math Teacher			Student			Total		
	$\bar{x}$	SD	QD	$\bar{x}$	SD	QD	$\bar{x}$	SD	QD
1. The use of rubric system in Math class offers greater objectivity in the assessment method.	3.50	0.54	SA	3.31	0.66	A	3.36	0.64	A
2. The content of the Math program meets its goals and objectives.	3.46	0.55	A	3.54	0.56	SA	3.52	0.55	SA
3. The program assures smooth transitions of the Math topics.	3.29	0.53	A	3.40	0.60	A	3.37	0.59	A
4. The Math program assures that the students mastered first the presented topic before introducing another.	3.33	0.64	A	3.48	0.61	A	3.44	0.62	A
5. The spiral set up of Math program is anchored by strong underlying learning principles and theories.	3.29	0.65	A	3.21	0.67	A	3.23	0.67	A
6. The Math program is anchored on the principles of inclusive education, learners' growth and development, teaching and learning and assessment.	3.55	0.54	SA	3.49	0.54	A	3.50	0.54	SA
7. The Math program offers simple lesson preparation.	3.23	0.71	A	3.25	0.66	A	3.24	0.67	A
8. The Math program provides a clearly scaffold K to 12 Mathematics subject sequence.	3.34	0.70	A	3.41	0.63	A	3.39	0.64	A
9. The Math program increases thoroughness and focus, particularly with regards to algebra skills.	3.36	0.65	A	3.56	0.59	SA	3.51	0.61	SA
10. Teachers are knowledgeable about K to 12 Math program.	3.20	0.65	A	3.50	0.59	SA	3.43	0.62	A
11. There are extended classrooms beyond the traditional walls and time schedules.	2.95	0.67	A	2.91	0.78	A	2.92	0.75	A
12. There is additional demand on existing technology staff.	3.36	0.62	A	3.20	0.66	A	3.24	0.65	A
13. The government can provide the needed materials for teaching and learning.	2.91	0.88	A	3.10	0.91	A	3.05	0.91	A
Total	**3.29**	**0.35**	**A**	**3.35**	**0.34**	**A**	**3.34**	**0.34**	**A**

3.55. It means then that teachers observe the K to 12 Math program as an opportunity for students to be holistically developed.

Students, on the other hand, examined that the program enhances thoroughness, especially in Algebra skills (Mean = 3.56) and its content meets its goals and objectives (Mean = 3.54). The findings is a straightforward proof that teachers and students are participative and keen on the issues raised regarding the implementation and are visionary of its long term results (Locklear, 2012; and Muskin, 2015). See table 3.

On the benefits section as revealed in table 3, teachers and students were consistent in pointing out that the program guarantees that students have the opportunity to learn (Mean = 3.55); and, hence, it inspires learners to set and value high performance targets for themselves (Mean = 3.55 for teachers and 3.57 for students). Respondents concurred all other indicators. It is also apparent from the first three dimensions that technological issues have to be improved as indicators concerning those had been consistently found on the bottom of the impact statements. Nonetheless, the results are indicative of the potential benefits derived from the program. See table 4.

In table 4, all indicators received an index equivalent to agree (2.51 – 3.50). The highest threat according to teachers is that the government are not well ready for the needed materials in the implementation

ISSN 1979-7877 and www.mindamas-journals.com/index.php/educare

Table 3:
Descriptive Statistics of Respondents Perception on K to 12 Mathematics Program According to Benefits Dimension

