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The CIPPO Model in the Management of University Lecturers' Scientific Research Activities: Some Theoretical Issues

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Abstract---*Research objectives: This study aims to clarify the theoretical foundations of the CIPPO model and examine its applicability to the management of university lecturers' research activities, with a view to enhancing research quality, effectiveness, and practical impact in the context of digital transformation. Research gap: Although the CIPPO model has been widely examined and applied in educational evaluation and management, its application to the management of university lecturers' research activities has received limited systematic and in-depth attention. Research methods: The study employs theoretical research methods, including the analysis and synthesis of relevant domestic and international literature; practical research methods focusing on the application of the CIPPO model to research management in higher education institutions; and expert consultation to assess the relevance and feasibility of the proposed management measures. Key findings: The study identifies and clarifies the components of the CIPPO model and their respective roles in managing university lecturers' research activities. Based on the CIPPO framework, it proposes management measures aimed at improving the quality of scientific publications, strengthening lecturers' research capacity, enhancing the linkage between research, teaching, and practice, and responding to the requirements of digital transformation and higher education reform.*

Keywords---*CIPPO model, research management, university lecturers, higher education institutions, digital transformation.*

Introduction

In the context of rapid digital transformation, globalization, and increasing demands for innovation, scientific research has become a core function of higher education institutions. Alongside teaching, research contributes to knowledge creation, institutional development, academic reputation, and the capacity of universities to respond to societal needs. For university lecturers, scientific research is also closely associated with professional development, the renewal of teaching content, and the integration of research-based knowledge into educational practice. Consequently, improving the quality and effectiveness of lecturers' research activities requires not only individual research capacity but also a systematic and coherent approach to research management (Chang & Lin, 2018).

Managing scientific research in higher education is a complex process involving multiple interrelated factors, including institutional policies, human and financial resources, research infrastructure, organizational procedures, monitoring and evaluation mechanisms, and research outputs. From a systems perspective, the effectiveness of an activity cannot be adequately understood by examining its outcomes alone; rather, attention must also be given to the conditions under which it operates, the resources available, and the processes through which those resources are transformed into results. This perspective is consistent with the development of the CIPP evaluation model, which emphasizes Context, Input, Process, and Product as interconnected dimensions for supporting decision-making, improvement, and accountability (Stufflebeam, 1971; Stufflebeam, 2003; Stufflebeam & Shinkfield, 1985). More recent elaborations of the model have further emphasized its usefulness as a comprehensive framework for systematic evaluation and continuous improvement (Stufflebeam & Zhang, 2017).

Within educational effectiveness research, the Context–Input–Process–Output (CIPO) framework provides a closely related systems-based perspective. Scheerens (1990) conceptualized educational functioning through the relationships among contextual conditions, inputs, organizational and instructional processes, and outputs, demonstrating that educational outcomes need to be interpreted in relation to the conditions and processes that produce them. This framework was subsequently further developed in discussions of school effectiveness and educational improvement, emphasizing the importance of examining the interaction among contextual, resource, process, and outcome factors rather than treating performance as an isolated result (Scheerens, 2000). Such a perspective provides a useful theoretical basis for analyzing research management in higher education, where research performance similarly emerges from interactions among institutional context, available resources, management processes, and research outcomes.

Despite the potential of this systems-based approach, the application of the CIPO framework to the management of university lecturers' scientific research activities remains insufficiently systematized. Existing evaluation frameworks provide strong foundations for examining context, inputs, processes, and outcomes, but their implications for managing lecturers' research activities require further conceptual development. In particular, research management needs to address how institutional policies and the research environment shape research activities; how human, financial, technological, and infrastructural resources are mobilized; how research activities are planned, implemented, monitored, and supported; and how research outputs and their academic and practical impacts are evaluated. A CIPO-based approach therefore offers the potential to move research management beyond an output-oriented perspective toward a more comprehensive management framework (Abbas, 2020).

Against this background, this study aims to clarify the theoretical foundations of the CIPO model and examine its applicability to the management of university lecturers' scientific research activities in higher education institutions. Specifically, it analyzes the roles and interrelationships of Context, Input, Process, and Output in research management and proposes corresponding management measures. By doing so, the study seeks to provide a theoretical basis for improving research quality, strengthening lecturers' research capacity, enhancing the linkage between research, teaching, and practice, and supporting the development of higher education institutions in the context of digital transformation and educational reform.

