

# The Road to Literacy and Numeracy Development: The 4R's

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**Abstract-** This study sought to analyze how the current curriculum develops learners' knowledge, skills, and attitudes based on teachers' assessment and teaching experiences and their views on decongesting the curriculum by reducing the number of subjects. It used a self-made survey questionnaire with interview questions to describe how teachers assess curriculum theory and practice grounded on Aristotle's theory on the categorization of knowledge (Aristotle, 1976) based on their teaching experiences and views on decongesting the curriculum considering Gardner's Multiple Intelligences Theory. The data gathered were analyzed through quantitative and qualitative methods. It was revealed that the assessment of teacher-respondents was the same as the recommendation of the researcher that the road to improve literacy and numeracy development among Filipino children was to focus on Reading in English and Filipino/Mother Tongue, studying Arithmetic and Right Conduct or Character Education. These subjects were referred to as the 4 R's – **Reading in English, Reading in Filipino/ Mother Tongue, Arithmetic, and Right Conduct.**

**Index Terms**—curriculum decongestion, curriculum practice and theory, literacy and numeracy skills, literacy and numeracy development, multiple intelligences.

## I. INTRODUCTION

The Department of Education has revised the curriculum several times. Revision is not bad because it is aligned with the Philosophy in Education by John Dewey that education is an experience, which is subject to constant change to address the changing needs of the society. The recent revision has been rolled out this School Year 2020-2021, which highlighted the streamlining of the K to 12 Basic Education Curriculum (BEC) to the Most Essential Learning Competencies (MELCs). According to DepEd Undersecretary Nepomuceno Malaluan, the K to 12 BEC had been streamlined from 14, 171 to 5, 689 MELCs, and that this move aims to address curriculum review findings of congestion and overlapping of competencies. Equipping our learners with the necessary and needed knowledge, skills and attitudes is our target to reach the end-goal of basic education which is to produce functionally literate learners. UNESCO Institute for Statistics defined "functional literacy" as the capacity of a person to engage in all those activities in which literacy is required for the effective function of his or her group and community and for enabling him or her to continue to use **reading, writing, and calculation** for his or her own and the community's development. How are our learners performing now and have they reached **functional literacy**?

Trends in International Mathematics and Science Study 2019 (TIMSS) revealed that Filipino children performed poorly with the lowest Average Scale Scores among 58 countries in terms of Math and Science among grade 4 learners. The 2018 Programme for International Student Assessment (PISA) results released by the Organisation for Economic Co-operation and Development (OECD) showed that among 79 participating countries or economies, the Philippines ranked last in reading and second last in both Mathematics and Science.

How did we land at the bottom in the rankings in Reading, Science, and Math among several countries in the world? How do we get to the bottom of the Philippine Education situation? Were we able to achieve the end-goal of basic education which is functional literacy? Were our learners able to master literacy and numeracy skills? What solutions had been done to address these issues and concerns?

The performance of our learners in the TIMSS and PISA revealed that there is something wrong with the Philippine education system. Could DepEd try another way of decongesting the curriculum? A curriculum that will focus on the achievement of the end-goal of basic education - to produce functionally literate learners.

## II. RELATED STUDIES AND RESEARCH

Several factors affect the development of learners' knowledge, skills, and attitudes. These factors should be given importance and due consideration to help learners in improving their academic performance.

Determining learners' strengths and weaknesses is also a must to help them achieve learning goals and objectives. In the West Virginia Adult Education Program Instructor Handbook 2017-2018, it stressed the importance of determining students' strengths and weaknesses at the initial stage to help them know what goals will be realistic and how to proceed with a plan of study. This study is also considering the importance of identifying learners' strengths and weaknesses in teaching and even in curriculum development.

Also, learners' motivation and interests are important factors that should also be considered in teaching-learning processes and even in curriculum development. Gbollie and Keamu (2017) stated that the nature of motivation and learning strategy use is vital to improving student learning outcomes. It makes sense that if learners are not motivated or interested, they will not perform well academically, and the desired learning outcomes will not be met.

