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ORIGINAL ARTICLE

Examination of the Mathematics Curriculum Through the Stufflebeam Program Evaluation Model

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Ethical Statement
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No conflict of interest is present in the conduction or the reporting of this study.

ABSTRACT
This study aims to evaluate the Mathematics Curriculum of the Maarif Model, which was implemented in 2024 and represents a profound transformation in Turkey's education system, within the framework of Stufflebeam's CIPP (Context, Input, Process, Product) program evaluation model. Conducted based on the qualitative research method, the study employed the document analysis technique and examined in detail the introduction section, learning areas, learning outcomes, instructional approach, and assessment dimensions of the curriculum. The findings revealed that the curriculum is built upon philosophical foundations that prioritize and give importance to national and moral values, and that, with its student-centered and progressive structure, it aligns with modern and contemporary instructional approaches that support meaningful learning. However, the limited number of examples regarding assessment processes and the uncertainties about the measurability of certain learning outcomes point to potential challenges that may be encountered during implementation. The study offers recommendations such as enriching teacher guides in terms of subject explanation and examples, expanding the in-service training requested by teachers, and diversifying assessment and evaluation tools to enhance the applicability of the curriculum. It is considered that the study will contribute to students, teachers, academics, and thus to all educators, as well as to everyone working in the field of curriculum development in education, serve as a reference for the literature, and contribute to the shaping of educational policies.

Keywords: CIPP model, Mathematics Curriculum, Program Evaluation, Stufflebeam Evaluation Model, Türkiye Maarif Model.

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INTRODUCTION

In the 21st century, which we refer to as the digital age, the parameters of education gain importance through the integration into education systems of the skills and knowledge that are intended to be continuously acquired in line with the rapidly developing and changing world order. In this era, the ways of discovering, accessing, and using information are undergoing a transformation not only instrumentally but also cognitively and pedagogically. This transformation forms the basis of 21st-century skills (Voogt & Roblin, 2012). Along with this evolving and changing order, the processes through which individuals discover, acquire, use, analyze, and synthesize information show profound differences compared to previous periods. Therefore, curricula, which perhaps constitute the essence of education, should be revised repeatedly in accordance with these changes. Fundamentally, curricula are living structures that must be continuously updated in line with societal expectations, scientific developments, and individual differences (Ornstein & Hunkins, 2018). In this regard, in order to continuously renew itself and adapt to all these changes, the Ministry of National Education (MoNE, 2024) of our country has made substantial revisions to the curricula and developed the Türkiye 21st Century Maarif Model. This renewal, as in previous instances, has been carried out comprehensively not only to respond to the changing educational parameters of the curricula and not solely in relation to the content element of the curriculum, but also towards all parameters and all elements of the curriculum.

Program evaluation is a scientific process used to systematically analyze the effectiveness of curricula (Fitzpatrick, Sanders & Worthen, 2011). In line with the changing parameters in education, evaluation processes are indispensable in order to see how the revisions made in curricula function in educational processes, to determine the extent to which the set objectives have been achieved, and to identify opportunities for improvement and renewal. According to Stufflebeam (2003), evaluation is a process that involves generating information about programs to serve decision-makers and systematically collecting such information. The CIPP model is a model that provides comprehensive analyses by evaluating programs through these four fundamental components: context, input, process, and product (Stufflebeam & Shinkfield, 2007). The CIPP model presents evaluation as a process that does not focus solely on the outcome but includes a comprehensive assessment of the program's elements (context, input, process, product).

Context evaluation in the CIPP model reveals the needs and requirements of the social, cultural, and educational environment in which the program will be implemented (Stufflebeam, 2003). In the context stage, the consistencies between the program's objectives and the needs determined at national and local levels are examined. Input evaluation, on the other hand, examines the adequacy and appropriateness of the human resources, materials, funding, and other facilities required for the implementation of the program (Fitzpatrick, Sanders & Worthen, 2011). The input stage is the phase where the quantitative and qualitative adequacy of the basic resources in the creation of the program is revealed, enabling the identification of potential deficiencies in advance and guiding the resolution of problems. The process evaluation of the model monitors the implementation of the program in the field and identifies the challenges encountered as well as areas for development (Stufflebeam & Shinkfield, 2007). The analyses conducted at this stage enable the identification of factors that prevent the program from achieving its objectives and the determination of possible improvements in implementation. The product evaluation of the model measures whether the program has achieved its intended results and assesses the quality of the outputs (Patton, 2008). The most fundamental aspect of the product evaluation stage is that the findings emerging in the program evaluation process not only reveal the effectiveness of the program but also assess its long-term success and impacts.

