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The Effectiveness of Sixth Grade Math in Focus Curriculum for Indonesian Christian Schools Students

Tia Aulia Putri Sadeva[1], Sylvia Primulawati[2], Robert Harry Soesanto[3], Evander Banjarnahor[4]

[1,]Sekolah Tunas Bangsa, Tangerang, Indonesia
[2]STAK Kupang, Indonesia
[3,4]Universitas Pelita Harapan, Tangerang, Indonesia

[3]robert.soesanto@uph.edu

Abstract

Math In Focus as a curriculum program is based on the Singaporean mathematics framework. However, it has been adjusted for U.S. classrooms by Great Source & Hougton Mifflin Harcourt publisher. This curriculum program was also used by a Christian school in Jakarta, Indonesia that has predominantly Indonesian students whose mother tongue was Indonesian language. Thus, the purpose of this study is to evaluate the effectiveness of Math In Focus curriculum program that was used in a Christian school in Jakarta, Indonesia, particularly in Grade VI. This research used a case study research methodology. The techniques of data collection used were questionnaire, interview, and observation. The results showed that the accuracy of the target was highly effective (81.5%), the aims of the program was also highly effective (82.5%), the socialization of the program was effective (71.5%), and the supervision of the program was also effective enough (70.5%). It can be concluded that Math In Focus curriculum program was effective enough (76.5%) for Indonesian Christian students in sixth grade although English is not their mother tongue. The other findings in this research were the supported and inhibited factors of the effectiveness.

Keywords: Math in Focus, curriculum program, effectiveness, Mathematics

Introduction

Indonesia, students finish their formal education in 12 years starting from grade 1 until grade 12. Education is still considered as a significant pathway to get better future and income. Therefore, schools are not only important, but also are powerful enough to determine people's life (Wilson, 2009). Every school in Indonesia should have a vision and missions to be achieved through its curriculum program and other activities. As the result, a curriculum program certainly plays an important role in schools because a good curriculum program is a tool to achieve the schools' vision and missions (Van Brummelem, 1998).

A good education is not only about acquiring as much knowledge as possible, but also about instilling and shaping good and noble character in students students (Banjarnahor et al., 2018). Furthermore, education is expected to fulfill various essential functions in society, such as developing students' intellectual abilities, meeting social needs, building a competent workforce, preparing students for their future careers, and even supporting the prevailing social or political system (Foshay, 1991). Thus, the curriculum should not only focus on cognitive aspects, but also be able to shape the character and personality of students

In Indonesia, people still believe that Mathematics is a very important subject to learn in school. Therefore, the Mathematics curriculum used by schools should be both high quality and effective for students. Many schools in Indonesia that use English as the language of instruction

tend to prefer Mathematics curricula from Singapore. They believe that the Singaporean Math curriculum is academically rigorous and provides a solid foundation for students to pursue higher education. Math In Focus is a curriculum based on the Singaporean Math curriculum, but it is published and widely used in U.S. schools. This raises a significant question for educators in Indonesia: How effective is the Math In Focus curriculum, which is written for American students, when implemented for Indonesian students whose first language is not English, particularly in English-speaking Christian schools in Jakarta?

Understanding whether the Math In Focus curriculum is effective for Indonesian students can provide valuable insights for English-speaking schools in the country. If it proves to be highly effective, teachers will have more options for Math curricula to use in their classrooms, and they will be better equipped to find effective teaching strategies that enhance students' understanding. However, if it is not effective, teachers do not have to waste their time using the Math In Focus curriculum, and students can avoid the additional expense of purchasing imported materials from the United States. Instead, teachers can seek out other curricula that are more suitable for their students' needs.

Drucker, (1997) said that "Efficiency is doing things right; effectiveness is doing the right things." In addition (Steers, 1991 p. 305) also differentiate between the effectiveness and efficiency. "Effectiveness is the extent to which operative goals can be attained, efficiency is the cost/benefit ratio incurred in the pursuit of those goals". "Efficiency is more in reaching the goals, while effectiveness is the ability to manage resources well to produce more" (Otoo et al., 2023).

The effectiveness of a curriculum refers to the degree to which the program meets its intended goals. Based on several criteria for measuring effectiveness, the following four criteria have been chosen to evaluate Math in Focus, as they are considered fundamental indicators for assessing program effectiveness. These four criteria are:

1. The Accuracy of the Target: This criterion evaluates how closely the program's actual audience aligns with the target group that was initially defined. It assesses the extent to which the program reaches the intended demographic or population.
2. The Aims of the Program: This criterion examines how well the outcomes of the program's implementation correspond to the objectives set at the outset. It measures the alignment between the program's goals and the results achieved.
3. Socialization of the Program: This criterion focuses on the ability of the program's organizers to effectively communicate and disseminate information about the program. It evaluates how well the program is introduced and promoted within the wider community and to the specific audience it serves.
4. Supervision of the Program: This criterion involves the activities carried out after the program's implementation to ensure ongoing support and attention to the program's audience. It assesses the effectiveness of follow-up actions in maintaining the program's impact and engagement.

