

Perception of Mathematics Teachers on RBEC and K-12 Curriculum in Teaching Mathematics

Yuri G. Gonzaga

College of Teacher Education, Mathematics Department, University of Antique, Tibiao Campus, 5707 Antique, Philippines

Abstract: *This descriptive-correlational study looked into the level of perception of mathematics teachers on RBEC and K-12 Curriculum in teaching mathematics in Culasi, Tibiao and Barbaza Districts. The respondents of the study were 32 secondary mathematics teachers who have taught on both RBEC and K-12 Curriculum. The variables used in the study were sex, year level taught and length of service. The Special Package for Social Sciences (SPSS) was used to run the data analysis. The results of the study showed that the level of perception of mathematics teachers towards RBEC in teaching mathematics was “considerably evident” and that in K-12 Curriculum was “exemplarily evident”. No significant difference was noted in the level of perception of mathematics teachers towards RBEC in teaching mathematics. It further revealed that there were no significant differences in the level of perception of mathematics teachers towards K-12 Curriculum in teaching mathematics when grouped as to sex and year level taught but in terms of length of service it was found that 15 years and below and 16 years up differed in relation to their level of perception. Results further revealed that a small positive correlation existed in the level of perception of mathematics teachers between RBEC and K-12 Curriculum in teaching mathematics when taken as a whole.*

Keywords: Perception, Curriculum, RBEC, K-12 curriculum, Sex, Length of Service, Year Level Taught

1. Introduction

Curriculum is a systematic and intended packaging of competencies that learners should acquire through organized learning experiences both in formal and non-formal settings. Good curriculum plays an important role in forging life-long learning competencies, as well as social attitudes and skills, such as tolerance and respect, constructive management of diversity, peaceful conflict management, promotion and respect of Human Rights, gender equality, justice and inclusiveness. At the same time, curriculum contributes to the development of thinking skills and the acquisition of relevant knowledge that learners need to apply in the context of their studies, daily life and careers.

The Restructured Basic Education Curriculum was implemented last December 7, 1998 by the late Secretary of Education, Sec. Raul Roco. The restructuring of the curriculum is part of an on-going effort to improve the quality of learning. We are focusing on the basics of improving the literacy and numeracy while inculcating values across learning areas to make it dynamic (Raul Roco, 1998). The focus of this curriculum is to attain functional literacy, which includes essential abilities such as linguistic fluency and scientific numerical competence.

In the Philippine basic education, mastery of this essential implies that Filipino, English, Science, and Mathematics are indispensable learning areas in the restructured curriculum. The fifth learning area in the restructured curriculum will be a “laboratory of life” or a practice environment. Love of country serves as the unifying principle for the diverse values in the fifth learning area, which is thus called Pagkamakabayan or Makabayan for short. As a practice environment, Makabayan will cultivate in the learner a healthy personal and national self-concept.

Whereas, RBEC program still has flaws which resulted to chronic underachievement of students due to insufficient

mastery of basic competencies because of the congested curriculum. High school graduates are below 16 years-old lacks basic competencies and maturity for employment and the Philippines is the only remaining country in Asia with a 10-year basic education program which makes us behind in competing to other countries through globalization. The K-12 Basic Education Program is the answer to such problems which focuses on holistically developed Filipino with 21st Century Skills who is ready for employment, entrepreneurship, middle level skills development and higher education upon graduation. The new curriculum introduces Universal Kindergarten, Mother-Tongue Based Multilingual Education (MTB-MLE) for Grade 1-3, enhanced curriculum for Grades 1-10 through spiral progression approach in education and addition two years of schooling to prepare them in the field of work or higher education (Grades 11 and 12).

However, critics believe that K-12 is not the solution to the problem. Looking at the sociological foundation of this curriculum, the country is not yet ready to add two more years in basic education as what Senator Antonio Trillanes have said “It is stated in our Constitution that the purpose of an education system is to maximize the talents and intellect of our citizens—not to follow what other countries are doing.”. Another critic commented on K-12 that “As far as the curriculum is concerned, DepEd should fix the current subjects instead of adding new ones. The problem is the content, not the length, of basic education. As an editorial put it, we need to have better education, not more education (Isagani Cruz, Phil. Star, 2010). This simply shows that the new curriculum still has some flaws as the society looks to it. But how about the teachers who are part of the curriculum implementers, how they perceived the program will be based upon their experiences on the two curriculums and its effect to the learners.

The researchers were motivated to conduct this study in order to determine the level of teachers’ perception in teaching mathematics towards RBEC and K-12 Curriculum

in selected secondary schools in the District of Culasi, Tibiao, and Barbaza, Antique.