The Türkiye Century Maarif Model is a comprehensive reform strategy put forward with the aim of transforming Turkey's education system into a contemporary, high-quality, and sustainable structure that meets global standards (MoNE, 2024). This model emphasizes that not only the content element of the curriculum but also the teaching-learning processes and assessment elements must be continuously revised, and that all elements of the curriculum must be systematically analyzed in order to increase its effectiveness. Therefore, the CIPP model is an effective program evaluation model that aligns with the objectives of the Maarif Model and offers a multidimensional and holistic approach to increasing quality and effectiveness in education (Güven, 2021).

This study aims to evaluate the mathematics curriculum, developed based on the 21st Century Türkiye Maarif Model, according to the CIPP model developed by Stufflebeam. In the study, the strengths and weaknesses of the mathematics curriculum were analyzed not only in terms of content but also in relation to implementation conditions, teacher competence, resource utilization, and student outcomes. In this way, the deficiencies, problems, effectiveness, sustainability, improvability, and contribution to educational policies of the program have been explicitly revealed.

Research Problem

The Maarif Model, which seeks to present a profound change and transformation initiative in Turkey's education system, in fact adopts an educational approach that places 21st-century skills and core values at its center. The Mathematics Curriculum revised based on this model aims not only to provide students with academic knowledge but also to develop higher-order cognitive skills such as analytical thinking, problem-solving, and reasoning ability. In order to achieve success with the model, it is necessary to ensure the effective implementation of curricula and the attainment of the targeted outcomes, particularly through the systematic evaluation of these programs.

Numerous elements play a decisive role in the success of the Mathematics Curriculum developed in line with the Maarif Model, such as the clarity of the objectives on which it is based, the appropriateness and scientific validity of the content to the students' developmental levels, the effectiveness of the methods and strategies used in the teaching process, and the validity and reliability of the assessment tools aimed at measuring student achievement. However, as the current curriculum is still in the initial stage of implementation, academic studies aimed at subjecting the program to a systematic evaluation are currently limited in number.

Therefore, Stufflebeam's CIPP (Context, Input, Process, Product) model, which is frequently used in curriculum evaluation and offers the opportunity for a comprehensive analysis through four main dimensions (context, input, process, and product), is regarded as an appropriate evaluation model for identifying the strengths and areas for improvement of the new curriculum. This study aims to evaluate the Mathematics Curriculum developed within the framework of the Maarif Model based on the CIPP program evaluation model. In this context, the implementation context of the program (needs and objectives), the inputs provided to the program (content, resources, materials, teacher qualifications, etc.), the practices followed during the process, and the outputs obtained at the end of the program (student achievements, achievement levels, teacher and student satisfaction, etc.) were addressed in detail.

Within this scope, the main research problem is as follows: *When the Mathematics Curriculum developed within the scope of the Maarif Model is evaluated according to Stufflebeam's CIPP program evaluation model, what qualities does it possess in terms of the context, input, process, and product dimensions, and what conclusion do these qualities reveal regarding the effectiveness of the program?*

Purpose of the Study

The purpose of this study is to examine the Mathematics Curriculum of the Maarif Model, which was implemented in Turkey in 2024, within the framework of Stufflebeam's CIPP program evaluation model. In the study, the context, input, process, and product dimensions of the curriculum will be analyzed through document analysis, and the strengths and areas for improvement of the program will be revealed. In this way, it is aimed to present qualitative findings regarding the program's educational integrity, applicability, and its impact on the expected outcomes.

Significance of the Study

This study provides an original contribution to the literature by conducting a detailed evaluation of the Türkiye Century Maarif Model Mathematics Curriculum, which began to be implemented in 5th grades in 2024. In addition, it aims to present findings that will shed light on education policymakers, curriculum developers and evaluators, and teachers who play an active role in the implementation of the program. Furthermore, thanks to the systematic structure of the CIPP model, not only the outputs of the curriculum but also its background, planning process, and implementation dimensions will be evaluated, thus enabling a holistic analysis. This is also important in terms of providing recommendations for the restructuring or development of the program.

The Türkiye Maarif Model, which was implemented in 2024, has introduced a comprehensive innovation in education and put forward new educational reforms. However, a review of the literature shows that although the Maarif Model has been examined from various perspectives, there is still no original study that systematically analyzes the program's context, input, process, and product dimensions through the CIPP model. This situation makes it difficult to reveal, with scientific evidence, the strengths and areas for improvement of the new curriculum. Therefore, this study aims to fill this gap in the literature by comprehensively examining the mathematics curriculum through the CIPP model.