With several subjects included in the K to 12 curriculum, students may not be motivated and interested in all these subjects, thus affecting their academic performance.

This study also considered the importance of Multiple Intelligences (MI) in curriculum development. The theory of MI was first advanced by Dr. Howard Gardner, Professor of Cognition and Education at the Harvard Graduate School of Education and adjunct professor of psychology at Harvard University, in his 1983 book *Frames of mind*. Challenging the traditional concept of intelligence, the theory of MI suggests that everyone has eight different types of intelligence.

The following questions can be considered in curriculum development: If learners have MI should they study the same set of subjects? What should be done to further enhance the dominant intelligences of learners and to develop their minor ones? How would the curriculum address these needs?

In the Philippines, the end goal of basic education is to produce functionally literate learners. According to Kangan Institute, strong literacy and numeracy skills lay the foundation for all students to succeed at school, at work, and in their daily life. Literacy is defined as the understanding, evaluating, using, and engaging with written texts to participate in society, to achieve personal goals and ambitions, and to develop knowledge and potential.

Numeracy is defined as the ability to access, use, and interpret and communicate mathematical information and ideas, to engage in and manage the mathematical demands of various situations in adult years. We need numeracy to solve problems and make sense of numbers, time, patterns, and shapes for activities like cooking, reading receipts, reading instructions, and even playing sport.

Literacy and numeracy help people gain the fundamental skills necessary to achieve success in life. These skills are crucial for accessing the broader curriculum because they are used in many aspects of our lives. Learners' literacy and numeracy skills should be the focus of the basic education curriculum.

However, we should also take into consideration and attention to the fact that all learnings, knowledge, and wisdom of learners that they gained in school, at home, and in the community are all worthless if the core values are not developed within the learner. These core values are part of character education.

Character Education is a teaching method that fosters the development of moral ethics and values in an individual by teaching about the good values and principles that an individual ought to have. As Benjamin Franklin said, "...nothing is of more importance for the public weal than to form and train up youth in wisdom and virtue."

Thus, to develop the necessary literacy and numeracy skills and the DepEd core values among our Filipino students, decongesting the curriculum should always be an option. The next question is how do we decongest the curriculum?

According to DepEd assistant secretary for legal and legislative affairs, Tonisito Umali, by decongesting the curriculum, we are helping our learners, our students to absorb the subjects being taught to them in all year levels. What could DepEd Philippines try to decongest the curriculum to focus on

the development of literacy and numeracy skills? Would decreasing the number of subjects be effective in helping learners to acquire literacy and numeracy skills in Key Stage 1?

This study was grounded on Howard Gardner's MI Theory as important points to consider in decongesting the curriculum for basic education. It also gave importance and consideration to Aristotle's categorization of knowledge into three disciplines: the theoretical, the productive, and the practical (Aristotle, 1976). Concretely, the DepEd curriculum, including the number of competencies and subjects taught is the theoretical part, the teaching-learning processes, pedagogies, learning materials, and environment comprise the practical part and the kind of learners produced is the productive part.

The theoretical part of Aristotle's categorization of knowledge was put to light in this study specifically the number of subjects taught from Kinder to Grade 3. It tried to answer questions on the theory and practice in the implementation of DepEd's K to 12 Curriculum focusing on Key Stage 1.

It investigated how the current curriculum answer the needs of Filipino learners to produce globally competitive learners, equipped with the necessary knowledge for lifelong learning, literacy, and numeracy skills for application to daily life situations, possessing correct attitudes, and exhibiting DepEd Core Values

### III. RESEARCH QUESTIONS

The major concern of this study was to analyze how the current curriculum develops learners' knowledge, skills, attitudes, and values and the views on decongesting the curriculum by reducing the number of subjects and the recommendations on decongesting the curriculum in the Schools Division of City of Meycauayan.