2. Objectives of the Study

This study aimed to determine the level of perception of mathematics teachers towards RBEC and K-12 Curriculum in teaching mathematics in the District of Culasi, Tibiao, and Barbaza, Antique for school year 2015-2016. Specifically, it aimed: 1) to determine the level of perception of mathematics teachers towards RBEC in teaching mathematics when taken as a whole and when they are grouped according to sex, year level taught, and length of service; 2) to determine the level of perception of mathematics teachers towards K-12 Curriculum in teaching mathematics as a whole and when they are grouped according to sex, year level taught, and length of service; 3) to determine the significant difference in the level of perception of mathematics teachers towards RBEC when they are grouped as to sex, year level taught, and length of service; 4) to determine the significant difference in the level of perception of mathematics teachers towards K-12 Curriculum in teaching mathematics when they are grouped as to sex, year level taught, and length of service; 5) to find out the significant relationship in the level of perception of mathematics teachers between RBEC and K-12 Curriculum in teaching mathematics.

3. Conceptual Framework

The Paradigm

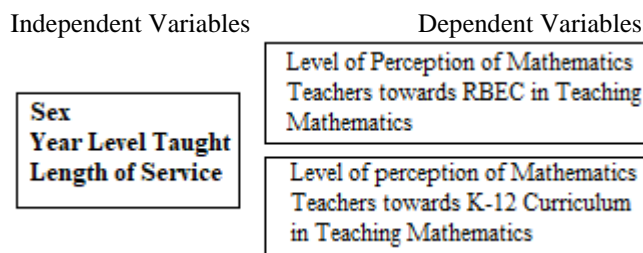


Figure 1: A Schematic Diagram Detailing the Relationship of the Variables in the Study

4. Methodology

Participants

Participants of the study were the 32 mathematics teachers who are teaching mathematics subjects in public secondary schools in the Districts of Culasi, Tibiao, and Barbaza. They were purposively selected in such a way that only those who have taught on both RBEC and K-12 Curriculum became respondents of the study. The teachers were grouped as to sex, year level taught, and length of service.

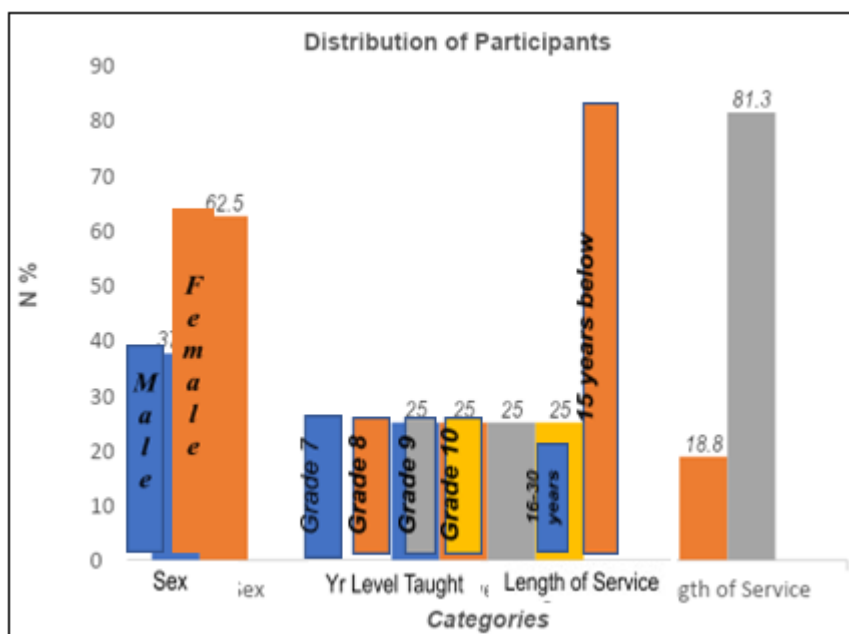


Figure 1: Distribution of the Participants According to Variables Instruments

This study utilized a researchers-made instrument it was constructed to gather the necessary data and was subjected for jury validation. The questionnaire-checklist as an instrument that was used, were divided into three parts. The first part is the personal background of the respondents which contains the needed information about the teachers, their names, sex, year level taught and length of service. The second part contains 48-item statements to evaluate the perception of the mathematics teachers in teaching mathematics on RBEC. The third part contains the same 48 item statements to evaluate the perception of the mathematics teachers in teaching mathematics on K-12

Curriculum. On the second and third part, teachers were required to put a check on their perception using a 5-point Likert-scale response format: 5 suggests exemplarily evident; 4-considerably evident; 3-evident; 2-moderately evident; and 1 for not evident.

