Exploring Universal Implementation Strategies: Comparative Analysis of CIPP Models

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Abstract
Based on previous research on the implementation methods of the CIPP curriculum evaluation model, which has been chaotic and disorganized, and the current implementation status, which presents many problems, this review aims to compare, integrate, and analyze the application of the CIPP curriculum evaluation model by different researchers. The focus is on exploring the differences, connections, advantages, disadvantages, and specific applications. The study finds: (1) The differences and connections in the use of the CIPP curriculum evaluation model by different researchers. (2) Summarizing and innovating a universal method for applying the CIPP model. This enriches the theory of curriculum evaluation and provides a reference for the application of the CIPP model in educational practice.

Keywords: CIPP Model, Curriculum Evaluation, Literature Review

Introduction
Different researchers have varying definitions of curriculum. Some define curriculum as the experiences of learners (Ornstein, 1987). Others believe that curriculum is a complex and observable phenomenon conducted in schools and other educational institutions, consisting of multiple layers and numerous actual events. It is part of education and the study of all educational phenomena (Egan, 1978; Mathews, 2018). In this study, the researcher considers curriculum not as a single entity of knowledge or experience but as one of the complex components of education. The curriculum includes both content and teaching methods (Jones et al., 2021). Curriculum content represents the theory, while teaching methods represent the specific implementation. Curriculum theory is the most powerful tool we have for understanding phenomena beyond our everyday reality (Kliebard, 1982). Curriculum theorists continuously reconstruct the central propositions and demands of the curriculum field in a way that aligns with existing political, social, and economic expectations (Deng, 2021). Curriculum theory forms the foundation for selecting curriculum content. For example, when selecting curriculum content, the theory that emphasizes children's interests should be considered. During curriculum implementation, we can focus on children's interests, transforming these interests into activities and experiences to stimulate their intrinsic
motivation and promote better learning and development (Vartuli & Rohs, 2008). In this process, curriculum theory plays a fundamental role in the selection of content and, to some extent, promotes teaching development. The curriculum should not remain fixed in old concepts but should undergo changes and innovations in content (Kress, 2000). This demonstrates the foundational role of the curriculum. Teaching methods are the specific implementations in teaching activities. They are procedures and tools used to facilitate learning (Salkind, 2008). Examples include 12 types of teaching techniques (questioning, wait time, testing, focus, manipulation, presentation methods, inquiry or discovery, audiovisual aids, and teacher guidance), teacher participation in professional learning activities, particularly experimentation and reflection, teachers’ emotional regulation, and evidence-based teaching methods (Mitchell & Sutherland, 2020; Burić & Frenzel, 2021; Samsudin et al., 2020; Thoonen et al., 2011; Wise & Okey, 1983). Therefore, curriculum content serves as the theoretical foundation, and teaching methods are the specific implementations. They complement each other and jointly promote educational practice.

The role of curriculum evaluation at each stage in the curriculum is crucial. It can evaluate and improve specific problems in the curriculum, thereby promoting educational practice. In the last century, some researchers came to a unanimous conclusion that curriculum evaluation is an important stage in curriculum development. Through evaluation, teachers can find out whether the curriculum has achieved its purpose and whether students are really learning (DiFlorio et al., 1989). In recent years, this importance has continued to be confirmed: evaluation can determine the quality of educational programs and can prompt the reform, revision or termination of programs (Toosi et al., 2021). Not only do researchers believe that curriculum evaluation is important, but many countries have also recognized the importance of curriculum evaluation and issued relevant documents. For example, in October 2020, the Central Committee of the Communist Party of China and the State Council issued the "Overall Plan for Deepening the Reform of Education Evaluation in the New Era", and in 2021, the "Guidelines for the Quality Evaluation of Compulsory Education" issued by the Ministry of Education of China and six other departments emphasized the specific content of education evaluation in the new era (Central Committee of the Communist Party of China & State Council, 2020; Ministry of Education, People’s Republic of China, et al., 2021). This shows the importance of curriculum evaluation. Many researchers have reached a consensus on curriculum evaluation methods and believe that some models can be established to make the evaluation process more reliable, effective and operational. They all agree that the implementation of the evaluation process seems difficult, but an evaluation framework can be developed to simplify the evaluation process into a series of steps to decompose and simplify the complex evaluation process, which is more conducive to understanding and implementation. These specific evaluation processes can be summarized into different curriculum evaluation models. Educators can effectively conduct curriculum evaluation by choosing appropriate evaluation models based on the complexity of the project and their own evaluation needs (Buker & Niklason, 2019; Al-Jardani, 2011; Tuju et al., 2022; Frye & Hemmer, 2012; Nouraey et al., 2020). In this study, the researchers' views are consistent with these researchers, believing that the focus of the course is on curriculum evaluation, which is a bridge between curriculum theory and practice and can promote the development of educational theory and educational practice.

