



Published by  
Tadris Matematika  
IAIN Syekh Nurjati Cirebon

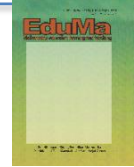
EduMa: Mathematics Education Learning And Teaching  
December 2021, Vol 10 No 2 Page 134 – 142  
<https://syekhnurjati.ac.id/jurnal/index.php/eduma/index>  
p-ISSN: 2086-3918, e-ISSN: 2502-5209



# EduMa

MATHEMATICS EDUCATION LEARNING AND TEACHING

article link: <https://syekhnurjati.ac.id/jurnal/index.php/eduma/eduma/article/view/8783>



## Curriculum Reform in East Timor: Curriculum Mathematics Primary School

Jaka Wijaya Kusuma<sup>\*1</sup>, Iwan Junaedi<sup>2</sup>, Mulyono<sup>3</sup>, Hamidah<sup>4</sup>

<sup>1,4</sup>Universitas Bina Bangsa, Mathematics Education, Serang, Banten, Indonesia

<sup>2,3</sup>Universitas Negeri Semarang, Mathematics Education, Semarang, Jawa Tengah, Indonesia

\*Corresponding author: Serang, Banten, 42111, Indonesia. Email Address: [jakawijayak@gmail.com](mailto:jakawijayak@gmail.com)

### article info

How to cite this article:

Kusuma, J.W., Junaedi, I., Mulyono, & Hamidah. (2021). Curriculum Reform in East Timor: Curriculum Mathematics Primary School. *EduMa : Mathematics Education Learning And Teaching*, 10(2), 134 - 142.  
doi:<http://dx.doi.org/10.24235/eduma.v10i2.8783>

Article history:

Received: 07 21, 2021

Accepted: 11 25, 2021

Published: 12, 2021

Copyright © 2021

EduMa: Mathematics Education Learning and Teaching under the [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

### abstract

This study aimed to analyze the newly developed math curriculum taking into account the views of teachers and students. Curriculum analysis is realized in three dimensions; (1) Classroom management – the physical and emotional environment of the classroom, the role of teachers and students, and interactions, (2) Instructions – objectives, planning, implementation, methods and techniques, instructional media, and measurement and evaluation, and (3) Strengths (and benefits) and weaknesses (and limitations). Qualitative case study methods are utilized with literature reviews. The responses collected from the sources are the content that is analyzed. These findings suggest that some changes have been made and reflected in the implementation of the classroom, and the student-centered approach has been incorporated into the instruction. Hopefully, it will be the subject of local government discussion in determining the following education policy. On the other hand, some difficulties arise during implementation due to lack of infrastructure.

### Keywords:

Curriculum, East Timor, Mathematics, Primary school



Open Access

## INTRODUCTION

East Timor in 2005 had a population of 1,040,880 million. According to estimates, it will be about 1.5 million in 20 years<sup>21</sup>. According to statistics the Ministry of National Education registered 244,000 school children spread across 899 schools throughout East Timor with 7000 teachers where 4000 teachers are public workers and the rest are contract teachers and private school teachers including Catholic schools.

Ahead of the referendum in August 1999, more than 80% of school buildings and school facilities were destroyed or vandalized. Almost all teachers and administrative staff who were not East Timorese but experienced citizens left the region. (Curt Gabrielson; 2002). To re-fix this condition, in early 2000 during the UN transition the country began a campaign to reconstruct the school building, and re-improve the world of education. With financial and technical assistance from many international parties in the space of two years managed to rebuild 604 elementary school buildings, 62 junior high school buildings and 23 public high schools throughout the country. Entering 2001 the country has about 240,000 students who attend primary and secondary education, with 700 elementary schools, 70 junior high schools and 32 high schools and 1 State University with about 5000 students. (UNICEF program report : 2001).