5. Methods

A descriptive-correlational research method was utilized in this study. The instrument was purposively employed among the participants. The instrument was distributed to the purposively chosen respondents in the Districts of Culasi,

Tibiao, and Barbaza. The instrument was personally distributed; thus, explicit instructions were verbally given before on how to answer the instrument and a reminder note was attached to the given questionnaire-checklist. The accomplished instrument was gathered four weeks after distribution from the respondents. To accommodate the returned instrument assistance of office personnel's and secretaries of concerned district was sought. The data gathering covered the period of one month from fourth week of February to third week of March, 2016.

Data Analysis

The different sets of data were analyzed according to the requirements of the research problem using appropriate statistical instrument. Mean and the standard deviation were utilized to measure the level of perception of mathematics teachers on RBEC and K-12 Curriculum in teaching mathematics.

The following interpretation scales were used in the interpretation of data:

Levels of perception of mathematics teachers on RBEC and K-12 Curriculum in teaching mathematics.

Scale	Description	Interpretation
4.21-5.00	Exemplarily Evident	The curriculum content is highly evident
3.41-4.20	Considerably Evident	The curriculum content is very evident
2.61-3.40	Evident	The curriculum content is evident
1.81-2.60	Moderately Evident	The curriculum content is slightly evident
1.00-1.80	Not Evident	The curriculum content is not evident

One-way Analysis of Variance (ANOVA) was used to determine the significant difference in the level of perception of mathematics teachers on RBEC and K-12 Curriculum in teaching mathematics when they are grouped as to year level taught.

To determine the relationship in the level of perception of mathematics teachers between RBEC and K-12 Curriculum in teaching mathematics, the Pearson *r* was used. All inferential tests were set at 0.05 alpha level of significance.

6. Results and Discussion

Level of Perception of Mathematics Teachers towards RBEC in Teaching Mathematics

The level of perception of mathematics teachers towards RBEC in teaching mathematics in the Districts of Culasi, Tibiao and Barbaza when they are taken as a whole and when they are grouped according to sex, year level taught, and length of service, was determined by looking into their mean scores.

Results, in Table 1 shows that when taken as a whole, the level of perception of mathematics teachers towards RBEC manifested "considerably evident" (M=3.77, SD = 0.56) curriculum contents. This means that most of the items on the curriculum contents are apparent on the teacher. In terms

of sex, the male teachers posted a higher mean in the level of perception towards RBEC (M=3.89, SD = 0.55) compared to female teachers (M= 3.70, SD=0.56). With regard to year level taught, the data show that grade 8 teachers has the highest mean (M= 3.99, SD= 0.59), followed by grade 7 teachers (M= 3.77, SD= 0.62), then the teachers in grade 10 (M= 3.73, SD= 0.49), and the grade 9 teachers, (M= 3.63, SD= 0.55) which are all described as "considerably evident".

When the respondents were categorized as to length of service, the data reveal that mathematics teachers who are in 16 to 30 years of service posted the highest mean (M= 3.89, SD=0.73), followed by those teachers who are in 15 years in service and below (M=3.75, SD= 0.51) both described as "considerably evident".

Level of Perception of Mathematics Teachers towards K-12 Curriculum in Teaching Mathematics As a whole and when grouped according to selected variables

As a whole the result shows that the level of perception of mathematics teachers towards K-12 Curriculum manifested "considerably evident" (M=4.08, SD = 0.59) curriculum contents. This indicates that most of the curriculum contents are felt by the teacher despite that it was only implemented 4 years ago, the result is presented in Table 3. As to sex, the female teachers posted a higher mean in the level of perception (M= 4.12, SD=0.55) compared to male teachers (M= 4.01, SD=0.67) which are all "considerably evident". Although the mathematics teachers rate the level of perception towards RBEC and K-12 Curriculum as "considerably evident", data reveals that in terms of year level taught, those teachers in grade 10 has the highest level of perceptions described as "exemplarily evident" (M= 4.26, SD= 0.47) followed by the teachers in grade 7 (M= 4.10, SD=0.58), then the grade 8 teachers (M= 4.01, SD= 0.74), and the grade 9 teachers (M=3.94, SD= 0.61) which are all described as "considerably evident". As to Length of service, those teachers who are in 16 to 30 years of service posted the highest mean (M= 4.21, SD=0.94) described as "exemplarily evident", followed by those teachers who are in 15 years in service and below (M= 4.04, SD= 0.50) described as "considerably evident".