Research Methods

Theoretical research methods: Previous studies on the CIPO model, higher education management, and university lecturers' scientific research activities were collected and analyzed. Policies and regulations issued by the Ministry of Education and Training, as well as guidelines on research management at universities, were also reviewed.

Practical research methods: The study examined how higher education institutions apply the CIPO model to the management of university lecturers' scientific research activities. Data from reports issued by the Ministry of Education and Training and research organizations were used for evaluation and analysis.

Expert consultation: Educational experts, education managers, and specialists with expertise in applying the CIPO model to the management of university lecturers' scientific research activities in higher education institutions were consulted to assess the feasibility of the proposed management measures.

Research procedure: (1) Collecting and analyzing theoretical literature, policy documents, and domestic and international research findings related to the CIPO model and the management of scientific research activities; (2) applying the CIPO model to develop an analytical framework for the management of university lecturers' scientific research activities; (3) consulting experts to refine the analytical content and the proposed management measures; and (4) synthesizing the research findings and drawing conclusions and recommendations.

Scope of the study: The study focuses on theoretical issues concerning the CIPO model and its application to the management of university lecturers' scientific research activities in higher education institutions.

Declaration on the use of artificial intelligence (AI): During the research process, the author used artificial intelligence (AI) tools to assist with language review, refinement of expression, and suggestions regarding the organization and presentation of the content. The use of AI did not replace the author's role in conducting the research, analysis, and scholarly argumentation. The author assumes full responsibility for the accuracy, integrity, and academic value of the article.

Research Results

Review of Previous Research

The theoretical basis of the CIPO approach is closely associated with systems-oriented traditions in educational evaluation and effectiveness research. Stufflebeam's CIPP framework was developed around four interrelated dimensions: Context, Input, Process, and Product. The framework was intended to provide systematic information for decision-making, program improvement, and accountability (Stufflebeam, 1971a, 2003). Rather than treating evaluation as an activity conducted only after a program has been completed, the CIPP framework considers the conditions in which a program operates, the resources and strategies available for implementation, the implementation process itself, and the results achieved. Stufflebeam & Shinkfield (1985) further elaborated this improvement-oriented perspective and emphasized the role of evaluation in supporting informed managerial decisions.

A related systems perspective can be found in educational effectiveness research. Scheerens (1990) analyzed educational functioning through the relationships among Context, Input, Process, and Output. In this approach, educational outcomes are interpreted in relation to contextual conditions, available resources, and organizational and instructional processes. Scheerens (2000) further developed this perspective by using the relationships among context, inputs, processes, and outputs to explain educational effectiveness. These studies provide an important conceptual foundation for viewing organizational performance as the result of interactions among multiple components rather than as an isolated outcome.

The CIPP framework was further systematized by Stufflebeam (2003), who clarified the functions of its four components. Context evaluation supports the identification of needs and priorities. Input evaluation informs decisions concerning strategies and resources. Process evaluation provides information about implementation and necessary adjustments, while Product evaluation examines the results and value of a program. Stufflebeam & Zhang (2017) subsequently presented CIPP as an integrated framework for improvement and accountability, emphasizing the continuous relationship among evaluation, implementation, feedback, and decision-making.

Other approaches to evaluation also support the need for comprehensive and usable evaluation frameworks. Rossi et al. (2004), examine evaluation through the relationships among needs, program design, implementation, outcomes, and efficiency. Patton & Campbell Patton (2022), emphasize the importance of connecting evaluation information with intended users and actual decisions. Mertens (2023), meanwhile, highlights contextual understanding, methodological rigor, stakeholder perspectives, and the appropriate use of different forms of evidence. Together, these perspectives indicate that organizational performance should be examined through the interaction of conditions, resources, implementation, and outcomes rather than through final results alone.

Despite these theoretical developments, the application of the CIPO perspective specifically to the management of university lecturers' scientific research activities has received comparatively limited attention in the literature reviewed for this study. Research performance in higher education is influenced not only by lecturers' individual competencies but also by institutional policies, research resources, organizational arrangements, implementation mechanisms, and the ways in which research results are evaluated and utilized. A framework capable of linking these elements within a coherent management system is therefore needed (Kember, 1997).