The teaching and learning process itself began to run again in October 2000 using the Indonesian curriculum and the proposed Portuguese instructional language but since most teachers could not speak Portuguese well then Indonesian and Tetun (the original national language) were allowed to be used in the teaching and learning process in classes from grade 2 to high school grade 3 except the field of study of Portuguese and religion.

In the same year, Timor Leste's ministry of education began recruiting teachers for all levels of education but most did not have teaching qualifications. (Back Door Newsletter on East Timor, s/d in Pedro Soares; 2007).

Entering the independence period of 2002, the educational situation went as usual during the UN transition period for all schools. 244,000 school children spread across 899 schools throughout East Timor with 7000 teachers where 4000 teachers are public workers and the rest contract teachers and private school teachers including Catholic schools. Entering 2008 the number of elementary schools amounted to 801, SMP 99, 49 high schools, 1 Public University and 3 Private Universities, and 6 private institutions. (MEJCD; 2008).

If we look at the ratio of the number of schools in East Timor at the end of 1999 and 2008 it appears that the quantity of school buildings for elementary and junior high schools increased for several reasons, among others, in the Law of East Timor applies free education for all students from elementary to high school. In 2007 the government enacted a 9-year compulsory learning system the Government added many primary and junior high school buildings throughout the countryside to provide maximum opportunities for the community to engage in education. At the same time, high school decreases because sometimes the distribution of students is uneven where not all students who graduate junior high school continue all to the level of high school education.

In East Timor, explorative teaching and memorization are still dominant in math classrooms. The previous math curriculum was based on behavioral theory. The newly developed primary school math curriculum can be labeled a reform-based effort to achieve contemporary education change. (Umay et.al, 2006)

This study aims to analyze the primary school math curriculum, based on Literacy and reliable sources. Curriculum analysis is realized by considering the problems of (1) Classroom management – the physical and emotional environment of the classroom, the role of teachers and students, and interactions, (2) Objectives, planning, implementation, methods and techniques, instructional media, and measurement and evaluation, and (3) Strengths (and benefits) and weaknesses (and limitations). Furthermore, based on the views of experts, whether changes to the primary school math curriculum is necessary (necessary) or not is also tried to be revealed in the country of East Timor

## **METHODS**

This is a qualitative that facilitates to get in-depth information not only from literacy but also from experts experiencing the new primary school math curriculum. For this study, qualitative methodology was chosen because, as Patton (1987) stated, qualitative methods provide insight, understanding, and in-depth information about the investigated problem. This study uses triangulation in digging and performing qualitative data processing techniques, comparing information or data in different ways using interview, interview, and survey methods through reliable sources.

Literature was first sought for information on the newly developed primary school math curriculum in East Timor. In addition to the general aspects of the newly developed mathematics curriculum, an understanding of course topics related to real life and learning by doing and living is also mentioned by the experts

## **RESULT AND DISCUSSION**

Two of the East Timor government's ten goals in long-term development for 2020 are "firstly that East Timor will become a democratic country and have an energetic traditional culture and a sustainable environment. Both people will be able to write and read, be educated and have skills, get good health to live longer and productively, they will be actively involved in the fields of economy, social and political development, expanding social equality and national unity".

To realize this vision education took a prominent part but education in East Timor is now faced with a big problem. Most educators (teachers) still teach by conventional methods, where throughout the lesson hours the teacher actively records the writing and the student simply copies from what the teacher wrote. They also still see education as a transfer from the teacher to his students, this process is carried out by almost all teachers in East Timor from elementary school teachers to universities including math teachers or in East Timor (Curt Gabrielson; 2002)

In addition, most math teachers are also not qualified because they have no teaching experience but were forced to become teachers when the country was released from the Republic of Indonesia. Similarly, the teachers of East Timorese mathematics themselves

stated in Pedro Soares' research report; 2007 where the teachers of Mathematics stated that " a falta de qualidade da formação dos professores de ciências ; porque muitos professores que ensinam as ciências na Natureza na escola não tem formação inicial em ciências. which means " The lack of quality of education from the Math Teachers, because most of the teachers who now teach Mathematics do not have a background in Mathematics.