In previous studies, researchers have summarized many generally applicable curriculum evaluation models. The current mainstream curriculum evaluation models include the goal model, process model, CIPP model, spiral curriculum model, reverse design model, etc. The
A goal model of curriculum evaluation was proposed by Taylor, the "father of modern curriculum evaluation" in 1949. He focused on the evaluation of grades (Tyler, 2013). Unlike Taylor, Stenhouse emphasized that curriculum is a process, and learning should focus on students' liberation rather than grades (Ord, 2016). In the 1860s, the CIPP model developed by Daniel Stufflebeam also emphasized the process of curriculum evaluation to a certain extent. He made a specific explanation of the four stages of curriculum evaluation: context, input, process, and produce. The model can be used to evaluate all stages of educational projects from development to implementation (Stufflebeam, 1968; Toosi et al., 2021). The spiral curriculum model refers to the process of reviewing previous knowledge so that the knowledge content is in a spiral state, rather than just repeating the old knowledge content. It helps to systematize and organize knowledge, deepen understanding and learning, and prevent information overload (Coelho & Moles, 2016). This study mainly explores the CIPP model, which is currently widely used in the field of education.

However, the current curriculum faces numerous issues. Theoretically, there is a gap between current curriculum theory and practice (Wang, 2020). Additionally, curriculum theory itself is in crisis (Young, 2013). Practically, the application of curriculum evaluation models has limitations. For instance, the spiral curriculum model faces challenges in enhancing student experiences (Coelho & Moles, 2016). In different countries, many current educational practices also suffer from issues such as excessive educational burdens, uneven resource distribution, biased focus, and concerns over educational quality. For example, in East Asia, the Chinese government focuses solely on success indices, neglecting measures of affordability and quality, leading to significant disparities in implementation costs and quality. Higher education in China is overburdened and of questionable quality (Yang & Wang, 2020; Bao, 2012). In Southeast Asia, Malaysian schools were initially established following the British model, but more advanced concepts in Malaysia show a biased focus, concentrating only on primary and secondary education with little attention to higher education (Sukumaran et al., 2021; Carter et al., 2021). Moreover, Malaysia's educational achievements lag far behind those of Singapore, South Korea, Japan, and Taiwan (Musa, 2003). Given the current state of curriculum theory and practice, the significant disparities in global educational quality, and the severe educational issues faced by many countries, it is necessary to explore universally applicable CIPP evaluation models.

This study aims to explore a CIPP model application that is generally applicable to different scenarios by comparing, integrating, and analyzing the differences, connections, advantages and disadvantages, and specific applications of the CIPP model in different scenarios by different researchers. This will help reduce the gap between curriculum theory and educational practice, enrich the theoretical foundation, and promote educational practice.

Method

Literature Collection

Systematic literature review provides a comprehensive overview of topics, theories, and methods, synthesizes previous research, strengthens the knowledge base, and is of great value (Paul & Criado, 2020). This study uses a qualitative research method, in the form of a literature review, to analyze relevant literature, explore the differences and connections between different evaluation models, and better select and apply them. The sources of literature are Mendeley, ERIA, PubMed, Google scholar, including authoritative journals, books, and conference papers.
Literature Screening
1. By searching the keyword "CIPP Case Study", we selected articles from the past ten years from "2015 to 2024", and Mendeley obtained 227 articles; PubMed obtained 7 articles; and ERIA obtained 12 articles;
2. To identify the authority of the source of the article, we selected articles from journals, conferences, and books that can be searched by Google at the same time. Scholar search, Mendeley deleted 7 articles, 220 articles left; PubMed left 7 articles; ERIA deleted 2 articles, 10 articles left;
3. Deleted the literature that could not obtain the full text, Mendeley deleted 105 articles, 115 articles left; PubMed left 7 articles; ERIA left 10 articles;
4. Excluded non-English articles by reading the title and full text, Mendeley deleted 30 articles, 85 articles left; PubMed left 7 articles; ERIA left 10 articles;
5. Excluded irrelevant or duplicate articles by reading keywords, abstracts, and full texts, Mendeley deleted 70 articles, 15 articles left; PubMed deleted 2 articles, 5 articles left; ERIA deleted 1 article, 9 articles left. The remaining 29 articles were used for this study.