Building on the CIPP tradition and Scheerens' Context, Input, Process, and Output perspective, this study adopts CIPO as an analytical framework for scientific research management. The use of Output rather than Product reflects the specific focus of this study on identifiable research results and contributions generated by the management system, including scientific publications, research applications, contributions to teaching, and the development of research capacity. This adaptation retains the systems logic of the original evaluation approaches while making the framework more directly applicable to the management of scientific research activities in higher education.

The CIPO Model in the Management of Scientific Research Activities

In this study, CIPO is understood as a systems-based management framework comprising four interconnected components: Context, Input, Process, and Output. Its conceptual foundations draw on Stufflebeam's CIPP model and the Context, Input, Process, and Output formulation used in educational effectiveness research (Scheerens, 1990, 2000; Stufflebeam, 2003; Stufflebeam & Zhang, 2017).

The adaptation from CIPP to CIPO is purposeful. In Stufflebeam's framework, Product refers broadly to the outcomes and value of a program. For research management, this study uses the term Output to emphasize the identifiable results generated by lecturers' scientific research activities and by the institutional management of those activities. Such results may include scientific publications, research projects, patents and technological solutions,

technology transfer, contributions to teaching, and other academic or practical outcomes. The term Output therefore provides a clearer connection between managerial activities and observable research performance while maintaining the systemic relationships embedded in the original framework.

Context represents the institutional and external conditions within which research activities take place. Relevant factors include national policies on higher education, science, technology, and innovation; institutional development strategies; research priorities; organizational culture; stakeholder expectations; and societal demands. Context analysis helps identify needs, constraints, opportunities, and priorities before research objectives and decisions concerning resources are established (Stufflebeam, 2003; Stufflebeam & Zhang, 2017).

Input refers to the capacities and resources available for achieving research objectives. These include lecturers' qualifications and research competencies, research funding, laboratories and equipment, libraries and scientific databases, technological infrastructure, research support services, and institutional incentive mechanisms. Input analysis supports decisions concerning whether available resources and strategies are appropriate for the intended research objectives (Stufflebeam & Shinkfield, 1985; Stufflebeam & Zhang, 2017).

Process concerns the ways in which scientific research activities are organized and implemented. It includes research planning, project selection, implementation, monitoring, academic support, research collaboration, quality assurance, and adjustments made during implementation. Attention to Process enables managers to identify difficulties while research activities are underway and to make timely adjustments before such difficulties adversely affect expected results (Stufflebeam, 2003; Patton & Campbell Patton, 2022).

Output encompasses the immediate results and broader contributions of research activities. These may include publications, research projects, intellectual property, technology transfer, contributions to teaching, and other forms of academic or practical impact. Outputs should therefore be considered not only in terms of quantity but also in relation to quality, relevance, effectiveness, and contribution to intended objectives (Rossi et al., 2004; Stufflebeam & Zhang, 2017).

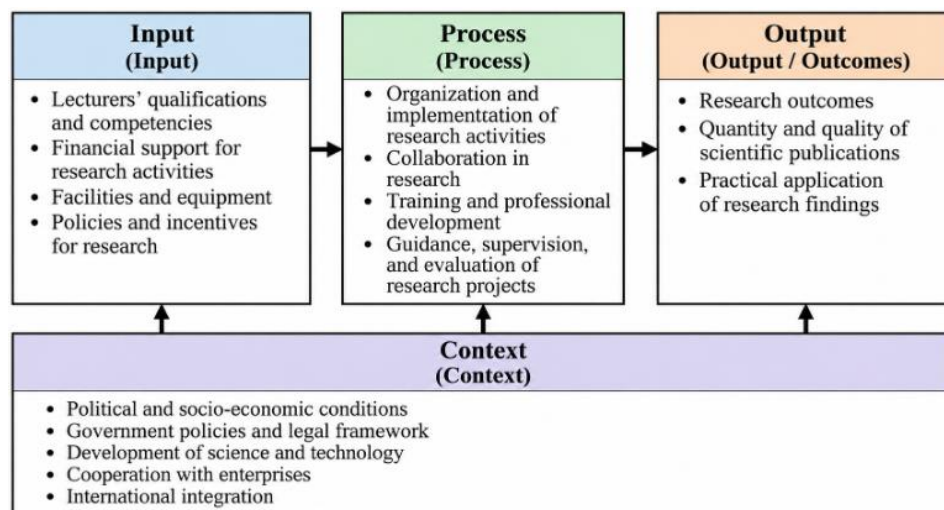


Figure 1. Conceptual Structure of the CIPO Framework for Scientific Research Management
(Source: Compiled by the author during the research process)