Based on this reality, most teachers also do not know how to prepare teaching materials, or whether there can be but from the observations made by the author of teachers who teach Mathematics in the classroom, it appears that there is never a school that carries an Learning Plan but in general math and Sains teachers only bring math textbooks published by Pabelan Malang that may be in Indonesia, almost no school uses this textbook. Universities themselves in general still do the same thing where lecturers take notes and students copy them because of the lack of available facilities. A similar experience was also experienced by an American volunteer Curt Gabrielson who in his article said that "Truth be told, most classes at UNTL use no textbooks, because books are not readily available in East Timor, are expensive when one can find them and no public money has been budget for them." (Curt Gabrielson; 2002). Most classes in UNTL do not use textbooks, because it cannot be obtained in East Timor, even if there is it is costly if one wants to have it, and the government does not allocate funds for this.

In 2002 the UN education agency UNESCO designed a framework for developing mathematics and technology in East Timor, stating that the newly independent country needed development in various sectors. Therefore, the special representative of the UN Secretary-General for East Timor, Mr. Kamallesh Sharma, asked unesco's director-jeral to assist in studying mathematics and technology in East Timor immediately. The country is severely understaffed in Information Communication Technology (ICT) even though they desperately need it in the development process and use it optimally for its resources. (UNESCO ; 2001). in the original draft as follows;" East Timor needs the simple application of science and technology to meet the basic needs of community well being, food production, health and environmentally sustainable development. Furthermore the country needs decision makers who can see development "through the eyes of science" and the power that rational scientific thought can bring to the solution of development problems."

The program aims to recognize and respond innovatively by starting from the simplest and most essential things to develop nationally mathematical and technological skills. Promoting an environment that thinks scientifically or scientifically thinking and problem solving, with the support of the government in particular in order to see the problems that arise " through the eyes of science" in terms of promoting community welfare, economic development, effective use of natural resources, health, and sustainable ecological development. A similar idea was put forward by the Minister of Education of the 4th cabinet from 2007 to 2012 "Joao Cancio Freitas" who in the education development plan in East Timor has focused on mathematics and technology as an educational priority in East Timor.

However, the problem faced by Mathematics teachers in East Timor is that they do not know how to deliver material and re-adapt the topics in the textbooks according to the real life around them and students. In teaching, almost all math teachers who delivered material in front of the class never explained the relevance of the topic they conveyed to the real-life experienced by students in daily life. However, it immediately focused on the theory listed in the textbook and followed by the question's resolution. Although teachers are also aware that Mathematics is learning everything related to human real life and things in everyday life. This was stated by Pedro soares in a study conducted on high school math teachers in East Timor about the importance of students studying Mathematics, of the 21 teachers there were 16 or 76.19%, they argued that: "Os alunos estudam as ciências da Natureza para conhecer (e tirar partindo da) natureza, para a utilizarem na sua vida diària, na família e na sociedade em que se vivem". (Pedro Soares ; 2007:59) This means students learn Mathematics to use and apply in their daily lives, in the family, and in the society they live. The teacher's incomprehension was also evident in their expressions on mathematical topics such as Electro-Magnetic Waves, atomic structures, radiation and cathode teaching in schools because these topics were irrelevant to east Timorese life.

Mathematics learns about what is happening around us and is applied in technology as proposed by UNESCO in the fifth paragraph above. Therefore the proposal will eliminate the above topics become irrelevant because in everyday life we are familiar with television, radio, telefone and hand phone (HP), where all this is applied from the topic of GEM. GEM is Electromagnetic wave which has both electric and magnetic properties. Because the GEM propagates in a straight line and does not require a medium to propagate, it is often called radiation for example HP people can receive messages from others around the world because the sound of this phone is below in the form of GEM energy then HP turns the gem sinal into a sound issued by spikers in hp so that the recipient can Listen. HP can also issue GEM (especially radio waves) to be captured by anttena to be disseminated again so that the phoner can receive it again.