The specific search and screening procedures are shown in Table 1 (PRISMA, 2020). The inclusion and exclusion criteria of the literature are shown in Table 2. Two researchers screened and discussed the screened and included literature in the form of a group meeting, and all the literature was finalized after reaching a consensus.
Table 1

**PRISMA Flow Diagram**

Records identified from Databases searching:
- Mendeley=227; PubMed=7; ERIA=12
  \((n=246)\)

Delete records that are not journals, conferences, or books and cannot be searched by Google Scholar.
- Mendeley=7; PubMed=0; ERIA=2
  \((n=7)\)

Records screened:
- Mendeley=220; PubMed=7; ERIA=10
  \((n=237)\)

Delete records for which the full text cannot be retrieved.
- Mendeley=105; PubMed=0; ERIA=0
  \((n=105)\)

Reports sought for retrieval:
- Mendeley=115; PubMed=7; ERIA=10
  \((n=132)\)

Exclude non-English records.
- Mendeley=30; PubMed=0; ERIA=0
  \((n=30)\)

Reports assessed for eligibility:
- Mendeley=85; PubMed=7; ERIA=10
  \((n=102)\)

Exclude irrelevant or duplicate records.
- Mendeley=70; PubMed=2; ERIA=1
  \((n=73)\)

Delete records that are not journals, conferences, or books and cannot be searched by Google Scholar.
- Mendeley=7; PubMed=0; ERIA=2
  \((n=7)\)
Table 2

<table>
<thead>
<tr>
<th>Inclusion criteria</th>
<th>Exclusion criteria</th>
</tr>
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<tbody>
<tr>
<td>2. Education, related to the CIPP course evaluation model</td>
<td>2. Non-educational field, not related to the CIPP course evaluation model</td>
</tr>
<tr>
<td>3. English</td>
<td>3. Non-English</td>
</tr>
<tr>
<td>5. Full text available</td>
<td>5. Unable to obtain full text</td>
</tr>
<tr>
<td>6. All articles can be searched by Google scholar</td>
<td>6. Cannot be searched by Google scholar</td>
</tr>
</tbody>
</table>

Literature Distribution

![Figure 3: Research Methodology](image)

As shown in Figure 3, the CIPP evaluation model mainly uses qualitative research methods (76%), followed by mixed research (17%), and quantitative research is rarely used (7%). Among them, qualitative research methods are mainly observation, interview, and questionnaire (Darama et al., 2018; Cahyadi et al., 2022; Gul et al., 2022).
Table 4  
*Country distribution*

As shown in Table 4, the papers screened by the researchers were distributed in 11 countries in three continents, including 24 in Asia, 3 in Africa, and 2 in North America. The largest number of papers was distributed in Asia (83%), while the smallest number was distributed in North America (7%).

Table 5  
*Time distribution of literature*

As can be seen from Table 5, the distribution of the number of literature on the CIPP model in the past decade has generally shown an upward trend over time, with the largest number of literature published in the past two years (41%).
Findings

Table 6
Application of CIPP model in different scenarios

<table>
<thead>
<tr>
<th>Author</th>
<th>Program</th>
<th>Process</th>
<th>Findings&amp;Ef fect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agustina &amp; Mukhtaruddin</td>
<td>Comprehensive English language learning program at the Language Center (school quality)</td>
<td>1. Context: English needs analysis (needs for vocabulary, communication accuracy; needs in different semesters; needs of different students in the same semester) 2. Input: (1) Plan and allocate resources: English proficiency test and grouping (class homogeneity, convenient for teaching material preparation). (2) Project development (four steps): select and formulate standards (based on the Common European Framework of Reference for Languages); project description; formulate teaching outline; obtain feedback and modify and repeat. (3) Teacher quality control (three types of teacher evaluation): student end-of-term questionnaire evaluation; colleague evaluation; student online or offline personal contact with the management center evaluation. 3. Process (determine whether the implementation process meets the standards): (1) Use of teaching outline materials; (2) Teaching methods (addition or deletion of specific questions, games, group activities)</td>
<td>It is helpful to improve the project; it provides possible solutions to the problem; it provides teachers with references for teaching strategies. (Agustina &amp; Mukhtaruddin, 2019)</td>
</tr>
</tbody>
</table>
cooperation...); (3) Official teaching evaluation (attendance rate, classroom evaluation, homework and progress test, in-class exercises, pre-exam test, book review).