Math In Focus is a curriculum that is based on a Singapore curriculum. Singaporean students have been top performers in the TIMSS (Trends in International Mathematics and Science Study) assessment since 1995. Leinwand and Ginsburg (Baysal & Sevinc, 2022) identified five key elements of the Singapore Math framework that contribute to its success. These elements are as follows:

1. Organizing Framework: This element emphasizes the clear structuring of concepts, processes, attitudes, and metacognitive strategies, all of which are interconnected around mathematical problem-solving.

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2. Alignment: All components within the framework, including common standards, textbooks, assessments, and teacher preparation programs, are aligned with well-defined and shared educational goals.
3. Focus: Unlike other mathematical frameworks, Singapore Math covers fewer topics but emphasizes a deeper exploration of specific concepts, enabling students to develop a comprehensive understanding.
4. Multiple Models: The consistent use of visual aids, such as the bar or strip model, is central to teaching mathematical concepts and facilitates students' grasp of complex ideas.
5. Rich Problems: The curriculum incorporates multi-step problems that require the application of a wide range of skills and concepts, providing students with opportunities to engage in critical thinking and problem-solving.

All five elements outlined above serve as the core foundation of Singapore Math. This foundation is adapted by Math in Focus, which modifies Singapore Math for the U.S. context. Math in Focus Nurlaili et al., (2022) published through a partnership between Marshall Cavendish Education Singapore and Houghton Mifflin Harcourt, is based on Singapore's My Pals Are Here curriculum. Math in Focus provides instructional resources from Kindergarten through Grade 8.

Math in Focus differentiates its resources to cater to a variety of learner needs, including struggling learners, on-level learners, advanced learners, and English language learners. For struggling learners, the program offers a transition guide, online transition map, and reteach books to reinforce concepts. These tools are designed for students who require additional time to master new skills or concepts (Soon & Leng, 2012). On-level learners benefit from extra practice and activity books that provide additional practice and deepen their mathematical understanding. Advanced learners have access to enrichment books that offer challenging exercises to extend their learning. For English language learners, key terms in the Math in Focus textbooks are highlighted and defined to support their comprehension.

Bars model method was a way for students to visualize algebraic word problems specifically representing known and unknown quantities (Pfanstiel, 2016). By doing bar modeling, students are able to draw a diagram to represent a problem and solve it. That is an effective strategy for doing word problems. Using strategies such as bar models, Singapore Math instruction strategies allow students to solve difficult math problems and learn how to think symbolically Hoven & Garelick, 2007, as cited in (Sizemore, 2015). Math In Focus trying to make conceptual and procedural understanding through a pedagogy characterized by a movement from concrete to pictorial to abstract (Cavenish, 2011).The students learn the concept through concrete manipulatives, which allow them to experience and understand the concept of math they are learning. Then they represent concepts using models, including number bonds and bar models and this is called pictorial. Pictorial gives students an opportunity to visually represent a concept of expressing thought on paper. After students demonstrate a firm understanding of the concept concretely and pictorially, they proceed to abstract pedagogy. The abstract allows students to use symbols to solve math problems (Cavenish, 2011).

Following the Singapore Math, conceptual understanding and problem solving were two areas emphasized before procedural understanding. Each chapter contains numerous embedded problem-solving situations so that students learn to flexibly apply their mathematical knowledge. Students are first introduced to concepts with concrete manipulatives, which allow them to experience and understand the math they are learning. They then learn to visually represent concepts using models, including number bonds and bar models. Finally, once students have a strong understanding of the concept, they move to the abstract stage where they use symbols, such as numbers and equations, to represent mathematical situations.

This study focused in analyzing grade six Math In Focus used by students in a Christian school in Jakarta, Indonesia. The analysis was based on the program effectiveness theory that mentioned the accuracy of the target, the aims of the program, socialization of the program, and supervision of the program as significant elements of effectiveness. The indicators of each element are described in the figure 1.