In addition to the problems that have been raised above East Timor is also faced with the problem of curriculum, where until now the country is still using the revised transition curriculum from the 1994 curriculum inherited from the Indonesian era. Which is where this curriculum was abandoned a decade ago by the State of Indonesia, because according to education experts and curriculum in Indonesia states that in the 1994 curriculum the burden of learning students is considered too heavy, the level of abstraction is too high and complicated for the average student, as well as the archetype, structure, sequence of mathematics lessons that may not be conducive to making students quickly learn mathematics. So that various proposed improvements were thrown out either in the form of simplification of materials that need to be taught by students or changes in the structure of the lessons to get closer to the real life of students and people of East Timor.

One of the customs of Timorese is to lift objects or merchandise such as; vegetables, fruit, fish and so on with a stick which is an application of the Lever. If a trader first lifts the goods dagagang in a balanced state (at the front and back). After someone else buys something at the front, he does not need to lower his stick and then divide the goods in the same amount to be balanced again, but the trader sings the length of the stick on his

shoulder, then the stick will be balanced again. In mathematics lessons in schools when studying business and energy should contain this example, because most of the community is familiar with this habit

In general, both in Indonesia and other countries a curriculum contains three significant aspects, namely written documents prepared by the ministry of education that concerns the rules and guidelines of implementation is covered in the intended curriculum, then the application in the field that is crammed by teachers in the classroom or implemented curriculum and learning outcomes that are expected to occur in students or attained curriculum. This curriculum change plan should first look at the weaknesses and advantages of the curriculum that is currently in force. So that later do not leave at all the curriculum system used now but rather to improve existing weaknesses in a better direction. Because of what kind of changes the curriculum will do, it remains a guide in implementing an education system.

Despite the various problems in the education sector in East Timor previously presented by the country has a great opportunity, to be able to provide a good enough education base if you want to see these opportunities and make breakthroughs. East Timor as a new independent country does not need to adopt the old educational methods or models that many countries have abandoned. However, it can adopt a Mathematical education system that can answer the demands of today where most countries in the world design a curriculum based on the four pillars of education initiated by UNESCO in 1994, namely learning to know , learning to do, learning to live together, learning to be.

Government plans in curriculum development and curriculum revising now need to pay attention to many learnings leading active students. Content-based curriculum needs to be changed to competency based curriculum. The knowledge gained by students is continuous in their present and future lives. The sustainability of the learning process depends heavily on the level of mastery of the structure of the material to be taught. In order for a student to know whether an idea can be applied or not to a new situation, he must have a clear picture of the nature of the phenomenon he or she is facing. The most important reason for learning ideas is that they must be widely applied to new problems.

Mathematics teacher as a milestone and driving motor in implementing new ideide must also be considered his ability. Because a curriculum will have no meaning and does not run if in practice does not answer the community's needs. In evaluating the results of learningpun traditional way which tends to be emphasized on how many facts can be recalled by students is no longer compatible with the demands of the world today. Evaluation should begin to consider the process students begin to be given the responsibility to assess the extent to which they actually learn, how they can apply their knowledge, and which parts need improvement.

The problem underpinned by this research is the lack of information about the extent of the implementation of the transition curriculum by Mathematics teachers, especially math teachers in public schools in East Timor. With the hope that the results of this study will be a reference and consideration material for policy determination in the new curriculum design plan, especially the determination and development of the content of the curriculum of mathematics materials in the future.

Compared to other school levels, just like elementary schools, secondary schools in Timor Leste have the same problem. This happens to educators because the teachers who teach these subjects are not all teachers who have academic expertise in science and mathematics.