4.Product: whether the educational goals are achieved; leveling project and leveling system (student proficiency); model development, review and feedback; teacher quality (teacher recruitment standards and system, teacher active participation).

<table>
<thead>
<tr>
<th>Ilhan</th>
<th>Competency-Based Medical Education Curriculum (Evaluation)</th>
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<tbody>
<tr>
<td></td>
<td>1.Context: The purpose is to evaluate competency-based medical education courses.</td>
</tr>
<tr>
<td></td>
<td>2.Input: (1) Student and faculty definitions of competency (negative for students, positive for faculty); (2) Development of standards for competency in CBME.</td>
</tr>
<tr>
<td></td>
<td>3.Process: The dimensions of competency-based medical education courses as perceived by students and faculty.</td>
</tr>
<tr>
<td></td>
<td>4.Product: The contribution of CBME to students’ academic or professional development as perceived by students and faculty.</td>
</tr>
</tbody>
</table>

Medical schools should explain the goals and principles of CBME to teachers and students and offer relevant short courses or lectures; teaching implementation should be based on theory; teachers should provide effective teaching methods to support; and regularly evaluate and modify competency-based medical education...
Makina & Kadzere

| Emergency Distance Learning Methods (Facilitating online mathematics teaching during COVID-19) | 1. Context: raise questions (goals, needs), student background, whether online teaching ideas are feasible, etc. 2. Input: meet needs and plans. 3. Process: conduct teaching process according to the topic and ensure student participation. 4. Product: the advantages and disadvantages of using OneNote tool. | Advantages: Using Microsoft OneNote tools to teach via Zoom is more effective than face-to-face teaching. It reduces costs, reduces absenteeism to almost zero, increases students' overall motivation to learn and ask questions, and facilitates students to share exercises. Disadvantages: Reduced student communication, affecting classroom discussions and social life; some people find it difficult to participate |
| **Aziz et al.** | **Evaluate the school's educational quality.** | 1. Context: Objectives, Mission, Goals  
2. Input: Resources, Infrastructure, Curriculum, Content  
3. Process: Teaching-learning process, Co-curricular activities  
4. Product: Skills, Values, Attitudes, Results  

The school focuses on quality education by using different means such as advanced technology, effective communication, relevant curriculum, and teaching strategies; however, teachers focus more on theoretical aspects without high-speed Internet. (Makina & Kadzere, 2022) |
|---|---|---|
| **Nurhayati et al.** | **Reliability and validity of the Evaluation of child-friendly school (CFS) policy evaluation tool.** | 1. Context: school goals; student background; school infrastructure; financial support; designated plans; communication with families, communities and other stakeholders.  
2. Input: strategy; well-founded plans; clear operating procedures; financial support;  
3. Process: maintain hygiene; select class leaders; teacher-student interaction; respect for individual differences; pay attention to student interests; students allow evaluation; parent-teacher meetings.  
4. Product: active participation of parents; school culture support; enhance parents' understanding of their children; students feel safe and comfortable.  

Through the CIPP model evaluation, it is known that the CFS tool has reliability and validity and can be applied. (Nurhayati et al., 2024) |
work and rote learning, which puts pressure on students and has a negative impact on their intelligence. (Aziz et al., 2018)