Research Questions

This study aims to conduct a detailed examination of the elements of the Türkiye Century Maarif Model Mathematics Curriculum according to Stufflebeam's CIPP evaluation model and seeks to answer the following research questions:

1. **In terms of the Context dimension:**

   a) What educational needs and societal expectations does the Maarif Model Mathematics Curriculum aim to address?
   b) What are the fundamental philosophical, pedagogical, and value-based approaches on which the program is based?

2. **In terms of the Input dimension:**

   a) What are the characteristics of the program's content, learning outcomes, teaching methods, and materials?
   b) Are the resources and support elements foreseen for the implementation of the curriculum sufficient?

3. **In terms of the Process dimension:**

   a) How do the processes related to the implementation of the program define the roles of teachers and students?
   b) How does the program guide the teaching process in classroom practices?

4. **In terms of the Product dimension:**

a) What cognitive, affective, and psychomotor outcomes does the program aim to achieve?
b) To what extent are the student competencies foreseen in relation to the program's outputs supported by assessment approaches?

The mathematics curriculum will be evaluated in detail according to these specified questions, and answers will be sought for these questions.

Research Method

This study was designed based on the qualitative research method. Qualitative research is an interpretive approach aimed at understanding the effects of a program by examining in depth the ways curricula are implemented, participant experiences, and contextual factors (Merriam, 1998). In this study, the document analysis method was used in order to examine the Türkiye Century Maarif Model Mathematics Curriculum in a comprehensive and systematic manner. Document analysis is the process of deriving meaning through the systematic examination of existing written materials and is a frequently used data collection method in qualitative research (Bowen, 2009). The main data source of the study consists of the Türkiye Century Maarif Model Mathematics Curriculum document published by the Ministry of National Education in 2024. The introduction section, learning areas, learning outcomes, instructional approach, assessment approach, and teacher's guide sections of the curriculum were included in the scope of the analysis. The curriculum was read multiple times to gain a holistic understanding. Sections relevant to the CIPP evaluation dimensions (context, input, process, product) were carefully extracted, and initial codes were generated accordingly. Codes were iteratively reviewed and refined to ensure that recurring ideas and concepts were systematically captured. To enhance reliability, peer review of coding was conducted, and an audit trail was maintained throughout the analysis process (Miles & Huberman, 1994).

The coding process was conducted independently by two researchers, with codes inductively derived from the curriculum content. Although the analysis was based on a single curriculum document, the use of two independent coders, iterative review of codes, peer debriefing, and an audit trail ensured the trustworthiness and rigor of the findings (Miles & Huberman, 1994; Bowen, 2009).

In the data collection process, the Maarif Model Mathematics Curriculum was first examined in detail, and then a coding scheme was created based on the four main dimensions of Stufflebeam's CIPP evaluation model (context, input, process, product). During the coding process, direct quotations, sample text excerpts, and content themes were identified. The obtained data were analyzed using descriptive analysis and content analysis techniques. In the descriptive analysis process, the data were classified and interpreted under thematic headings in line with each dimension of the CIPP model. Within the scope of content analysis, recurring themes of the curriculum, emphasized pedagogical approaches, and concepts related to teaching and learning processes were identified, and the data were categorized accordingly.

During content analysis, codes that recurred across multiple sections were grouped into sub-themes and then aggregated under the main CIPP dimensions. This iterative thematic analysis ensured comprehensive coverage of curriculum content and enhanced the trustworthiness of the findings (Bowen, 2009).

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FINDINGS

In this section, the Türkiye Century Maarif Model Mathematics Curriculum was analyzed using the document analysis method, and the data obtained were evaluated in terms of the four main dimensions of the CIPP model (context, input, process, and product) and presented in table form.

In Table 1, the context dimension of the CIPP model is addressed, and the findings obtained are presented in a table as themes, codes, concepts, and interpretations.