Statements	Math Teacher			Students			Total		
	$\bar{x}$	SD	QD	$\bar{x}$	SD	QD	$\bar{x}$	SD	QD
1. Math program ensures mastery of the lesson.	3.52	0.63	SA	3.54	0.54	SA	3.53	0.56	SA
2. The Math program guarantees that students have the opportunity to learn.	3.55	0.54	SA	3.73	0.46	SA	3.68	0.49	SA
3. Students use real-world problem solving in practicing the presented topic in Math.	3.41	0.57	A	3.40	0.62	A	3.40	0.61	A
4. The Math program inspired learners to set and value high performance targets for themselves.	3.55	0.50	SA	3.58	0.57	SA	3.57	0.55	SA
5. The Math program allows learners to learn topics & skills appropriate to their developmental/ cognitive stages.	3.43	0.57	A	3.62	0.52	SA	3.57	0.54	SA
6. Students are envisioned to be skilful after the Math program.	3.38	0.52	A	3.41	0.59	A	3.40	0.57	A
7. There is an easy access for the Math lessons using the internet.	3.16	0.68	A	2.92	0.89	A	2.98	0.85	A
8. Students are equipped with the 21st century skills to become globally competitive.	3.29	0.56	A	3.19	0.62	A	3.21	0.61	A
9. The learning environment in Math highly encourages students to be problem solvers.	3.45	0.50	A	3.57	0.57	SA	3.54	0.55	SA
10. The Math program helps ensure employment after graduation.	3.39	0.56	A	3.32	0.70	A	3.34	0.68	A
11. The Math curriculum is outcome-based as it will prepare learners for higher education, middle level skills, employment, and entrepreneurship.	3.38	0.52	A	3.42	0.61	A	3.41	0.90	A
Total	**3.41**	**0.35**	**A**	**3.43**	**.31**	**A**	**3.43**	**0.32**	**A**

(Mean = 3.34), while students perceived that working loads of teachers are increased (Mean = 3.18). While the promise of K to 12 program in general is global in nature, the perceptions of teachers and students reveal the need to improve the implementation year by year. That is, closely monitor how the implementation progresses in terms of readiness in materials and facilities, teacher orientations and trainings towards paradigm shifting, technology use and its availability and sufficiency, and content/pedagogical content knowledge of teachers. See table 5.

In general, as reflected in table 5, teachers and students displayed a relatively consistent pattern in terms of their perception of the implementation of K to 12 program. It is noted that respondents perceived the benefits well; they are considered informed and are observant; and they believed that the potential threats are imminent. See table 6.

The Difference between the Perception of Teachers and Students. In table 6, it is shown that teachers and students have a statistically the same perception as to the knowledge, observation, and benefits of the program, $p > .05$. However, teachers see the potential threats more enormous than students do, $p < .05$, $\varepsilon^2 = .02$, small effect. See table 7.

The Factors of K to 12 Mathematics Program Implementation. In general, a model in table 7 generated from the regression analysis shows that perception of teachers and students on the implementation of K to 12 Math program is determined by dimensions knowledge, potential threats, and observation, $p < .05$. Respondents' knowledge places first, with beta equal to .51, which means that the success of carrying out of the program is largely predicted by respondents' knowledge about the curriculum.

This is followed by the potential threats and observations with beta values, .41 and .36, respectively. In other words, the functioning of the curriculum is marked by the extent of understanding and awareness as to the program's facts and its details and its possible risks.

ISSN 1979-7877 and www.mindamas-journals.com/index.php/educare

Table 4:
Descriptive Statistics of Respondents Perception on K to 12 Mathematics Program According to Potential Threats Dimension

