

A Novel Implementation of the CIPP Model in Undergraduate Medical Education: The Karadeniz Technical University Faculty of Medicine Experience

Mezuniyet Öncesi Tıp Eğitiminde CIPP Modelinin Yenilikçi Bir Uygulaması: Karadeniz Teknik Üniversitesi Tıp Fakültesi Deneyimi

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Abstract

This case study explores the innovative application of the Context, Input, Process, and Product (CIPP) model for program evaluation in the undergraduate medical education program at Karadeniz Technical University Faculty of Medicine. While CIPP is widely recognized for its adaptability in educational settings, the approach introduces unique methodologies tailored to meet the complex demands of medical education. It is highlighted that the model's capacity to enhance program accountability, align curriculum design with societal health needs, and integrate diverse stakeholder perspectives. This case study presents a replicable framework for institutions seeking to implement CIPP in complex educational contexts.

Özet

Bu vaka çalışması, Karadeniz Teknik Üniversitesi Tıp Fakültesi lisans tıp eğitimi programında, program değerlendirme için Bağlam, Girdi, Süreç ve Ürün (CIPP) modelinin yenilikçi uygulamasını incelemektedir. CIPP modeli, eğitim ortamlarında adaptasyon yeteneğiyle geniş çapta tanınırken, Karadeniz Teknik Üniversitesi Tıp Fakültesinin program değerlendirme yaklaşımı, tıp eğitiminin karmaşık taleplerini karşılamak üzere uyarlanmış özgün bir yöntem sunmaktadır. Çalışmada, modelin program hesap verebilirliğini artırma, müfredat tasarımını toplumsal sağlık ihtiyaçlarıyla uyumlu hale getirme ve çeşitli paydaş perspektiflerini entegre etme kapasitesine dikkat çekilmektedir. Bu vaka çalışması, karmaşık eğitim bağlamlarında CIPP uygulamak isteyen kurumlar için tekrar edilebilir bir çerçeve sunmaktadır.

Introduction: Program evaluation is a cornerstone of educational quality assurance and curriculum development, providing insights into a program's design, implementation, and outcomes. In medical education, the complexity of learning environments and the multitude of stakeholders demand evaluation models that are both comprehensive and adaptable. Given the dynamic and interdependent nature of medical education, innovative evaluation approaches are required to capture the evolving needs of learners, educators, and healthcare systems. The complex structure of medical education should be examined through the lens of complexity theory, as it involves the interactions of multi-component systems and adaptive outcomes. Complexity theory explores how interconnected components interact dynamically, leading to emergent outcomes beyond linear predictions. In medical education, it highlights the adaptive nature of learning environments, the interplay of stakeholders, and the need for flexible evaluation models that capture these evolving dynamics (1-3). Considering this complexity in program evaluations contributes to the development of more effective and adaptable educational models. The CIPP (Context, Input, Process, Product) model provides a comprehensive framework for evaluating educational programs, offering insights at all stages of the program and supporting decision-making processes. Particularly in medical education, the use of the CIPP model is recognized as a significant tool for understanding and managing program complexity (4,5). Previous studies have demonstrated the effectiveness of the CIPP model in assessing various aspects of medical training programs, including clinical skills development, curriculum effectiveness, and institutional improvements (6-8). These findings support its relevance in evaluating dynamic and multifaceted educational structures. At Karadeniz Technical University Faculty of Medicine, an innovative adaptation of the CIPP model has been developed to address unique institutional and regional challenges (9). This adaptation integrates principles of complexity theory to ensure a more responsive and context-sensitive evaluation framework. This case study aims to elucidate the features of this approach, its alignment with global best practices, and its contributions to the field of medical education program evaluation.

Overview of the CIPP Model: The CIPP model's four components provide a holistic framework (10):

1. Context Evaluation: Identifies program needs, goals, and priorities by examining the socio-cultural and institutional environment.

2. Input Evaluation: Focuses on resources, strategies, and action plans essential for program implementation.

3. Process Evaluation: Monitors program activities to ensure alignment with objectives and identifies areas for real-time improvement.

4. Product Evaluation: Assesses short- and long-term outcomes, including learner achievements and program impact. While CIPP is established in educational research, its application to medical education remains less explored, particularly in integrating reflective practices, interprofessional collaboration, and societal accountability (5,11-13). Karadeniz Technical University Faculty of Medicine's approach addresses these gaps by incorporating innovative strategies.