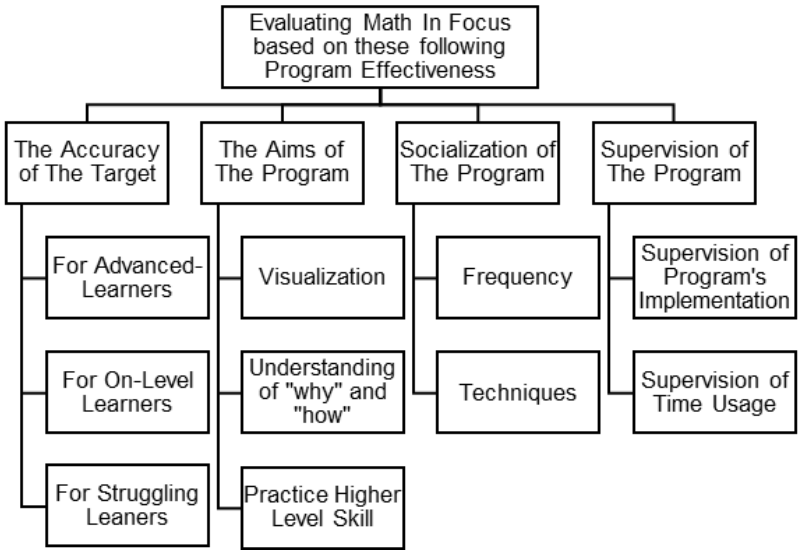


Figure 1. Framework of Thinking

Method

This study used case study as the research methodology. The subject of this research is a Math curriculum called Math In Focus. The study was done in a private Christian school in Jakarta for four months. The data were collected from all students in grade VI, the Math teacher of grade VI, and the middle school Curriculum Coordinator of the school. The instruments in collecting data were questionnaire sheets for students and the Math teacher, interview guidelines with the Math teacher and six students that represented each level of learners, and observation sheets filled out by the Middle school Curriculum Coordinator and the writers. Those data were verified using triangulation method.

The calculation of percentage to know the effectiveness of Math In Focus is by knowing the effectiveness for each element. The formula of calculating the questionnaires was based on (Sugiyono, 2015):

$$\max \text{score} = \text{highest scale} \times \text{total question} \times \text{number of respondent}$$

$$\text{final result} = \left(\frac{\text{score of data collection results}}{\text{score criterion}} \times 100\right)\%$$

The results were interpreted by using the tables developed by (Arikunto, 2014) as showed in Table 1.

Table 1. Interpretation of Percentage (%)

Percentage of Final Result	Interpretation of Effectiveness
80% - 100%	High
60% - 79,9%	Enough
40% - 59,9%	Rather Low
20% - 39,9%	Low

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0% - 19,9%	Very Low

Based on several different procedures stated by experts above, the writers did the following research procedures:

1. Identify and design the research problem
2. Plan to receive approval and gain access to study site to collect the original data needed
3. Organize, classifying, editing, and analyzing the original data
4. Stated a conclusion as a result of the analysis

Data analysis technique used in this study was an interactive model by Mills and Huberman. Miles and Huberman (Cevikbas et al., 2024) said there are three activities was done in the qualitative data analysis: data reduction, data display, and conclusion.

Results

Effectiveness of Math In Focus

Evaluation of effectiveness towards Math In Focus was gathered through the perception of participant toward four criteria of program effectiveness. Those four criteria of effectiveness were accuracy of the target, aims of the program, socialization of the program, and supervision of the program. The analysis was done from the data questionnaires of 33 students and 1 teacher.

The data of accuracy of the target was taken from the three categories of students (1) advanced learners, (2) on-level learners, (3) struggling learners. Based on the calculation of questionnaires for students and teacher towards accuracy of the target, the result was 81.5%. Based on the interpretation table of (Arikunto, 2004), the accuracy of the program was categorized as highly effective. It means the accuracy of the target was appropriately implemented in the three levels of learners; advance, average, and low.

The analysis of the aims of the curriculum program was based on three indicators: (1) visualization, (2) conceptual understanding and real-world problem-solving, and (3) skill practice. Based on the questionnaire responses from students and teachers regarding the program's aims, the result was 82.5%, which was categorized as highly effective.

The analysis of the socialization of the curriculum program was based on two indicators: (1) frequency and (2) techniques. Based on the questionnaire responses from students and teachers about the socialization of the program, the result was 71.5%, which was considered effective. This suggests that Math in Focus was promoted adequately to participants, but it was not done frequently or with a variety of techniques.

The analysis of the supervision of the program was based on two categories: (1) supervision of program implementation and (2) supervision of time usage. Based on the questionnaire responses regarding the program's supervision, the result was 70.5%, which was categorized as effective. This suggests that the use of Math in Focus was adequately supervised by teachers but less so by administrators in terms of oversight toward the teachers.