Statements	Math Teachers			Students			Total		
	$\bar{x}$	SD	QD	$\bar{x}$	SD	QD	$\bar{x}$	SD	QD
1. The government are not fully ready for the materials and resources needed in the Math program.	3.34	0.84	A	2.71	0.89	A	2.87	0.92	A
2. A percentage of Math teachers resist changing the traditional way of teaching.	3.00	0.72	A	3.08	0.77	A	3.06	0.74	A
3. Time allotment in Math is not suitable for the completion of the anticipated lesson.	3.20	0.62	A	2.89	0.79	A	2.97	0.76	A
4. There was not enough time to plan more in the implementation of the Math curriculum.	3.14	0.77	A	2.71	0.85	A	2.82	0.85	A
5. Intended facilities and Math teaching materials are inadequate.	3.27	0.84	A	2.98	0.86	A	3.06	0.86	A
6. The discussion of the Math concepts is prolonged.	3.15	0.76	A	2.98	0.80	A	3.02	0.79	A
7. There is not well utilized available Math technology and other instructional materials appropriate for the lesson.	3.13	0.74	A	2.69	0.82	A	2.80	0.82	A
8. The working load of Math teachers increased.	2.98	0.81	A	3.18	0.73	A	3.13	0.75	A
9. The scope of Math topic is limited for it follows only the given module.	3.06	0.83	A	3.07	0.83	A	3.07	0.83	A
10. The grading system is confusing.	2.80	1.05	A	2.67	0.83	A	2.71	0.89	A
11. There are instances of not having the devices or materials in time for Math teaching and learning.	3.14	0.65	A	3.09	0.72	A	3.10	0.70	A
12. Parents find the additional years in the program as a burden due to additional expenses.	3.20	0.86	A	3.04	0.83	A	3.08	0.84	A
13. Emphasis on technology and computers may lead to students' disinterestedness to learn and review their lesson.	3.23	0.69	A	3.10	0.90	A	3.13	0.85	A
14. The government focuses on students' achievement rather than on the school administrators and teachers who mold students to be competent.	3.15	0.62	A	3.11	0.74	A	3.12	0.71	A
Total	**3.13**	**0.43**	**A**	**2.95**	**0.43**	**A**	**3.00**	**0.44**	**A**

Table 5:
Summary Statistics of Respondents Perception on K to 12 Mathematics Program

	Math Teachers			Students			Total		
	$\bar{x}$	SD	QD	$\bar{x}$	SD	QD	$\bar{x}$	SD	QD
Knowledge	3.35	0.33	A	3.41	0.37	A	3.40	0.36	A
Observations	3.29	0.35	A	3.35	0.34	A	3.34	0.34	A
Benefits	3.41	0.35	A	3.43	0.31	A	3.43	0.32	A
Threats	3.13	0.43	A	2.95	0.43	A	3.00	0.44	A

CONCLUSION

It is concluded, therefore, that from the results, while the respondents are optimistic and are geared up with the shift of curriculum, there are remain issues and challenges our government has to address in the implementation process. The results affirmed the results of study conducted by M.G.S. Cabansag (2014), which focused on the science offering. In the study, there are three apparent key areas that need special attention.

ISSN 1979-7877 and www.mindamas-journals.com/index.php/educare

Table 6:
Statistical Difference between the Perception of Math Teachers and Students to K to 12 Math Program

	Respondents	$\bar{x}$	SD	T	Sig.	R	ε^2	R
Knowledge	Teachers	3.35	0.33	-1.75	0.08	Not Significant	0.01	Small effect
	Students	3.41	0.37					
Observations	Teachers	3.29	0.35	-1.73	0.09	Not Significant	0.01	Small effect
	Students	3.35	0.34					
Benefits	Teachers	3.41	0.35	-1.34	0.18	Not Significant	0.01	Small effect
	Students	3.43	0.31					
Potential Threats	Teachers	3.13	0.43	2.75	0.01	Significant	0.02	Small effect
	Students	2.95	0.43					

R-remark ε^2*-eta squared*

Table 7:
The Best Predictor Used in Determining the Impact Statements Greatly Affects the Implementation of K to 12 Math Program

Predictor	Beta	t	Sig.
(Constant)	-	5.01	0.00
Knowledge	0.51	24.85	0.00
Threats	0.41	31.98	0.00
Observations	0.36	17.54	0.00

Multiple R = 0.99 *Adjusted* $R^2 = 0.97$ $F(df_1, df_2) = 2085.227$
$R^2 = 0.97$ *Std. Error = 0.05* *P = 0.00*

The first is the quality and the extent by which the information about K to 12 Math program's goals, objectives, contents, methodologies, and processes are disseminated to the stakeholders of education. The next is the availability, sufficiency, worth, and logistics of capability building strategies and support among the main players extending up to the remotest parts of the province. Lastly, the provision of prestige, internationalization atmosphere, and the integrity of a clear demarcation line of the present curriculum from the previous curriculum as to the processes involved as the cycle moves to its full implementation by 2016.