## **CONCLUSION AND IMPLICATION**

### **Conclusion**

The 2001 transitional math curriculum is not yet standardized because the intended curriculum aspect does not contain documents containing learning implementation guides (SP and RP), containing only two things, namely content standards and learning outcome assessment guides. In general, every math teacher in the school decides for himself the math material to teach the students because they do not get a syllabus or guidance from the school. The teacher who got it did not use it because of the confusing structure of the material. During teaching all teachers never create Lesson Units, Learning Plans, and practice in schools because there is no instruction to make it. The lack of qualifications of teachers who teach Mathematics and supporting means causes classroom learning to tend to be conventional and not varied, in general textbooks as the only learning resource in the classroom. Learning evaluation is still limited to paper and pencil assessment, in assessing the three aspects of evaluation combined into one. The significant obstacles teachers face in mathematics learning are the absence of guidance on the implementation of learning in the classroom, the unavailable manual or reference of local context, the lack of school facilities such as libraries and laboratories, the lack of math lesson hours, no school hours regulations . Recommendations in the new curriculum changes, especially mathematics need to contain components of the curriculum and syllabus that are detailed and clear, ranging from philosophical education to indicators of learning achievement for students. Socialist throughout the school and intensive teacher training both the use of new curriculum, pedagogic science and subject content based on the class level.

### **Implication**

By knowing the actual situation of the implementation of mathematics curriculum, especially SCIENCE in the transition period until now by teachers in East Timor, it can provide input for the ministry of education and education practitioners to use as a guideline in the reform and development of standard curriculum in the future, . especially the preparation of a good SCIENCE curriculum structure.

Implementing the transitional curriculum in SCIENCE learning in East Timor became ambiguous because of the curriculum guidelines that are not clear for teachers as implementers of the curriculum in the field. The material structure is irregular, confusing the teacher so that some teachers who obtain it do not use this guide. The ministry needs to set a standard curriculum, so that there is uniformity of materials, as a direction or guide for implementing teaching and learning activities in the classroom.

The development of a new curriculum should be based on the four pillars of education initiated by UNESCO in 1994, namely learning to know, learning to do, learning to live together, learning to be. This is in accordance with PNE (Politica Nacional da Educação), the national education politics for 2007-2012. Where in education planning the East Timorese government focuses on innovative learning and active students. The curriculum system that can be adopted is a competency-based curriculum implemented in Indonesia since 2002. Because the characteristics of this curriculum prioritize the ability of individuals who learn, how to ensure that all students involved in teaching and learning activities have the opportunity to develop their potential individually. The evaluation system is based on class ability and class assessment. (Kusuma & Hamidah, 2020)

Recommendations in new curriculum changes, especially SCIENCE, need to contain detailed and precise components of the curriculum and syllabus, ranging from philosophical education to indicators of learning achievement for students. Intensive teacher training using new curriculum, pedagogic science and subject content based on class level. Because the curriculum will be meaningless if the teacher as the leading implementer of the curriculum does not obtain the curriculum and does not know how to use it