Adaptation of the CIPP Model at Karadeniz Technical University Faculty of Medicine:

In the international context, several gaps and challenges exist in applying the CIPP model in leading medical schools. Key issues include inconsistent integration of feedback from non-academic stakeholders, limited longitudinal follow-up in the "Process" and "Product" phases, and difficulty aligning evaluation findings with actionable changes. Additionally, disparities in resource availability hinder effective implementation (14-16). Standardized methodologies and greater stakeholder engagement could enhance program evaluation in medical education (17). Taking these gaps and challenges into account, Karadeniz Technical University Faculty of Medicine's implementation of the CIPP model emphasizes the following unique features:

Context: Alignment with Societal Needs
The adaptation begins with a robust contextual analysis that aligns program goals with regional healthcare challenges. To ensure that graduates acquire the necessary competencies to meet community needs, the curriculum has been systematically structured in accordance with the National Core Curriculum (UÇEP-2020) (18). This alignment facilitates continuous curriculum evaluation and refinement, enhancing both educational quality and responsiveness to evolving healthcare demands. According to the Self-Evaluation Report of Karadeniz Technical University Faculty of Medicine (9), the program's alignment with UÇEP-2020 is demonstrated in Table 1.

Input: Stakeholder Engagement and Reflective Practices

Diverse stakeholders, including students, faculty, administrators, and community representatives, are actively involved in all stages of program

Table 1. The alignment status of the Karadeniz Technical University Faculty of Medicine 'undergraduate medical education curriculum with the UÇEP-2020 topics.

Main UÇEP-2020 Components	The number of topics in UÇEP-2020	Matched topics in The Karadeniz Technical University Faculty of Medicine Curriculum	%
Core diseases / clinical problems	342	277	81%
Clinical symptom / finding / condition	141	137	97%
Behavioral, Social, and Human Sciences	35	33	94%
Basic Clinical Skills	160	91	56%

evaluation (Figure 1). Their perspectives ensure the evaluation process remains inclusive and multifaceted. For example, in February 2022, the

VISION2030 Search Conference was organized by Karadeniz Technical University Faculty of Medicine to gather stakeholder perspectives

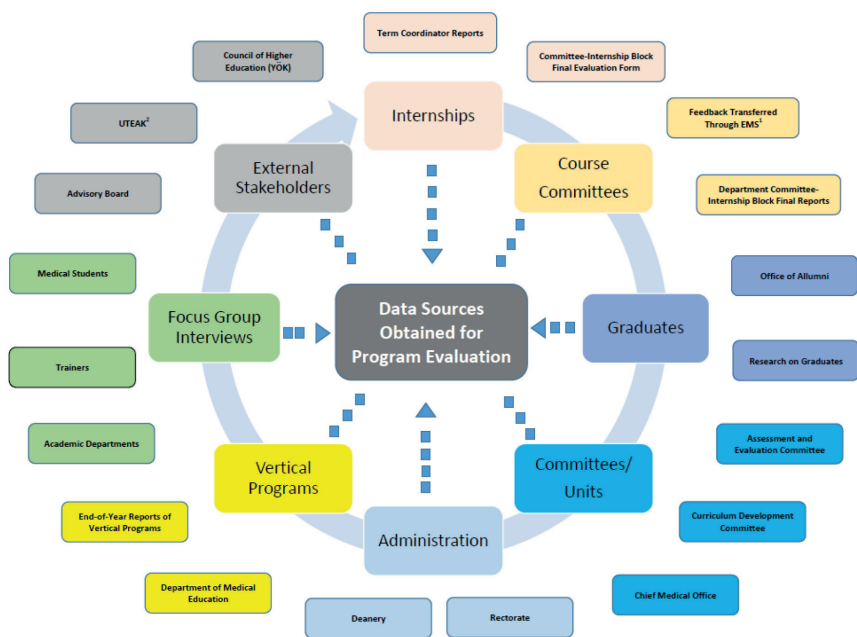


Figure 1. The resources of data collected for program evaluation.

and utilize them for program development (9). Unlike traditional strategy development methods, this approach engaged diverse participants, fostering shared ownership of educational goals and enhancing motivation for implementation. Additionally, reflective practices, guided by Gibbs' Reflective Cycle, are embedded throughout the evaluation process. Structured reflection sessions, including focus group discussions conducted by the Department of Medical Education since the 2021-2022 academic year, provide qualitative insights that complement quantitative data. These sessions

allow students and educators to analyze learning experiences and contribute to program improvement.

Process: Iterative Process Evaluation Continuous evaluation loops are established to monitor program activities (Figure 2). These iterative evaluations facilitate real-time improvements, such as refining teaching methods or reallocating resources to address emerging needs. By systematically integrating feedback into program evaluation, adjustments are made dynamically, ensuring a more responsive and adaptable curriculum.