Table 1: Level of Perception of Mathematics Teachers; Towards RBEC in Teaching Mathematics

Variables	Mean	Description	SD
A. Entire Group	3.77	Considerably Evident	0.56
B. Sex			
Male	3.89	Considerably Evident	0.55
Female	3.70	Considerably Evident	0.56
C. Year Level Taught			
Grade 10	3.73	Considerably Evident	0.62
Grade 9	3.63	Considerably Evident	0.55
Grade 8	3.99	Considerably Evident	0.59
Grade 7	3.77	Considerably Evident	0.49
D. Length of Service			
16 years-up	3.89	Considerably Evident	0.73
15 years-below	3.75	Considerably Evident	0.51

Towards K-12 Curriculum in Teaching Mathematics

A. Entire Group	4.08	Considerably Evident	0.59
B. Sex			
Male	4.01	Considerably Evident	0.67
Female	4.12	Considerably Evident	0.55
C. Year Level Taught			
Grade 10	4.26	Exemplarily Evident	0.47
Grade 9	3.94	Considerably Evident	0.61
Grade 8	4.01	Considerably Evident	0.74
Grade 7	4.10	Considerably Evident	0.58
D. Length of Service			
16 years –up	4.21	Exemplarily Evident	0.94
15 years-below	4.04	Considerably Evident	0.50

Scale	Description	Interpretation
4.21-5.00	Exemplarily Evident	The curriculum content is highly evident
3.41-4.20	Considerably Evident	The curriculum content is very evident
2.61-3.40	Evident	The curriculum content is evident
1.81-2.60	Moderately Evident	The curriculum content is slightly evident
1.00-1.80	Not Evident	The curriculum content is not evident

Differences in the Level of Perception of Mathematics Teachers towards RBEC in Teaching Mathematics when grouped according to the selected variables:

T-test results show that no significant difference in the level of perception of mathematics teachers towards RBEC in teaching mathematics in Culasi, Tibiao, and Barbaza Districts when they are grouped as to sex, $t(.05, 30) = 0.92, p=0.70>.05$. This result of the study is consistent with the result conducted by Helen O. Dagnos, 2006, which implies that sex do not influence the implementation of RBEC as revealed by the result. It further implies that choosing a method or strategy in delivering the curriculum needs not to be male or female, both sexes have an equal footing in delivering the contents of the curriculum in RBEC. Likewise, the t-test result in Table 3 also shows that there is no significant difference in the level of perception of mathematics teachers towards RBEC in teaching mathematics when they are categorized as to length of service, $t(.05, 30) = -0.57, p = 0.34 > 0.05$. This is consistent with the study of Rice (2010) that teachers show the greatest productivity gains during their first few years on the job, after which their performance tends to level off.

Table 2: T-test Result for Difference in the Level of Perception of Mathematics Teachers towards RBEC in Teaching Mathematics

Category	Mean	t	df	Sig.
Sex				
Male	3.89	0.92	30	0.70
Female	3.70			
Length of Service				
16 years –up	3.75	- 0.57	30	0.34
15 years-below	3.89			

$p>.05$ not significant

The result show that as to year level taught, there is no significant difference in the level of perception of mathematics teachers towards RBEC in teaching mathematics, $f = (28) = 0.62, p= 0.61>0.05$.

Table 3: One-way ANOVA Test for Difference in the Level of Perception of Mathematics Teachers towards RBEC in Teaching Mathematics According to Year Level Taught.

Category	Sum of Squares	df	Mean Square	f	Sig.
Between Groups	0.58	3	.19	.62	.61
Within Groups	8.82	28	.32		
Total	9.40	31			

$p>.05$ not significant

Differences in the Level of Perception of Mathematics Teachers towards K-12 Curriculum in Teaching Mathematics according to the selected variables:

T-test result shows that there is no significant difference in the level of perception of mathematics teachers towards K-12 Curriculum in teaching mathematics in Culasi, Tibiao, and Barbaza Districts when they are grouped as to sex, $t(.05, 30) = -4.48, p=0.84>.05$. These findings of the study jives with the findings of the study conducted by Hyde, Fennema, & Lamon, 1990a, that females scored higher but by a negligible amount.

The t-test result in 4, showed that there is a significant difference in the level of perception of mathematics teachers towards RBEC in teaching mathematics when they are categorized as to length of service, $t(.05, 30) = -0.65, p = 0.04 > 0.05$. This finding supports Darling-Hammond (1999) findings that teachers with less than three years of experience are less efficient than those colleagues with more experience. Thus, study shows that the largest gains in mathematics achievement are attributable to teacher’s experience

Table 4: T-test Result for Difference in the Level of Perception of Mathematics Teachers towards K-12 Curriculum in Teaching Mathematics

Category	Mean	t	df	Sig.
Sex				
Male	4.0	- 4.48	30	0.84
Female	4.12			
Length of Service				
16 years –up	4.22	- 0.65	30	0.04
15 years-below	4.04			

$p>.05$ not significant

Data in Table 8, Using One-way ANOVA show that as to year level taught, there is no significant difference in the level of perception of mathematics teachers towards RBEC in teaching mathematics, $f = (28) = 0.40, p= 0.75>0.05$.