Apparently, this study has also set an initial attempt to develop scale to assess the implementation. Hence, it is further recommended that further testing on the questionnaire should be done by extending the scope, including other stakeholders of education and conducting exploratory factor and path analyses and relating the scale with other related scales.[3]

[3]***Statement:*** I have, herewith, declared that this paper is my original work; so, it is not product of plagiarism and not yet also be reviewed as well as published by other scholarly journals.

References

Adelman, Clifford. (2009). "The Bologna Process for U.S. Eyes: Re-learning Higher Education in the Age of Convergence". Available online at: https://www.immagic.com/eLibrary/ARCHIVES/GENERAL/IHEP_US/I090402A.pdf [accessed in Manila, Philippines: October 28, 2016].

Ahmad, Raza [ed]. (2005). *The Role of Public Administration in a Building a Harmonious Society: Selected Proceedings from the Annual Conference of the Network of Asia-Pacific Schools and Institutes of Public Administration and Governance (NAPSIPAG).* Philippines: China National School of Administration. Available online also at: https://www.adb.org/sites/default/files/publication/29671/napsipag.pdf [accessed in Manila, Philippines: October 28, 2016].

Alexander, R. (2008). *Education for All: The Quality Imperative and the Problem of Pedagogy*. New Delhi, India: DFID, Publication.

Batomalaque, Antonio. (2010). *Basic Science Development Program of the Philippines for International Cooperation*. Marinas, Bella, and Ditapat, Philippines: Curriculum and Development, University of San Carlos, UNESCO International Bureau of Education.

Cabansag, M.G.S. (2014). "Impact Statements on the K-12 Science Program in the Enhanced Basic Education Curriculum in Provincial Schools" in *Researchers World,* Volume 5(2), pp.29-39.

ISSN 1979-7877 and www.mindamas-journals.com/index.php/educare

Chia, S.Y. (2013). "The ASEAN Economic Community: Progress, Challenges, and Prospects" in *ADBI Working Paper, 440*. Tokyo: Asian Development Bank Institute. Available online also T; http://www.adbi.org/workingpaper/2013/10/25/5916.asean.economic.community.progress.challenges/ [accessed in Manila, Philippines: October 28, 2016].

Cresswell, J.W. (2008). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. Upper Saddle River, NJ: Pearson Education, Inc.

Crisol, L.G.D. & J.B.L. Alamillo. (2014). "A Comparative Study of the Attitudes between the Students and Teachers of Two Public Elementary Schools in Northern Mindanao toward the K to 12 Curriculum Shift". *Paper* presented at the DLSU Research Congress, De La Salle University, Manila, Philippines, on March 6-8. Available online also at: https://www.dlsu.edu.ph/conferences/dlsu_research_congress/2014/_pdf [accessed in Manila, Philippines: October 28, 2016].

DepEd [Department of Education] of Philippines. (2010). *Discussion Papers on the Enhanced K + 12 Basic Education Program.* Manila: DepEd of Philippines.

Henard, F. & S.L. Ringuet. (2010). "The Path to Quality Teaching in Higher Education". Available online at: https://www1.oecd.org/edu/imhe/44150246.pdf [accessed in Manila, Philippines: October 28, 2016].

Huck, S.W. (2000). *Reading Statistics and Research*. New York: Addison Wesley Longman, Inc., 3rd edition.

"Implementing Rules and Regulations of the Enhanced Basic Education Act of 2013: Republic Act No.0533" in *Official Gazette*. Manila: Department of Education of Philippines. Available online also at: http://www.officialgazette.gov.ph/k-12-old/ [acessed in Manila, the Philippines: October 28, 2016].

Interview with Responden A, one of Math Teachers at the High School in Isabela Province, Philippines, on 2 May 2014.

Interview with Respondent B, one of Students at the High School in Isabela Province, Philippines, on 9 May 2014.

Locklear, T.M. (2012). "A Descriptive, Survey Research Study of the Student Characteristics Influencing the Four Theoretical Sources of Mathematical Self-Efficacy of College Freshmen" in *Theses and Dissertations: Science, Technology, Engineering, and Mathematics (STEM) Education,* 1. Available online also at: https://uknowledge.uky.edu/stem_etds/1 [accessed in Manila, Philippines: October 28, 2016].