Therefore, the overall result of Math in Focus from the questionnaire was 76.5%, which was categorized as effective. The results of all indicators from the questionnaires are summarized in the table below:

Tabel 2. Result of Effectiveness Math in Focus

Elements of Effectiveness	Students	Math Teacher	Average
Accuracy	83%	80%	81.5%
Aim	72%	93%	82.5%

Socialization	63%	80%	71.5%
Supervision	71%	70%	70.5%
	Total		76.5%

From the interviews, questionnaires, and observations, it was found that several factors influenced the effectiveness of the grade six Math in Focus curriculum. First, Supporting Factors, such as the availability of many resources catering to different levels of learners and the mastery of mathematical skills (including visualization, conceptual understanding, real-world problem-solving, and practicing skills), significantly enhanced the curriculum's effectiveness. Second, Inhibiting Factors, such as the different context (e.g., differences in the customary system and topics), limited time (e.g., constraints in utilizing existing resources and providing detailed key answers), and less socialization and supervision, posed challenges to its implementation. The factors can be shown systematically in the Figure 2.

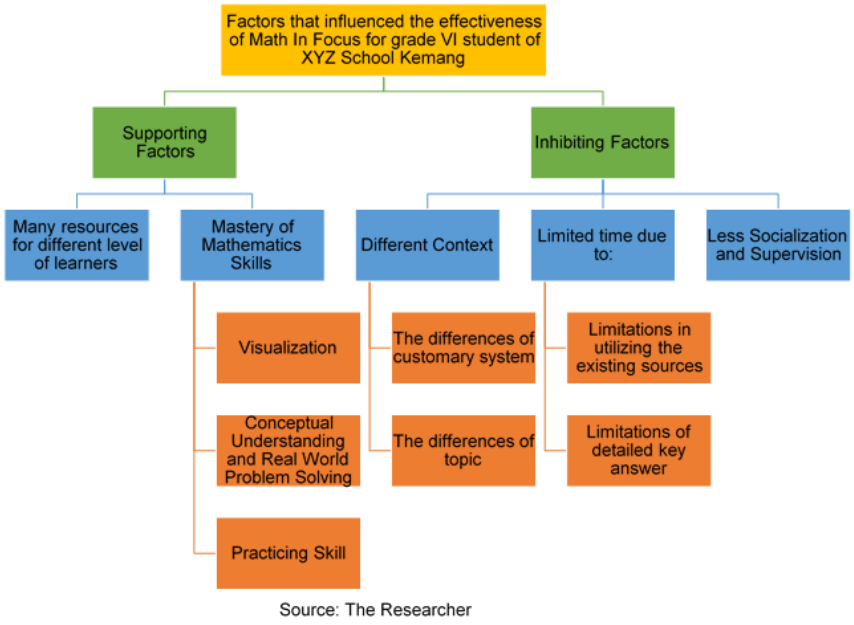


Figure 2. Factors Influenced the Effectiveness

Discussion

The findings of this study indicate that the Math In Focus curriculum is sufficiently effective for sixth-grade students in a Christian school context in Jakarta, Indonesia, with an overall effectiveness rating of 76.5%. This aligns with prior research that highlights the strong conceptual and problem-solving focus of the Singapore Math approach, which Math In Focus is based on. As noted by Fan & Zhu (2007), Singapore Math emphasizes structured problem-solving strategies and deep conceptual understanding, which can lead to improved learning outcomes in mathematics. The high scores in target accuracy (81.5%) and aim achievement (82.5%) in this study confirm that Math In Focus effectively addresses the needs of various student levels—advanced, on-level, and struggling learners. This mirrors the differentiated instructional strategies described by Soon & Leng (2012), who emphasized that Math In Focus offers tiered resources tailored for diverse student needs, thus supporting equitable learning. Additionally, the curriculum's pedagogical flow from concrete to pictorial to abstract stages Cavenish (2011) helps students internalize mathematical concepts progressively. This

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scaffolding approach is crucial for learners whose first language is not English, as it bridges comprehension gaps through visual and manipulable representations. In the context of a Christian educational environment, the capacity of Math In Focus to serve all learner types can be further viewed as consistent with Van Brummelem (2002) call for education that acknowledges the uniqueness and God-given potential of each student, thus promoting inclusivity and personalized growth.