Table 1. Findings obtained according to the context dimension of the CIPP model

CIPP Dimension	Theme	Code	Direct Quotation	Concepts	Interpretation
CONTEXT	Values underlying the program	Educating virtuous individuals	In mathematics teaching, the aim is not only for the individual to achieve academic success but also to be raised as a virtuous and responsible person (MoNE, 2023: 4)	Value-based education, moral education	Reveals that the program adopts an individual-centered and value-oriented approach.
CONTEXT	Values underlying the program	Supporting critical and creative thinking	The mathematics curriculum aims to support students' skills in analytical thinking, creative problem-solving, and developing original ideas (MoNE, 2023: 7)	Analytical thinking, developing original ideas	The program responds to the requirements of the 21st century, aiming not only to transmit knowledge but also to enable students to think innovatively and critically.
CONTEXT	Values underlying the program	Inclusive and equitable education approach	The curriculum prioritizes ensuring access and participation for all students with different learning needs (MoNE, 2023: 8)	Inclusivity, equal opportunity, diversity	Basing the program on inclusivity and equal opportunity is an important pedagogical principle aimed at preventing students from being segregated socioeconomically.
CONTEXT	Educational and societal needs	21st-century skills	The program prioritizes developing individuals' lifelong learning, problem-solving, and critical thinking skills (MoNE, 2023: 5)	21st-century skills, critical thinking	The program aims to meet the needs of the era by offering a structure that is sensitive to global trends.
CONTEXT	Educational and societal needs	Developing social participation and responsibility awareness	The program encourages students to develop sensitivity to social issues and to act with an awareness of active citizenship (MoNE, 2023: 6)	Social responsibility, citizenship, social sensitivity	Shows that the aim is to raise individuals who are competent not only academically but also socially.

CIPP Dimension	Theme	Code	Direct Quotation	Concepts	Interpretation
CONTEXT	Educational and societal needs	Technology integration and digital literacy	In mathematics teaching, the effective use of digital tools aims to develop students' technological skills (MoNE, 2023: 9)	Technology integration, digital literacy, 21st-century skills	In the 21st century, which we call the digital age, technologies are rapidly developing, and the importance of using technology correctly and effectively in education is rapidly increasing. Therefore, this approach supports these skills.
CONTEXT	Philosophical foundation of the program	Holistic development	The Maarif Model centers on the holistic development of the individual in mental, emotional, moral, and social aspects (MoNE, 2023: 3)	Humanistic approach, multidimensional individual development	The program focuses not only on academic achievement but also on the development of the individual in all aspects.

In the context dimension, the program was analyzed in terms of the educational values on which it is based, its responsiveness to societal needs, its fulfillment of educational needs, and its philosophical foundations. The Türkiye Century Maarif Model represents a change that takes values as its cornerstone and supports or aims at the updating of existing curricula. The program emerges as a multidimensional educational vision that, by considering the holistic development of the individual, supports mental, moral, and physical development. The mathematics curriculum has also been reorganized as part of this holistic structure. The main goal set in the program is to "educate virtuous individuals." While the curriculum emphasizes commitment to traditional culture on the one hand, it also attaches great importance to the acquisition of 21st-century skills on the other. In fact, the aim here is to convey to the student both national values and the skills of the era by synthesizing them. In this direction, the curriculum places emphasis on problem-solving, critical thinking, and the ability to establish connections between mathematics and real life.

In addition to emphasizing traditional values, recent studies highlight that curricula integrating 21st-century skills, such as critical thinking and problem-solving, significantly enhance students' holistic development and readiness for complex real-world problems (Kesim, 2025; Kömür, 2024). Moreover, aligning national values with contemporary skill development fosters both moral growth and cognitive flexibility (Çıra, 2024). Therefore, while the Türkiye Century Maarif Model lays a solid foundation, it may benefit from explicitly strengthening problem-solving tasks and critical thinking exercises within the mathematics curriculum.

Table 2. Findings obtained according to the input dimension of the CIPP model

CIPP Dimension	Theme	Code	Direct Quotation	Concepts	Interpretation
INPUT	Content organization	Spiral structure	The contents are structured based on students' prior learning and are deepened at each grade level (MoNE, 2023: 9)	Spiral curriculum, constructivism	A spiral structure has been created to ensure the permanence of the learning outcomes, and reinforcement has been provided.
INPUT	Teaching methods and techniques	Constructivist approach	Active participation of students and the construction of their own	Constructivism, active learning	Students have been moved away from a passive position and rote

CIPP Dimension	Theme	Code	Direct Quotation	Concepts	Interpretation
			learning have been taken as the basis (MoNE, 2023: 8)		memorization, and the program has been designed to be student-centered.
INPUT	Teaching materials and digital resources	Use of digital resources	Within the scope of the program, digital content, interactive applications, and enriched materials have been included (MoNE, 2023: 12)	Digital materials, educational technologies, interactive learning	Digital content increases student curiosity and supports the development of technological skills.
INPUT	Structure of learning outcomes	Higher-order thinking skills	Learning outcomes have been structured to enable students to think at the levels of analysis, synthesis, and evaluation (MoNE, 2023: 11)	Bloom's Taxonomy, cognitive processes	Aims to support students not only at the knowledge level but also in higher-order skills such as problem-solving, critical, and analytical thinking.
INPUT	Teacher competencies	Teacher support structures	Teaching guides and professional development resources have been provided to enable teachers to implement the program effectively (MoNE, 2023: 13)	Teacher competency, guidance, professional development	Supporting teachers is also important for the effectiveness and sustainability of the program.