Specifically, it sought the answer to the following questions:

1. Based on teachers' assessment & teaching experiences, how does the current curriculum help develop learners' academic performance across learning areas in terms of:
  - a. Learners' strengths and weaknesses?
  - b. Learners' motivation and interest?
2. Based on teachers' assessment and teaching experiences, how do they rate the current curriculum in answering the different needs of our learners to develop:
  - a. Learners' Multiple Intelligences?
  - b. Learners' Literacy and Numeracy Skills?
  - c. Learners' Right Conduct including DepEd's Core Values (Maka-Diyos/Godly, Makatao/Humane, Makakalikasan/Environmental, Makabansa/Nationalistic)?
3. Based on teachers' assessment and teaching experiences, how do they rate the need to decongest the curriculum in the following areas:
  - a. Number of Learning areas
  - b. Number of Special Curricular Programs
  - c. Number of extra-curricular activities
4. Based on teachers' assessment and teaching experiences, what recommendations in the curriculum can they propose to decongest it?

IV. METHOD

A random sampling of teachers in all subject areas from K to 12 from all 25 Elementary and 10 Secondary Schools in the Schools Division of the City of Meycauayan was conducted with a sample population size computed at 95% confidence level with 2.83% margin of error. The breakdown of the sample population was presented in Table 1.

**Table 1.** Breakdown of the Sample Population

Schools	Total Schools	Total Teachers	Total Respondents
Elementary	25	744	389
Junior HS	8	300	157
Senior HS	4	55	28
<b>Total</b>	<b>37</b>	<b>1099</b>	<b>574</b>

This study used Mixed Method in analyzing the data collected with the use of a self-made questionnaire, which was validated by a language expert from other Schools Division. It was also pilot tested to a small group of teachers to establish reliability and validity.

The self-made questionnaire has four parts.

Part I was an 8-item survey on how the current curriculum helps in improving learners' academic performance across learning areas in terms of learners' strengths and weaknesses, and learners' motivation and interests.

Part II was a 12-item survey on the rating of teachers on how the current curriculum responds to the different needs of our learners to develop learners' MI, literacy and numeracy skills, and Right Conduct.

Part III was a 4-item survey on the rating of teachers on the need to decongest the curriculum in the following areas: number of learning areas, number of Special Curricular Programs, and number of extra-curricular activities.

Part IV was composed of a 5-item Interview Questions on the recommendations of teachers to decongest the curriculum to get the qualitative data to support the quantitative data.

The quantitative and qualitative data were gathered through the google form provided to respondents, which were downloaded in MS Excel for the computation and analysis of quantitative data using Percentage and imported to NVivo application for the interpretation of qualitative data.

V. DISCUSSION OF RESULTS

Part I – How the current curriculum helps in improving learners' academic performance, was rated **High** except for Item 6 where equal number of respondents gave a rating of **Moderate** (42%) and **High** (42%). One-third of the respondents gave a rating of **Moderate** (34.43%). Overall, half of the respondents (50.07%) believed that the current curriculum **highly** helped in improving learners' academic performance.

How the current curriculum responds to the different needs of learners, Part II of the questionnaire, revealed a **High** (45.22%) rating except for Items 4 and 11, wherein the rating given by teachers was **Moderate**. About half of the teachers (45.5%) rated item 4 as **Moderate**. About a third of the teachers (31.9%) rated item 11 as **Moderate**. Overall, almost half (45.22%) believed that the current curriculum **highly** responds to

the different needs of learners and one-third (33.54%) shared the same.

The rating on the need to decongest the current DepEd curriculum in the following areas: number of learning areas, number of Special Curricular Programs and number of extra-curricular activities revealed a rating of **Applicable** in Part III except for Item 4, which received a **Moderate** rating. More than a third (36.4%) assessed that reducing the number of advocacy programs was **Moderately Applicable** today. Generally, one-fifth (20.99%) gave a rating of **Very Applicable**. About a third (32.53%) gave a rating of **Moderate** and almost two-fifth (38.41%) believed that it was **Applicable**.

The answers of teachers to Part IV of the questionnaire revealed that almost 100% believed that the subjects to be retained in Key Stage 1 were English (93.73%), Filipino (97.04%), Mathematics (97.39%), and Character Education (93.73%).