Muskin, Joshua A. (2015). "Student Learning Assessment and the Curriculum: Issues and Implications for Policy, Design, and Implementation" in *Current and Critical Issues in the Curriculum and Learning*. Available online also at: http://unesdoc.unesco.org/images/0023/002354/235489e.pdf [accessed in Manila, Philippines: October 28, 2016].

Okabe, Masayoshi. (2013). "Where Does Philippine Education Go? The K to 12 Program and Reform of Philippine Basic Education" in *IDE (Institute of Developing Economies) Discussion Paper*, No.425. Available online also at: http://www.ide.go.jp/library/English/Publish/Download/Dp/pdf/425.pdf [accessed in Manila, Philippines: October 28, 2016].

Schmitt, T. (2011). "Current Methodological Considerations in Exploratory and Confirmatory Factor Analysis" in *Journal of Psychoeducational Assessment*, Volume 29(4), pp.304-321.

SEAMEO [South East Asian Ministers of Education Organization]. (2010a). "Additional Years in Philippine Basic Education". Available online at: http://www.smartparenting.com.ph/kids/preschool/K-12-101-a-primer-on-then-new-philippine [accessed in Manila, Philippines: October 28, 2016].

SEAMEO [South East Asian Ministers of Education Organization]. (2010b). "Additional Years in Philippine Basic Education: Rationale and Legal Bases". *Paper* presentation to the Department of Education at the PNU [Philippines Normal University], on 25 August.

SEAMEO [Southeast Asian Ministers of Education Organization]. (2012a). *Southeast Asian Ministers of Education Organization (SEAMEO) Regional Center for Educational Innovation and Technology (INNOTECH).* Manila: Philippine Copyright, ISBN 978-971-0487-58-5.

SEAMEO [Southeast Asian Ministers of Education Organization]. (2012b). *Southeast Asian Ministers of Education Organization (SEAMEO) Regional Center for Educational Innovation and Technology (INNOTECH), K to 12 Toolkit: Resource Guide for Teacher Educators, School, Administrators, and Teachers.* Manila: Philippine Copyright. Available online also at: http://www.seameo-innotech.org [accessed in Manila, Philippines: October 28, 2016].

"The K to 12 Basic Education Program" in *Official Gazette*. Manila: Department of Education of Philippines. Available online also at: http://www.officialgazette.gov.ph/k-12-old/ [acessed in Manila, the Philippines: October 28, 2016].

UNESCO [United Nations Educational, Scientific, and Cultural Organization]. (2016). *Evaluation of the Education for All (EFA): Global and Regional Coordination Mechanisms.* Paris, France: Evaluation Office, UNESCO Publication, June. Available online also at: http://unesdoc.unesco.org/images/0024/002452/245299E.pdf [accessed in Manila, Philippines: March 11, 2017].

UPSIOA [University of the Philippines System Information Office in Announcements]. (2013). *UP Gears Up for the Impact of the K-12 Curriculum and ASEAN Economic Cooperation 2015.* Manila: University of the Philippines System Website.

Wallar, James. (2014). "Achieving the Promise of the ASEAN Economic Community: Less Than You Imagine, More Than You Know" in *The National Bureau of Asian Research: Trade, Energy, and Economic Affairs*, on July. Available online also at: http://www.nbr.org/downloads/pdfs/ETA/wallar_paper_072814.pdf [accessed in Manila, Philippines: March 11, 2017].

Warner, R.M. (2008). *Applied Statistics: From Bivariate through Multivariate Techniques*. Thousand Oaks, California: Sage Publications, Inc.

Enhanced Basic Education Act of 2013 in the Philippines
(Source: https://www.rappler.com/nation, 9/10/2016)

In response, the Philippines as a member of the ASEAN (Association of South-East Asian Nations) and being one of the three remaining countries in the world with 10 year basic education shifted from 10 to 12 years of basic education in its educational system, through the K-12 program under the Republic Act 10533 also known as the "Enhanced Basic Education Act of 2013".

ISSN 1979-7877 *and* ***www.mindamas-journals.com/index.php/educare***