The value of CIPO lies in the relationships among its four components. Context influences research priorities and resource decisions. Input provides the capacities required for implementation. Process determines how those capacities are transformed into research activities, while Output provides evidence of the results achieved. Information generated from Process and Output can subsequently inform adjustments to policies, resources, and implementation. CIPO can therefore serve not only as a framework for evaluating completed research activities but also as a basis for continuous research management and improvement.

Application of the CIPO Model to the Management of University Lecturers' Scientific Research Activities in Higher Education Institutions

When applied to the management of university lecturers' scientific research activities, CIPO provides a structure for connecting institutional conditions, resources, managerial activities, and research results. Its practical value lies in

examining the relationships among these components and determining how decisions concerning one component may influence the others.

At the Context level, research management begins with identifying the policy, institutional, academic, economic, and technological conditions that shape lecturers' research activities. Higher education institutions need to determine research priorities in relation to their missions and development strategies while considering national policies, stakeholder expectations, emerging scientific developments, and societal needs. Context management also involves creating an environment conducive to research through academic networks, institutional support, and cooperation with universities, research institutes, businesses, and other relevant organizations. Context therefore provides the basis for determining what research should be prioritized and why (Scheerens, 2000; Stufflebeam & Zhang, 2017).

At the Input level, attention shifts to whether the institution possesses the capacities and resources required to pursue its research priorities. Relevant considerations include lecturers' research competencies and motivation, funding, infrastructure, databases, technological resources, administrative support, and incentive mechanisms. Effective management involves assessing not only the availability of these resources but also their adequacy, accessibility, allocation, and alignment with institutional research objectives. Decisions concerning professional development, research funding, infrastructure, and incentives should therefore be connected to the priorities identified at the Context stage (Stufflebeam & Shinkfield, 1985; Stufflebeam & Zhang, 2017).

The Process component translates research priorities and available resources into organized research activities. It covers proposal development and selection, project implementation, research collaboration, progress monitoring, quality assurance, publication support, dissemination, and mechanisms for applying research findings. Management at this stage should provide procedural clarity while retaining sufficient flexibility for timely adjustment. Monitoring is particularly useful when the information generated contributes to improving implementation rather than functioning solely as an administrative control mechanism (Stufflebeam, 2003; Patton & Campbell Patton, 2022).

At the Output level, management focuses on the results generated by the research system and the extent to which they contribute to institutional and societal objectives. Relevant evidence may include publications, completed research projects, intellectual property, technology transfer, applications of research findings, contributions to teaching, and other academic or practical outcomes. Assessment should therefore combine measures of research productivity with considerations of quality, relevance, utilization, and contribution (Rossi et al., 2004; Stufflebeam & Zhang, 2017).

The application of CIPO to university research management is cyclical rather than simply sequential. Information from Output may reveal weaknesses in resource allocation, implementation procedures, or research priorities and may consequently lead to adjustments in Input, Process, or Context. This feedback function makes the model particularly relevant to continuous improvement in scientific research management.

Management of University Lecturers' Scientific Research Activities in Higher Education Institutions Based on the CIPO Model

Based on the analytical framework presented above, the management of university lecturers' scientific research activities can be organized around four areas corresponding to Context, Input, Process, and Output. Each area involves specific management tasks, while effective research management depends on coordination among all four components.

Management of the Context of Scientific Research Activities

Management of Context involves translating changes in the external and institutional environment into appropriate research priorities, policies, and support mechanisms. Two management tasks are particularly important.

First, higher education institutions need to establish research policies and strategic orientations consistent with their missions and development priorities. These policies should define research objectives, priority areas, expectations for research performance, support mechanisms, and relationships among research, teaching, innovation, and practical application. They should also provide a basis for cooperation with research institutes, businesses, government agencies, and international partners. The purpose is not merely to produce policy documents but to ensure that research priorities are responsive to institutional capacities and relevant developments in the external environment (Stufflebeam, 2003; Stufflebeam & Zhang, 2017).