Presented in Table 2 was the summary of suggested Special Curricular Programs (SCP) for learners with Multiple Intelligences.

**Table 2.** Suggested Special Curricular Programs

No.	Multiple Intelligences	Suggested SCP
1.	Linguistic Intelligence	SCP for Literary Arts & Journalism
2.	Logical-Mathematical	SCP in Mathematics
3.	Naturalist Intelligence	Urban Gardening Program
4.	Intra-personal & Interpersonal	Communication Skills Prog.
5.	Musical Intelligence	SCP in Music
6.	Visual-spatial Intelligence	SCP for the Arts
7.	Bodily-kinesthetic Intelligence	SCP in Sports

For the extra-curricular activities, almost 90% of the teacher-respondents suggested the **retention** of 6 extra-curricular activities, which were under English, Filipino, Mathematics and Science. About three-fourths suggested the retention of 11 activities. More than half of these activities to be retained by about 75% of teacher-respondents have no connection at all to any subject area. Meycauayan Cityhood Anniversary Related Activities, one of the suggested activities to be retained by about 61.50% has no connection at all to any subjects. Almost 100% suggested the **removal** of 5 activities. About three-fourths suggested the removal of Population Education. More than half (58.54%) suggested for the removal of ASEAN Competition. More than half (55.57%) suggested the removal of School In a Garden and 55.40% suggested the removal of UN Celebration/Contests. 98.95% believed that literacy and numeracy skills should be given priority in the foundation years in curriculum implementation. The recommendations in decongesting the curriculum were focused on reading, numeracy, and values.

Comparing the results of quantitative data and qualitative data revealed matching results. In the quantitative part, almost half (41.5%) answered that it was **Applicable** to decongest the current curriculum by reducing the number of subjects, 28.6% answered that it was **Moderately Applicable**, and 23.3% answered that it was **Very Applicable**. In the qualitative part, almost 100% of the respondents agreed that there was a need to decongest the curriculum by reducing the number of subjects to English (93.73%), Filipino (97.04%), Mathematics (97.39%), and Character Education (93.73%).

**VI. REFLECTION**

- 1.) The curriculum was able to develop learners’ academic performance across learning areas.
- 2.) The curriculum has answered the different needs of learners in terms of developing and enhancing their Multiple Intelligences.
- 3.) It was **Moderately Applicable** to **Very Applicable** to decongest the curriculum by reducing the number of subjects, which matched the quantitative data that English, Filipino, Mathematics, and Character Education were the subjects **Highly** suggested to be retained.
- 4.) It was **Moderately Applicable** to **Very Applicable** to decongest the curriculum by reducing the number of extra-curricular activities.
- 5.) There was a need to reduce the number of advocacy programs from other agencies like Department of Environment and Natural Resources, Department of Interior and Local Government, Department of Health, and Department of Agriculture.

**VII. RECOMMENDATIONS**

- 1.) It is recommended that the number of subjects in Key Stage 1 is reduced from 11 subjects to 4 R’s – **R**eading in English, **R**eading in Filipino, **A**rithmetic, and **R**ight Conduct.
- 2.) To develop learners’ MI, it is recommended that instead of having too many subjects from Grades 4 – 10, offer SCP to learners.

For example, not all learners should take the subject MAPEH (Music, Arts, Physical Education, and Health) because not all learners are interested in this subject. Offer SCP to learners that would match their type of MI.

- 3.) The number of extra-curricular activities should be reduced especially those which do not have any connection for the development of literacy and numeracy skills. Classes were often disrupted by these activities.
- 4.) The number of advocacy programs from other agencies should be reduced.

The advocacy programs served as additional tasks for teachers, who were already burdened with paper works. Even though teachers would like to concentrate on their teaching tasks, they could not do so because of these additional tasks.

It is highly suggested that the government agencies **provide people**, who will do these additional tasks instead of giving these tasks to heavily burdened teachers.