## REFERENCES

- Arends, R. (2008). *Learning to Teach, Belajar untuk Mengajar Buku Satu dan Buku Dua*. Yogyakarta: Pustaka Pelajar
- Curtis, G. (2001). *Education in Timor Leste*. ICWA News Letters. California.
- Depdiknas Indonesia (2007). *Kajian Kebijakan Kurikulum Mata Pelajaran Matematika, Departemen Pendidikan Nasional Badan Penelitian dan Pengembangan Pusat kurikulum*, Jakarta.
- Hartini, I.R. (2006). *Pengembangan Model Pembelajaran Fleksibel Dalam belajar Tuntas Maju Berkelanjutan*. Tesis S-2, Universitas Sebelas Maret Solo.
- <http://www.gamalielschool.org> diakses pada tanggal 15 Januari 2009
- Indiarto. (2008). *Menyimak Perkembangan kurikulum Indonesia*.
- Isjoni. (2008). *Bersinergi Dalam Perubagahan*. Yogyakarta: Pustaka Pelajar.
- Isjoni. (2008). *Memajukan Bangsa dengan Pendidikan*. Yogyakarta: Pustaka Pelajar
- Koc, Y., Isiksal, M., & Bulut, S. (2007). Elementary school curriculum reform in Turkey. *International Education Journal*, 8(1), 30-39.
- Kusuma, J. W., & Hamidah, H. (2020). Perbandingan Hasil Belajar Matematika Dengan Penggunaan Platform Whatsapp Group dan Webinar Zoom dalam Pembelajaran Jarak Jauh pada Masa Pandemi Covid 19. *JIPMat*, 5(1). <https://doi.org/10.26877/jipmat.v5i1.5942>
- Leahy, L. (2006). *Jika Sains Mencari Makna*, Yogyakarta: Kanisius.
- Morin, E (2005). *Tujuh Materi Penting bagi Dunia Pendidikan*, Yogyakarta: Kanisius
- Mulyasa E. (2002). *Kurikulum Berbasis Kompetensi*, Bandung: PT Remaja Rosdakarya



- National Science Education Standard (NSES), 1998, "http://www.nap.edu/openbook.php?record\_id4962&page=104, Washington,
- Nicolay, S. (2004). *Learning Independence Education in Emergency and Transition in Timor Leste Since 1999*, International Institute for Education Planning. UNESCO, Paris.
- Nurhadi dkk. (2004). *Pembelajaran kontekstual dan penerapannya dalam KBK*,. Penerbit Universitas Negeri Malang.
- Pattanayak, Vikram. Physics First in Science Education Reform, Biochemistry and Biophysics, Universit of Pennsylvania <http://www.jyi.org/volumes/volum e6/issue7/features/pattanayak.html> diakses tanggal 12 November 2009.
- Raihani. (2007). Education Reforms in Indonesia in the Twenty-first Century. *International Education Journal*, 8(1), 172-183. <http://iej.com.au> .
- Richmond, J. E.D. (2007). Bringing critical thinking to the education of developing country professionals. *International Education Journal*, 8(1), 1-29 <http://iej.com.au>
- Rohani Abdul Hamid. 2004. An Analysis of the Present curriculum in use in Timor Leste Junior Secondary Schools, and an Implementation plan for re-development. World Bank Timor Leste.
- Sagala.S. (2008). *Konsep dan Makna Pembelajaran*, Bandung: Alfabeta
- Selvi, K. (2007). Future aims of science curriculum for primary school. *Cultura International Journal of Philosophy of Culture and Axiology*, 4(2), 176-183.
- Soares, P. (2007). *O ensino da Ciências Naturais Nas Escolas Secundárias Timorenses*. Univercidade do Minho, Portugal.
- Srihartanto, E. (2007). *Implementasi Pembelajaran PAKEM*, Tesis S-2, Universitas Sebelas Maret Solo.
- Sulistiyani. (2005). *Penerapan Model CTL dan STM kaitannya dengan prestasi belajar biologi ditinjau dari kreatifitas siswa*. Tesis S-2 Universitas Sebelas Maret Solo.
- Suparno, P. (2009). *Kajian Kurikulum Fisika SMA/MA Berdasarkan KTSP*. Penerbit Universitas Sanata Darma, Yogyakarta.
- Trianto. (2009). *Mendesain Model Pembelajaran Inovatif Progresif Konsep, landasan dan implementasinya pada kurikulum KTSP*. Jakarta: Kencana Prenada Media Group
- UNESCO. (2001). "Science Draft for Timor Leste" Paris.
- UNICEF Annual Report, 2001, [www/unicef-tl.org](http://www.unicef-tl.org). East Timor.
- Yamin, M. (2008). *Paradigma Pendidikan Konstruktivisme*. Jakarta: Gaun Persada Press