In the input dimension of the evaluation, the structural components of the curriculum, the content organization, the learning outcomes, the teaching strategies, and the use of resources were examined. The learning outcomes were structured in a repeatable manner, that is, in a spiral form. This spiral structure was established both within grade levels and across grade levels. The learning outcomes were grounded in conceptual structures. The program encompasses goals aimed at understanding as well as procedural knowledge. It was observed that the content is grouped under holistic learning areas, that relationships are established between the learning areas, and that the topics are based on real-life contexts. With such aspects, the program aims for students to understand mathematics in a functional way. Furthermore, the program is based on the constructivist learning approach, supporting the active participation of the student in the lesson and learning based on exploration.

The curriculum's emphasis on traditional values and national identity, while fostering a sense of cultural pride, may inadvertently constrain the development of critical thinking and problem-solving skills among students. This limitation is particularly evident in the mathematics curriculum, where the integration of 21st-century skills appears insufficient. Research indicates that the current curriculum does not adequately address critical thinking and problem-solving skills, which are vital components of 21st-century education (Satmaz, Erdamar, Boran, & Arcagök, 2024).

To enhance the curriculum's effectiveness in preparing students for future challenges, the following recommendations are proposed:

1. **Integration of Critical Thinking and Problem-Solving Skills:** Revise the mathematics curriculum to incorporate activities and assessments that promote critical thinking and problem-solving. This can be achieved by introducing real-world problems that require students to apply mathematical concepts in novel ways.

2. **Professional Development for Educators:** Provide training for educators to equip them with the skills necessary to foster critical thinking and problem-solving in their students. This includes professional development programs focused on inquiry-based teaching methods and the use of technology to enhance learning experiences.
3. **Curriculum Review and Update:** Establish a regular review process for the curriculum to ensure it remains aligned with the evolving educational needs and societal changes. This process should involve stakeholders from various sectors, including education, industry, and the community, to provide diverse perspectives.

By implementing these recommendations, the TYMM can better prepare students to meet the demands of the 21st century, ensuring they possess the necessary skills to succeed in an increasingly complex and interconnected world.

Table 3. Findings obtained according to the process dimension of the CIPP model

CIPP Dimension	Theme	Code	Direct Quotation	Concepts	Interpretation
PROCESS	Process evaluation tools	Self-assessment	Self-assessment tools that allow students to evaluate their own learning have been included (MoNE, 2023: 14)	Alternative assessment, self-assessment	Assessment approaches that increase student awareness and deepen learning during the process are prioritized.
PROCESS	Student role	Active learner	Students are expected to actively participate in the learning process and construct their own meaning (MoNE, 2023: 7)	Active learning, constructivist role	It is observed that the student plays the role of an individual who constructs meaning rather than being passive in learning.
PROCESS	Teacher role	Guiding teacher	The teacher is a facilitator who guides the student in the learning process (MoNE, 2023: 8)	Teacher guidance, learning leadership	It is emphasized that the teacher's role in the process should not be that of a passive transmitter but that of a guide.
PROCESS	Interaction and collaboration	Collaborative learning	Students have shared learning experiences through group work and interactive activities (MoNE, 2023: 10)	Collaboration, interactive learning	Learning processes are also supported in their social dimension; interaction among students increases the permanence and depth of learning.

When the Maarif Model Mathematics Curriculum is examined in terms of the process dimension of the model, it presents a student-centered, active, and interactive learning environment based on the constructivist learning theory. Throughout the process, enabling the student to direct their own learning process, to conduct self-assessment, and to be supported with continuous feedback ensures that learning is not superficial but deep and permanent. In this process, the teacher is defined not as a transmitter of knowledge but as a guide who facilitates the process; thus, instruction is shaped according to the individual needs of the student. In these aspects, the process design of the program largely aligns with 21st-century pedagogical approaches.