Below were some of the advocacy programs of different agencies of the government:

- a. 4 P’s (Pantawid Pamilyang Pilipino Program) - a human development measure of the national government that provides conditional cash grants to the poorest of the poor (DepEd Official Gazette).
- b. National Greening Program - is a reforestation program (Department of Agriculture Website).
- c. National Vision Screening Program – a program intended to determine vision problems among school children. Teachers were tapped to do a vision test to all their learners and identify if they have eye problems (Philippine Star, 2019).
- d. School-Based Immunization Program – a strategy of DOH to achieve Sustainable Development Goal to protect school children from any disease or illness (DepEd Website).

- e. School-Based Feeding Program – has a goal of addressing hunger and encouraging learners to enroll (DepEd Order No. 23, s. 2020).

**APPENDIX**

**Questionnaire**

**Part I:**

As a teacher, please rate how the current curriculum help develop learners’ academic performance across learning areas in terms of learners’ strengths and weaknesses and learners’ motivation and interest based on your assessment and teaching experiences. Check the appropriate column of your answer based on the scale below.

**1**-Not at all **2**-Very Low to Low **3**-Moderate **4**-High **5**-Very High

#	ITEMS	1	2	3	4	5
1	The current curriculum focuses on the development of learners’ strengths by providing a special program for learners who are good in reading and writing.					
2	The current curriculum focuses on the development of learners’ strengths by providing a special program for learners who possessed good numeracy skills.					
3	All the subjects included in the current curriculum are focused on developing and strengthening learners’ literacy and numeracy skills.					
4	All the subjects in the current curriculum are necessary in developing and strengthening learners’ literacy and numeracy skills.					
5	The weaknesses of learners are considered in the current curriculum through the availability of appropriate special programs to address these issues.					
6	Subjects in the current curriculum like Music and Arts are motivating and interesting to all learners.					
7	Learners can be motivated and interested on the applicability of all subjects in the current curriculum in developing their 21 <sup>st</sup> century skills.					
8	Learners can be motivated and interested on the importance of all subjects in the current curriculum in developing essential life skills.					

**Part II:**

Based on your assessment and teaching experiences, please rate how the current curriculum responds to the different needs of our learners to develop learners’ Multiple Intelligences, learners’ literacy and numeracy skills, and learners’ Right Conduct including DepEd’s Core Values (Maka-Diyos, Makatao, Makakalikasan, Makabansa). Check the appropriate column of your answer based on the scale below.

**1**-Not at all **2**-Very Low to Low **3**-Moderate **4**-High **5**-Very High

No.	ITEMS	1	2	3	4	5
1	The current curriculum responds to the needs of learners with Verbal-linguistic intelligences “word smart”.					
2	The current curriculum responds to the needs of learners with Logical-mathematical intelligences “math smart”.					
3	The current curriculum responds to the needs of learners with Visual-spatial intelligences “picture smart”.					
4	The current curriculum responds to the needs of learners with Musical intelligence “music smart”.					
5	The current curriculum responds to the needs of learners with Naturalistic intelligence “nature smart” or being street smart.					
6	The current curriculum responds to the needs of learners with bodily-kinesthetic intelligence “body smart”.					
7	The current curriculum responds to the needs of learners with Interpersonal and intrapersonal intelligences “people and self-smart”.					
8	Learners need all the subjects in the current curriculum to develop their dominant intelligences and to learn lifelong skills.					
9	Learners need all the subjects in the current curriculum to develop their literacy and numeracy skills.					
10	It would be more effective to drop the other subjects in the current curriculum to focus on the development of learners’ literacy and numeracy skills and DepEd Core Values especially in Key Stage 1 (Kinder to Grade 3).					
11	DepEd Core Values (Maka-Diyos, Makatao, Makakalikasan, Makabansa) are mirrored and strengthened only in Edukasyon sa Pagpapakatao.					
12	It would be more effective to just integrate the subject Edukasyon sa Pagpapakatao in other subjects to develop DepEd Core Values (Maka-Diyos, Makatao, Makakalikasan, Makabansa).					