Second, institutions need to create and maintain a supportive research environment. This includes access to academic information, opportunities for scholarly exchange, participation in conferences and seminars, interdisciplinary interaction, and domestic and international research networks. Such an environment can strengthen connections between individual researchers and the wider academic community while creating conditions for

available resources to be used effectively. The significance of Context lies in its influence on organizational processes and expected outcomes (Scheerens, 1990, 2000).

Management of Inputs for Scientific Research Activities

Input management focuses on ensuring that the resources required for scientific research are available, appropriate, accessible, and aligned with institutional priorities.

First, attention should be given to lecturers' research capacity. Institutions need to consider academic qualifications, methodological competence, research experience, academic writing skills, data analysis skills, research ethics, and collaborative capacity when developing research teams and assigning research responsibilities. Professional development should respond to identified capacity needs rather than consist of isolated training activities. Institutional support and incentive mechanisms are also necessary to enable improved competencies to translate into sustained research engagement (Mertens, 2023).

Second, research funding needs to be allocated and managed effectively. Financial resources may come from institutional budgets, competitive grants, government programs, businesses, or other external sources. Institutions should establish transparent allocation criteria based on research priorities, feasibility, expected contribution, and resource requirements. They should also monitor whether financial resources are used for their intended purposes and contribute to expected results. The relationship among needs, resources, implementation, effectiveness, and efficiency provides an appropriate basis for such decisions (Rossi et al., 2004).

Third, institutions should ensure the adequacy of research infrastructure and technological resources. Depending on disciplinary requirements, these may include laboratories, equipment, libraries, scientific databases, research software, digital platforms, and research management information systems. Institutions should periodically assess whether these resources are accessible, adequately utilized, and responsive to current research needs. In the context of digital transformation, databases, research information systems, digital collaboration tools, and data management infrastructure have become increasingly important components of institutional research capacity (Stufflebeam & Zhang, 2017).

Management of the Research Process

Process management concerns the conversion of available resources into organized and productive research activities. Three management areas deserve particular attention.

First, research planning and implementation procedures should be clearly established. Research plans at institutional and academic unit levels need to reflect established priorities and available resources. Procedures should specify how proposals are submitted, reviewed, approved, funded, implemented, monitored, and completed. Lecturers should also receive appropriate support in identifying funding opportunities, preparing proposals, developing research teams, and participating in interdisciplinary and collaborative research.

Second, monitoring should support both improvement and accountability. Monitoring criteria may address progress toward approved objectives, use of resources, methodological quality, expected outputs, and compliance with relevant requirements. Depending on the characteristics of individual projects, progress reports, interim reviews, expert feedback, and final evaluations may be used. The principal purpose of monitoring is to identify implementation problems in time for corrective action rather than merely to verify administrative compliance after problems have occurred (Stufflebeam & Shinkfield, 1985; Stufflebeam & Zhang, 2017).

Third, publication, dissemination, and research utilization should be integrated into the management process. Institutions can support lecturers in preparing manuscripts, identifying appropriate publication outlets, disseminating research findings, protecting intellectual property, and exploring opportunities for technology transfer and practical application. Connections with potential users, including businesses, government agencies, professional organizations, and other educational institutions, can increase the likelihood that research findings are utilized beyond the academic community. This approach is consistent with the view that information becomes more useful when it is connected to identifiable users and actual decisions (Patton & Campbell Patton, 2022).

Management of Outputs of Scientific Research Activities

Output management involves assessing research results and using the resulting evidence to inform subsequent management decisions. Within the proposed framework, three groups of outputs are particularly relevant.

The first group consists of scientific and scholarly outputs, including peer-reviewed journal articles, books, monographs, conference papers, research reports, and other academic products. Evaluation should combine quantitative indicators with judgments concerning publication quality, scholarly influence, contribution to

knowledge, relevance, and alignment with institutional research priorities. Publication counts alone are insufficient to provide a comprehensive assessment of research performance (Stufflebeam & Zhang, 2017).

The second group concerns practical application and broader impact. Research outcomes may include patents, technological solutions, technology transfer, contributions to policy or professional practice, and collaborative products developed with external organizations. Institutions should establish mechanisms for identifying research with potential for application, connecting researchers with relevant users, and assessing how research findings contribute to intended benefits and practical needs (Rossi et al., 2004).