The curriculum also supports modern learning approaches such as problem-based learning, collaborative learning, project work, and modeling processes. The program includes the use of concrete materials, digital tools, and applications based on real objects. However, it is noteworthy that in some content areas, examples of instructional materials are limited. In this dimension, the implementation process of the program, the roles of teachers and students, the quality of

learning environments, and process evaluation approaches have also been analyzed. The program aims for the student to actively participate in the learning process and to construct meaning through their own experiences. In the program, students are encouraged to ask questions, engage in discussions, reason, and produce mathematical expressions. According to the program, teachers should help students diversify their learning paths and design appropriate learning environments. It is also stated in the program that learning environments should be student-centered, interactive, and collaborative in structure. Additionally, by providing meaningful contexts open to interdisciplinary connections, the program emphasizes in-class activities. While process-oriented assessment tools (such as self-assessment, peer assessment, and student portfolios) are recommended in the program, it has also been observed that implementation examples related to these tools are not detailed.

In addition to emphasizing student-centered and interactive learning, recent studies indicate that curricula implementing constructivist and active learning approaches significantly enhance students' engagement, conceptual understanding, and ability to apply mathematical knowledge to real-life problems (Çıra, 2024; Kesim, 2025). While the Maarif Model Mathematics Curriculum supports problem-based learning, collaborative learning, project work, and modeling processes, research suggests that the effectiveness of these methods depends on the consistent and detailed integration of process-oriented assessment tools such as self-assessment, peer assessment, and portfolios (Kömür, 2024).

Moreover, although the curriculum encourages the use of concrete materials, digital tools, and real-world applications, studies show that limited examples of instructional materials may constrain teachers' ability to fully implement these strategies (Satmaz, Erdamar, Boran, & Arcagök, 2024). Therefore, providing explicit guidelines and exemplars for teachers can strengthen the curriculum's capacity to foster deep and lasting learning.

By emphasizing inquiry, discussion, reasoning, and the construction of meaning through student experiences, the curriculum aligns with 21st-century pedagogical approaches. However, ongoing professional development and curriculum support are crucial to ensure that teachers can fully realize the potential of constructivist and student-centered practices in the classroom. These enhancements can bridge the gap between curriculum design and classroom implementation, ensuring that students not only participate actively but also achieve meaningful and transferable learning outcomes.

Table 4. Findings obtained according to the product dimension of the CIPP model

CIPP Dimension	Theme	Code	Direct Quotation	Concepts	Interpretation
PRODUCT	Expected student outcomes	Mathematical thinking	The program aims to raise individuals who can make logical inferences and develop mathematical models (MoNE, 2023: 6)	Mathematical modeling, reasoning	One of the most important program outcomes is to be able to use mathematics not merely as a set of procedures but as a tool for thinking.
PRODUCT	Assessment approach	Authentic assessment	The assessment process is not limited to measuring the level of knowledge, but is aimed at measuring the ability of students to produce solutions by making connections with real life (MoNE, 2023: 15)	Authentic assessment, connection with life	Assessment focuses on the extent to which the student has internalized and can apply the knowledge.

The product evaluation dimension of the curriculum is an outcome-oriented approach that includes not only the knowledge, skills, and attitudes that the curriculum aims to develop in the student, but also the criteria by which these achievements will be evaluated and how they will be assessed. The ultimate goal of the program is not merely for the student to perform mathematical operations correctly, but also to develop the ability to use this knowledge in problem-solving, relating it to real life, and making logical inferences. Among the expected outcomes from the student in the curriculum, mathematical thinking, communication, modeling, and decision-making skills stand out. In addition, the curriculum includes learning outcomes at various levels in accordance with Bloom's Taxonomy; it covers not only the knowledge and comprehension levels but also higher-order cognitive objectives such as analysis, synthesis, and evaluation. Although process evaluation is emphasized in the program, it has also been observed that for some learning outcomes, concrete criteria are not clearly defined.

In addition to emphasizing outcome-oriented assessment, recent research highlights that curricula incorporating higher-order cognitive skills and real-life problem-solving tasks promote deeper mathematical understanding and transferable competencies among students (Çıra, 2024; Kesim, 2025). While the Maarif Model Mathematics Curriculum includes learning outcomes across Bloom's Taxonomy, studies suggest that the lack of clearly defined assessment criteria for some learning outcomes may limit the objectivity and consistency of evaluations (Kömür, 2024).