As shown in Table 6, through the comparison of different case implementations, this study found that the CIPP model has great differences in specific scenario implementation: (1) Different research purposes. Some evaluate courses, some evaluate tools, and some evaluate school education quality. (2) Different implementation procedures. In the context part, some evaluate legal basis and community needs; some evaluate the demand for vocabulary communication accuracy, the needs of different semesters, and the needs of different students in the same semester; some evaluate medical education courses; some evaluate student backgrounds and whether online teaching ideas are feasible; some evaluate school infrastructure; financial support; designated plans; some evaluate communication with families, communities and other stakeholders; and some evaluate Objectives, Mission, and Goals. In the Input part, different researchers selected some parts of team building, planning and resource allocation, project development, teacher quality control, student and teacher views, strategies, well-founded plans, clear operating procedures, financial support, Resources, Infrastructure, Curriculum, and Content according to their own research purposes, but not all of them, and there were differences in the selection. In the process part, although different researchers have established corresponding process standards, there are great differences in the specific operating procedures. In the product part, although they all serve to achieve educational goals, the output results are different due to different goals. For example, the product evaluation of some projects is related awards, the product evaluation of some projects is teacher quality, student academic or career development, and the product evaluation of some projects is parent-child relationship or home-school cooperation. (3) The impact is different. Some have a promoting effect on education and teaching; some sometimes promote and sometimes hinder. It needs to be judged in specific scenarios and further research and analysis is needed. From these differences, researchers realize that the specific implementation scenarios of the CIPP model are still very complex. However, based on the above cases, the researchers also found the connection between them. Through the comparison of different studies, it was found that the application of the CIPP model is centered around a specific tool or course. In the implementation or evaluation process, the four steps of Context, Input, Process, and Product were strictly followed. The research results are all to prove the effectiveness of a certain course or tool. In this study, the researchers believe that this is a universal strategy for CIPP application scenarios, and the specific scenarios of the CIPP model can be implemented based on this strategy.
Conclusion and Discussion
This study transcends geographical and temporal barriers, simplifies complex issues, and makes the specific implementation strategies of the CIPP evaluation model more systematic, in-depth, and clear. This study answers the research questions and proposes the application strategy of the CIPP model in universal scenarios; enriches the application theory of the CIPP model in universal scenarios; provides a reference for education policy makers to formulate standard evaluation policies; and has important significance for students' knowledge absorption and teachers' teaching improvement, promoting teaching evaluation practice, and promoting the sustainable development of education.

This study found that the specific implementation of different case studies using the CIPP model for course evaluation has huge differences in research purpose, specific implementation procedures, and results. The implementation procedure of the research is a specific research strategy formulated by educational implementers based on the set research topic and purpose, and different educational implementation procedures produce different research results. Therefore, when using the CIPP model for course evaluation, educational practitioners should combine their own course evaluation topics and purposes to create different research methods and operational steps. In addition to the differences in the CIPP model, the researchers also summarized the commonality of the operating framework when teacher practitioners used the CIPP model for course evaluation in different case implementations, that is, the use of the CIPP model for course evaluation should focus on a certain course or tool and strictly follow the four steps of Context, Input, Process, and Product in order to prove the effectiveness of a certain course or tool.
Table 7: Universal application strategy of CIPP model in curriculum evaluation

In this study, the CIPP model proposed by the researchers is based on the universal strategy of specific application scenarios as shown in Table 7. Specifically, the application method of the innovative universal CIPP model in this study is as follows: 1. Determine the topic and formulate the research purpose
2. Run the CIPP model:
   (1) Before implementation:
      context: determine the needs (problems, goals to fully respond to needs, opportunities)
      input: meet the needs (plan all allocated resources)
   (2) During implementation (process): implementation status (performance, defects, legality/ethics)
   (3) After implementation (output): general results, specific results, expected results, unexpected results, value (comparison with the cost-effectiveness of other projects)
3. Results and feedback: judge the impact through the output results. Adjust and improve the CIPP process again, and conduct evaluation and result output according to the steps of
Context-Input-Process-Output until satisfactory evaluation results are achieved and educational goals and values are achieved. This study is an analysis and synthesis of previous literature, but it is limited to qualitative research and no relevant empirical investigation has been conducted. Therefore, the conclusions need to be carefully considered.

Suggestions for future research: (1) In future research, empirical research can be conducted to investigate the universal application strategy of the CIPP model from multiple angles through quantitative research methods or mixed research methods (Li & Hu, 2022). (2) The specific application effect of the CIPP evaluation strategy proposed in this study in the universal scenario in real teaching activities can be explored for further promotion. When we use this strategy, we can also combine it with the corresponding course evaluation tools, such as the improved nominal group technique (Dobbie et al., 2004). By selecting course content in a targeted manner, continuously innovating teaching methods, and making full use of information technology, teaching efficiency can be optimized (Wang, 2020). (3) Explore the implementation strategies of other evaluation models other than the CIPP model in universal scenarios to make theoretical knowledge more valuable for practical reference.

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Reference


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