Nevertheless, while the curriculum was effective overall, the scores for socialization (71.5%) and supervision (70.5%) were relatively lower. These findings resonate with studies that identify contextual and administrative factors as crucial to successful curriculum implementation. Nurlaili et al. (2022) emphasized that adopting curricula from different countries requires careful contextual adaptation to avoid mismatches in content, systems, or cultural expectations. In this case, limited socialization efforts and insufficient supervisory practices suggest that stakeholders may not have been fully oriented or supported in the use of Math In Focus, a factor that can hinder sustainable implementation. Their findings underscore the importance of proper training, support, and consistent evaluation mechanisms to ensure the intended impact of instructional programs. Additionally, Otoo et al. (2023) highlight that supervision is a critical component of organizational effectiveness, where clarity of roles, leadership involvement, and resource allocation greatly influence outcomes. In the context of this study, although the teacher supervision was present, administrative follow-up was weaker, potentially limiting the program's full impact. Addressing these limitations could significantly elevate the curriculum's effectiveness in the future, especially in schools where English is a second language and where adaptations must be sensitively managed to local learning cultures.

A further consideration is the value of differentiated instruction and character development within Christian education, which this curriculum can support when implemented thoughtfully. The differentiated resources offered by Math In Focus align with the principles of Universal Design for Learning (UDL), which advocates for multiple means of engagement, representation, and expression (Gordon et al., 2016). These strategies not only support academic achievement but also allow students to learn in ways that honor their diverse learning profiles—an approach consistent with the Christian perspective that each learner is uniquely created and gifted (Van Brummelem, 2002). Furthermore, studies by Tomlinson (2014) emphasize that differentiation improves learning outcomes and student motivation when instructional practices are flexible and responsive to individual needs. In the Indonesian context, such an approach is especially important due to the diversity of student readiness levels and the additional challenge of language. As highlighted by Van Brummelem (2002), curriculum design in Indonesian Christian schools should integrate spiritual values with academic rigor. Therefore, Math In Focus, when enhanced by local cultural and spiritual adaptations, has the potential to contribute not only to academic proficiency but also to holistic student development intellectual, moral, and spiritual.

Conclusion

Based on the analysis of Math In Focus for grade 6 student of XYZ School Kemang, it can be said that Math In Focus is effective enough to be implemented in this school. This result gained from the result of the findings from the student, teacher, and curriculum coordinator towards four sub focuses: the accuracy of the target, the aims of the program, socialization of the program, and supervision of the program. It can be concluded that the overall evaluation of Math In Focus based on program effectiveness in grade VI student XYZ School Kemang average in 76.5% means the effectiveness was enough.

Math In Focus helps teachers to understand and develop students' abilities in Mathematics. As Christian educators, teachers can approach Math In Focus with a deeper perspective and utilize it as a tool for fostering Christian education. For example, Math In Focus targets all levels of learners by providing different resources for each group. Here, teachers can explain to students why there are many resources and the significance of using them in different ways. Through Math In Focus, it gives opportunities for students to learn and respond to what they learn in personally meaningful ways (Van Brummelem, 2002). In this way, students can come to understand that they are uniquely created, each with talents they can develop. Students are also encouraged to respect and help one another according to their own abilities.

In the implementation of Math In Focus, several supporting and inhibiting factors were identified. Supporting factors include the availability of varied resources that cater to different learner levels (advanced, on-level, and struggling learners) and the emphasis on visualization, conceptual understanding, real-world problem-solving, and skills practice. On the other hand, inhibiting factors include differences in contextual content (such as differences between the customary systems and topics provided by Math In Focus compared to the requirements of the Cambridge curriculum), limited time due to the challenge of integrating Math In Focus resources within the grade 6 schedule, the lack of detailed answer keys, and insufficient program socialization and supervision.

These findings are consistent with previous research on the adaptation of foreign curricula, which highlights that while curricula such as Math In Focus can improve conceptual understanding and problem-solving skills (Fan & Zhu, 2007), their effectiveness may be limited by contextual mismatches and resource challenges. Therefore, while Math In Focus offers meaningful benefits, its successful implementation in Indonesian schools requires adjustments to local needs, improved support for teachers, and ongoing curriculum evaluation.

Recommendation

After knowing the analysis of Math In Focus for grade 6 students of XYZ school Kemang, the school or the teacher can improve some areas that might be the factors that inhibit its effectiveness. By increasing the percentage of effectiveness, the achievement of the students can also be expected to increase.

For future research, researcher can evaluate specific areas of this program to get deeper understanding of the study, for example the effectiveness of Math In Focus enrichment book towards high achieving students. The researcher also recommends to carefully choose the statement used to measure the research question and have more participant (especially from administrator or school), so the result gained can help to analyze deeper the case studied. Second, in the future research, researcher can specifically focus on doing program evaluation with one model of program evaluation. This model can help the researcher to evaluate based on particular model and able to take judgement to continue, stop, or modify the program.

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