Furthermore, although process-oriented evaluation such as self-assessment, peer assessment, and portfolios is encouraged, evidence from classroom implementations indicates that teachers may require additional guidance and exemplars to apply these assessment strategies effectively (Satmaz, Erdamar, Boran, & Arcagök, 2024). Strengthening the alignment between learning outcomes, assessment criteria, and instructional activities can ensure that students not only perform mathematical operations correctly but also develop the ability to reason, model, and communicate mathematically.

By providing explicit assessment criteria and supporting teachers in applying outcome-oriented and process-based evaluations, the curriculum can better foster skills such as decision-making, problem-solving, modeling, and critical thinking. This approach ensures that assessment practices contribute meaningfully to students' holistic development and readiness for real-world challenges.

CONCLUSION AND DISCUSSION

In this study, the Türkiye Century Maarif Model Mathematics Curriculum was analyzed according to Stufflebeam's CIPP evaluation model, and the strengths of the program as well as the areas in need of improvement were identified. Based on the findings obtained in the study, it was concluded that the program is designed in harmony with contemporary educational approaches.

In the context dimension of the study, it was concluded that the curriculum adopts a holistic approach that takes into account not only the cognitive aspects of the individual but also their affective, ethical, and social dimensions. This result shows similarities with the "learning with values" and "holistic education" approaches emphasized by Demirel (2022). Köse and Yıldırım (2021) also argue that the philosophical foundations of curricula should support the multidimensional development of the individual. However, according to some researchers, curricula may not yield effective results if they are not supported by factors such as teacher competencies, school climate, and implementation infrastructure (Şahin & Baş, 2020). Based on the research data and the results of previous studies, curricula should support and nurture the student both cognitively and socially.

When the mathematics curriculum was examined according to the input dimension of the model, it was concluded that the program adopts a student-centered approach and that the program content is designed to be consistent with the constructivist learning approach. Aykaç (2019) also states that in this regard, constructivist learning environments are a positive development in terms of supporting active student participation. Özdemir and Harman (2020), in their study, noted that the lack of materials and digital content creates uncertainty in teacher practices. Based on the data obtained, it was concluded in the study that the program is designed to be student-centered and organized based on the constructivist learning approach. The study also concluded that the lack of some materials in schools may affect teachers' ability to deliver effective lessons.

When the curriculum was examined in terms of the process dimension, it was concluded that in the program, the teacher plays the role of a guide and the student plays the role of an active learner. This aspect of the program also aligns with Vygotsky's social constructivist learning theory. The study also concluded that the curriculum provides a learning environment that supports interaction among students. However, it was also concluded in the study that the limited number of process evaluation tools could make the implementation of the program more difficult. This issue was also emphasized in a study conducted by Karakaya and Yıldız (2021), which concluded that although alternative assessment tools are included in programs, the insufficiency of their in-class implementation could negatively affect instruction. Therefore, the study concluded that no matter how well curricula are prepared or organized, for the program to be successful, it must be delivered to students in the classroom in a complete and practical manner.

When the mathematics curriculum was examined in terms of the product dimension, it was concluded that the program is designed to develop higher-order cognitive skills such as mathematical thinking, problem-solving, modeling, and critical thinking, and to relate these to daily life. Other studies have also stated that mathematics curricula play an important role in raising individuals who can establish connections with real life (Altun & Memiş, 2022; Bozkurt & Yavuz, 2023). In addition, based on the observation that some learning outcomes in the curriculum are not clearly defined in terms of measurability, it was also concluded that this situation could cause various difficulties in the program's evaluation processes. Although the study determined that the mathematics curriculum was developed with a focus on higher-order thinking skills, it also concluded that the learning outcomes in the program must be clearly defined.

In addition to the conclusions drawn in each dimension of the CIPP evaluation, recent studies suggest that the effectiveness of mathematics curricula depends not only on curriculum design but also on implementation fidelity, teacher competencies, and classroom resources (Çıra, 2024; Kesim, 2025; Kömür, 2024). For instance, while the Maarif Model Mathematics Curriculum emphasizes constructivist, student-centered approaches and promotes higher-order cognitive skills, the lack of clearly defined assessment criteria and limited examples of instructional materials may constrain teachers' ability to fully realize these goals (Satmaz, Erdamar, Boran, & Arcagök, 2024).

Moreover, although the curriculum encourages interactive and inquiry-based learning, research indicates that classroom-level challenges, such as insufficient professional development or limited access to concrete and digital resources, can reduce the effectiveness of these pedagogical strategies (Özdemir & Harman, 2020; Karakaya & Yıldız, 2021). Therefore, the observed strengths of the program must be considered alongside potential barriers to implementation, highlighting the need for targeted teacher support, comprehensive guides, and in-class exemplars.