**Part III:**

Based on your assessment and teaching experiences, please rate the need to decongest the current DepEd curriculum in the following areas: number of learning areas, number of Special Curricular Programs and number of extra-curricular activities. Check the appropriate column of your answer based on the scale below.

- 1 - Not applicable    2- Quite applicable    3- Average  
4 - Applicable    5- Very applicable

#	ITEMS	1	2	3	4	5
1	There is a need to decongest the current curriculum by reducing the number of learning areas especially in Key Stage 1 (Kinder to Grade 3).					
2	There is a need to decongest the current curriculum by reducing the number of special curricular programs.					
3	There is a need to decongest the current curriculum by reducing the number of extra-curricular activities like Athletic Meet, Festival of Talents, Schools Press Conference, Scouting and other contests/activities.					
4	There is a need to reduce number of advocacy programs from other agencies like DENR (Department of Environment and Natural Resources), DILG (Department of Interior and Local Government), DOH (Department of Health, DOA (Department of Agriculture).					

**Part IV: Interview Questions**

Please answer the following questions based on your assessment and teaching experiences. There are no right or wrong answers.

- Do you think there is a need to decongest the curriculum by reducing the number of learning areas especially in Key Stage 1 (Kinder to Grade 3)? If yes, what subjects do you suggest retaining and what subjects do you suggest removing?

Subjects	Subjects to be retained	Subjects to be removed
1. English		
2. Filipino		
3. Mathematics		
4. Science		
5. Social Studies		
6. Character Educ.		
7. Technology and Livelihood Educ.		
8. Music		
9. Arts		
10. Physical Educ.		
11. Health		

- If the number of learning areas will be reduced, what Special Curricular Programs would you suggest being offered to learners who possess Multiple Intelligences in the following areas:

No.	Multiple Intelligences	Suggested Special Curricular Prog.
a.	Linguistic intelligence?	
b.	Logical-mathematical?	
c.	Naturalist intelligence?	
d.	Intra-personal and interpersonal?	
e.	Musical intelligence?	
f.	Visual-spatial?	
g.	Bodily-kinesthetic?	

3. Do you think there is a need to decongest the curriculum by reducing the number of extra-curricular activities? If yes, which extra-curricular activities do you suggest for sustaining and which do you suggest for removing? Decide which from the following activities/contests will be retained or removed. Check the appropriate column for your answer.

ACTIVITIES/CONTESTS	Retained	Removed
1. Schools Press Conference (English)		
2. Schools Press Conference (Filipino)		
3. Tagisan ng Talino		
4. ASEAN Competition		
5. Population Education		
6. Kinder Contests		
7. MTAP Math Challenge		
8. Math Competition		
9. Math Olympiad		
10. Science Fair		
11. Robotics		
12. Science Olympiad		
13. Athletic Meet		
14. English Festival of Talents		
15. Filipino Festival of Talents		
16. EPP/TLE Festival of Talents		
17. Music Festival of Talents		
18. Art Competition		
19. Character Education Festival of Talents		
20. ALS (Alternative Learning System) Festival of Talents		
21. Urban Gardening		
22. Gulayan sa Paaralan		
23. School In a Garden		
24. School-Based Management		
25. Continuous Improvement		
26. Scouting Activities		
27. SSG (Supreme Student Government)/ SPG (Supreme Pupil Government)		
28. Nutrition Month Celebration/Contests		
29. National Language Month Celebration/Contests		
30. United Nations Celebration/Contests		
31. Reading Month Celebration/Contests		

32. Foundation Day Celebration		
33. Teachers' Day Related Activities		
34. Meycauayan Cityhood Anniversary Related Activities		
35. Christmas Related Activities		
36. Ati-atihan Celebration		
37. National Arts Month Celebration/Contests		
38. Career Festival		

4. The literacy and numeracy skills are key sources of understanding all other content areas, do you think these shall be given priority in the foundation years in the curriculum implementation especially in Key stage 1 (Kinder to Grade 3)?
5. What recommendations can you suggest in decongesting the curriculum based on your assessment and teaching experiences?

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