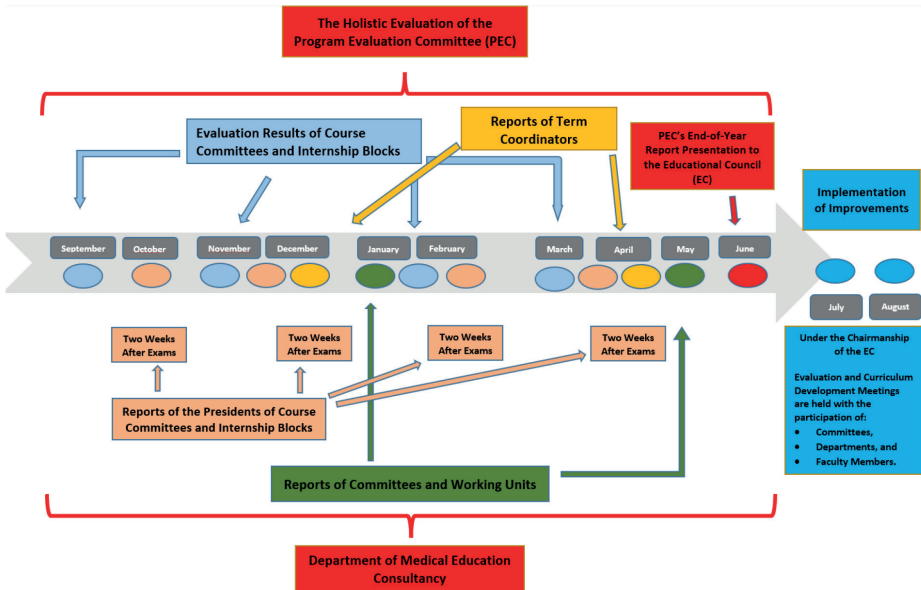


Figure 2. The annual process of data collection for program evaluation.

Product: Outcome-Based Metrics The program's success is measured through an outcome-based medical education approach to ensure the attainment of the competencies defined by Karadeniz Technical University Faculty of Medicine. By implementing a comprehensive program evaluation strategy, we systematically monitor whether intended outcomes are effectively met, fostering a more accountable and student-centered medical education system (Figure 3).

Strengths and Challenges: Karadeniz Technical University Faculty of Medicine's adaptation of

the CIPP model demonstrates several strengths:

- **Enhanced Program Accountability:** The approach ensures transparency and responsiveness to stakeholders.
- **Alignment with Accreditation Standards:** The model supports compliance with national and international accreditation requirements, positioning Karadeniz Technical University Faculty of Medicine as a leader in medical education.
- **Scalability and Replicability:** The framework's adaptability allows it to be scaled to other faculties or institutions with similar needs. However, challenges include the need for

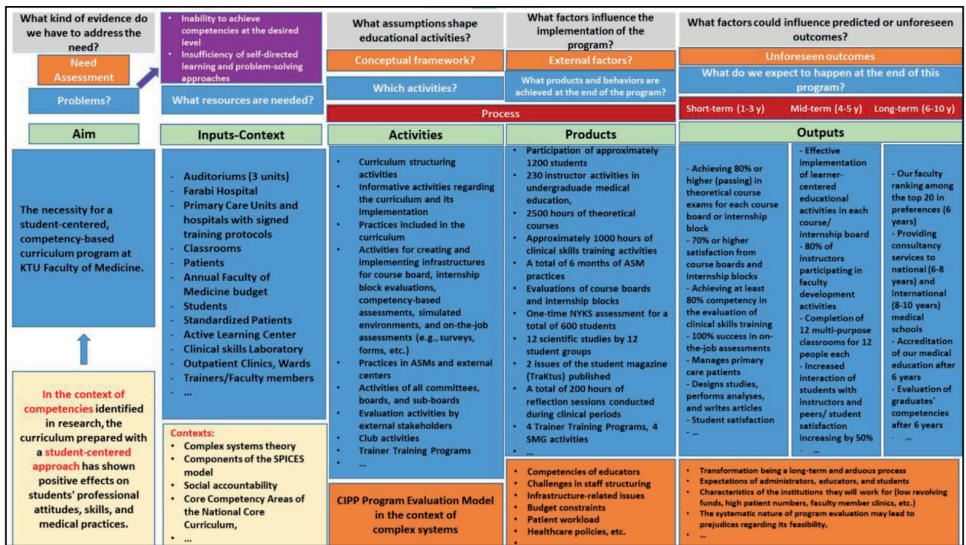


Figure 3. The general framework for adapting the CIPP model to KTU Faculty of Medicine in program evaluation.

sustained faculty training and the potential resource intensiveness of comprehensive evaluations. Addressing these challenges requires institutional commitment and strategic resource allocation.

Conclusion: The Karadeniz Technical University Faculty of Medicine experience illustrates how the CIPP model can be innovatively adapted to meet the demands of modern medical education. By aligning program evaluation with societal health needs, fostering reflective practices, and engaging diverse stakeholders, The Karadeniz Technical University Faculty of Medicine has developed a replicable framework that enhances educational quality and accountability. This case study serves as a model for institutions seeking to implement holistic and adaptable evaluation systems in complex educational environments.

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