The integration of 21st-century skills, such as problem-solving, modeling, critical thinking, and communication, is consistent with international best practices for mathematics education (Altun & Memiş, 2022; Bozkurt & Yavuz, 2023).

However, aligning these learning outcomes with measurable and observable indicators is crucial for meaningful evaluation. Without this alignment, both student learning and program assessment may not fully reflect the intended competencies.

By combining curriculum analysis, teacher support, and ongoing research on program implementation, the Maarif Model Mathematics Curriculum can achieve its holistic, value-based objectives while ensuring sustainable, high-quality educational outcomes. Future studies employing mixed-method designs can further validate these findings and provide actionable insights for curriculum development and teacher training.

Recommendations

Based on the critical analysis of the curriculum's context, input, process, and product dimensions, and considering the insights from recent studies, the following recommendations are proposed to enhance the implementation and effectiveness of the program. In this study, the Türkiye Century Maarif Model Mathematics Curriculum, which was implemented in 2024, was systematically examined in the context, input, process, and product dimensions based on Stufflebeam's CIPP evaluation model. In line with the findings obtained, it was determined that the fundamental structure of the program is, in fact, its national and moral values. It is also noteworthy that the program offers an innovative pedagogical approach through contemporary instructional strategies that are student-centered, inquiry-based, problem-solving-oriented, digitally competent, and supportive of meaningful learning. However, it was observed that certain limitations exist in the process and product dimensions, particularly the lack of practice-oriented examples and the presence of uncertainties regarding the measurability of some learning outcomes. In this context, the recommendations listed below are presented to ensure the more effective implementation and development of the program.

First of all, in order to increase the effectiveness of the program in the implementation dimension, it is evident that the implementers of the program, namely the teachers, need a comprehensive professional development process. The philosophical foundations and pedagogical principles underlying the program should be internalized by teachers, supported not only at the knowledge level but also in terms of application skills. Therefore, in-service training programs for teachers should not only convey theoretical and conceptual knowledge but must also include practical applications. For this reason, curricula should include practical workshops, case analyses, and in-class sample applications, and the programs should be enriched with practice-oriented content, especially regarding the use of assessment tools.

In order to make the learning outcomes in the curriculum more concrete and to increase the effectiveness of the teacher factor in the program, comprehensive teacher guides containing sample activities, materials, and assessment tools for the learning outcomes in the program should be prepared.

While the current curriculum documents reveal the general orientations, they leave a considerable space for the teacher's creative planning; this situation creates uncertainty, particularly for teachers with limited implementation experience. Guide materials to be prepared by the relevant department of the Ministry of National Education, diversified according to different school types, student profiles, and learning levels, will make the program more functional.

In the process evaluation of the program, it was concluded that there is a need to increase the qualitative and quantitative tools that can monitor the teaching process. Especially, surveys, scales, observation forms, and assessment examples based on student products, which will allow the monitoring of students' progress in learning processes and their level of participation in the lesson, will provide practical support to teachers in the classroom. Integrating such tools into

the official documentation of the program will bring integrity to the evaluation processes. Therefore, in order to support teachers regarding the curriculum and to increase the effectiveness of the course in measurement and evaluation, assessment materials should be prepared by the relevant institutions and provided to teachers.

Another important need revealed by the study is the need for broader participation and data-based research on the effectiveness of the program. Regarding this issue, future studies should be designed as mixed-method research that includes both teacher and student opinions and combines quantitative and qualitative data, thereby addressing other information gaps in the field. Research conducted with a mixed model will not only contribute to the analysis of current practices but also provide curriculum developers with more holistic data or information on the strengths and weaknesses of the program.

For the holistic and value-based approaches targeted by the Maarif Model Mathematics Curriculum to be effectively monitored in the field and for their sustainability to be ensured, it is necessary for the recommendations stated to be included in the curricula. In the program evaluation process, the multidimensional perspective offered by the CIPP model should be considered not only as a tool for analyzing the current state of the program but also as a tool to support a culture of continuous development and improvement.

Ethical Statement

This study was approved by the Ethics Committee of Hatay Mustafa Kemal University, Social and Human Sciences Scientific Research and Publication Ethics Committee, with the decision dated 03.07.2025 and numbered 29.

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Conflict of Interests

The author declares that there is no conflict of interest regarding the publication of this article.

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