Table 5: One-way ANOVA Test for Difference in the Level of Perception of Mathematics Teachers towards K-12 Curriculum in Teaching Mathematics Across Year Level Taught.

Category	Sum of Squares	df	Mean Square	f	Sig.
Between Groups	0.44	3	0.15	0.4	0.75
Within Group	10.29	28	0.37		
Total	10.73	31			

$p>.05$ not significant

Relationship in the Level of Perception of Mathematics Teachers between RBEC and K-12 Curriculum in Teaching Mathematics

In Table 7, results show that there is a small positive correlation ($r=0.38$, $p=0.03<0.05$) in the level of perception of mathematics teachers between RBEC and K-12 Curriculum in teaching mathematics. It appears that the level of perception of mathematics teachers towards K-12 Curriculum is much higher than the level of perception of mathematics teachers towards RBEC.

Table 6: Relationship in the Level of Perception of Mathematics Teachers between RBEC and K-12 Curriculum in Teaching Mathematics

Category	Mean	r-Value	Sig (2-tailed)
RBEC	3.77	0.38	0.03
K-12	4.08		

$P<.05$ significant

7. Conclusions and Recommendations

The considerably evident curriculum content in RBEC and K-12 Curriculum as perceived by the Mathematics teachers in the Districts of Barbaza, Tibiao and Culasi denotes that teachers really understand the curriculum they are teaching. Comparing both curriculums as these teachers perceived it indicates that K-12 curriculum contents are more comprehensive than RBEC. This may be attributed to the time such study was conducted since RBEC no longer exists and teachers may tend to forget its curriculum contents.

Length of service affects the level of perception of mathematics teachers in teaching mathematics. The longer they are in the field, the more flexible they are to adapt the new curriculum. Sex and year level taught do not affect the perception of mathematics teachers on both curriculum.

Mathematics teachers' perception towards RBEC is associated with their perception towards K-12 Curriculum. Therefore, their experiences during RBEC served as the basis in perceiving the current curriculum.

Curriculum planners may take into consideration best practices used by RBEC in implementing mathematics curriculum. A considerably evident content of both curriculum can be aligned together to construct a revised K-12 mathematics curriculum. School principals may devise a functional plan in implementing K-12 Math Curriculum so each math teacher can exemplarily understand the process of spiral math contents. Mathematics teachers may be encouraged to attend in-service trainings, seminars and workshops to update themselves with the current trends, methods and strategies in teaching Mathematics on K-12 Curriculum.

A similar study shall be conducted along this line using different samples and variables but avoid using personal or environmental variables as independent variables in order to attain more conclusive findings. Moreover, findings of this study invite possible areas for further research. Like study on the perceptions of mathematics teachers towards K-12 Curriculum in the Division of Antique. Likewise, a study on the problems of mathematics teachers towards K-12 Curriculum was also suggested.

References

- [1] Bocobo, D. (2010, November 10). Philippine commentary on the proposed K-12 educational system. Retrieved from <http://philippinecommentary.blogspot.com/2010/11/on-proposed-k-12-basic-education-system.html>
- [2] Calderon, MT. F. Ph. D. (2014), A Critique Of K-12 Philippine Education System, Arellano University, Manila, Philippines, Vol.2 No.10
- [3] Cruz, I.2010. Pros and cons in the K+12 basic education debate [online]. <http://mlephil.wordpress.com/2010/10/14/pros-cons-of-the-k12-debate/> [Accessed March 2012.] Department of Education.2010. Enhanced K+12 Basic Education Program [online]. <http://www.deped.gov.ph/cpanel/uploads/issuanceImg/K12new.pdf> [Accessed March 2012].
- [4] Danigos, H. O., November 2006. "Implementation of Restructured Basic Education Curriculum in Public Elementary Schools of Baguio City." Benguet State University, La Trinidad, Benguet.
- [5] Démuth, A. et. al (2012). Perception Theories.
- [6] Mariñas, B. et. al (2013) Philippines Curriculum Development. R. A. Selçuk Doğan, Teachers' Perceptions On The Effectiveness Of Curriculum Mapping: The Case Of Turkey', Volume: 3 Issue: 4 Article: 07