The third group concerns contributions to teaching and academic development. Scientific research can inform the renewal of course content, the development of research-based teaching materials, curriculum improvement, and the participation of undergraduate and postgraduate students in research activities. Evaluating this contribution is particularly relevant in higher education because research and teaching constitute closely connected institutional functions. Encouraging lecturers to incorporate relevant research findings into teaching can extend the value of research beyond scientific publication.

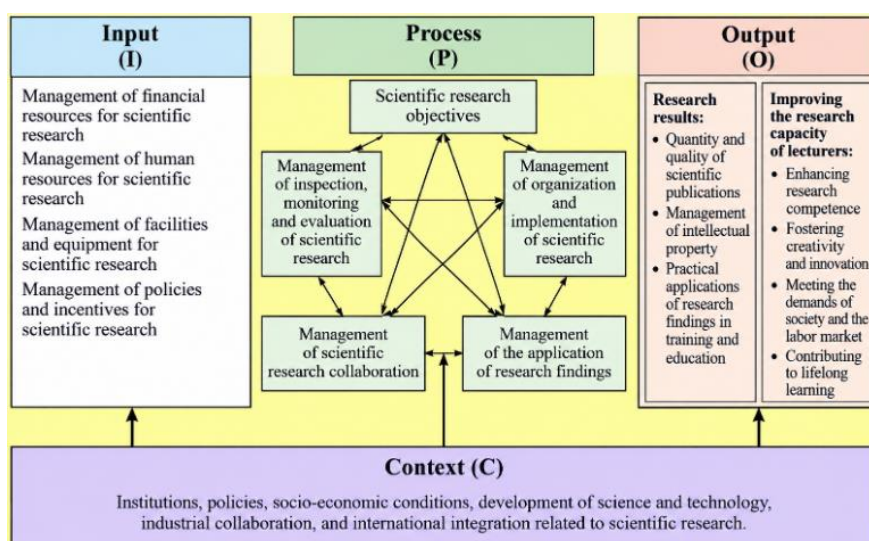


Figure 2. CIPO-Based Management Framework for University Lecturers' Scientific Research Activities
(Source: Compiled by the author during the research process)

Figure 2 summarizes the proposed CIPO-based management framework. Context establishes research priorities and relevant environmental conditions. Input provides the resources and capacities required to pursue these priorities. Process concerns the organization and implementation of research activities, while Output provides evidence of the academic and practical results achieved. These relationships are reciprocal. Evidence obtained from Process and Output can indicate the need to revise priorities, redistribute resources, strengthen research capacity, or modify management procedures. Research management based on CIPO should therefore be viewed as a continuing cycle of planning, implementation, evaluation, feedback, and improvement rather than as a process that ends when research outputs are produced (Scheerens, 1990; Stufflebeam, 2003; Stufflebeam & Zhang, 2017).

Some Measures for Applying the CIPO Model to Improve the Quality of University Lecturers' Scientific Research Activities in Higher Education Institutions

First, develop coherent research strategies and policies. Clearly define research orientations and objectives aligned with institutional development strategies and societal needs. Introduce policies that support research, foster motivation, and encourage lecturers to participate in highly applicable research projects. Develop a professional academic environment by establishing research centers and academic exchange spaces and organizing conferences and forums to facilitate interaction and collaboration between lecturers and domestic and international experts. Strengthen partnerships with research organizations, businesses, and other universities to expand access to resources and knowledge.

Second, enhance lecturers' research capacity. Organize advanced training courses on research methods, international scientific writing skills, and academic foreign-language proficiency. Develop professional development programs, postdoctoral training, and academic exchange programs to improve lecturers' professional expertise.

Increase investment in financial resources and research facilities. Strengthen investment in laboratories, digital libraries, and research databases to provide lecturers with appropriate conditions for conducting research effectively. Diversify research funding sources through the state budget, business partnerships, and domestic and international research funds.

Third, improve the organization and implementation of research. Establish transparent and effective procedures for registering, conducting, and monitoring research projects while reducing unnecessary administrative procedures. Assign specific responsibilities to individual members of research teams and create favorable conditions for interdisciplinary collaboration. Strengthen the monitoring and evaluation of the research process by establishing a system of periodic monitoring and evaluation based on criteria relating to research quality and project progress. Organize peer-review panels and periodic project evaluations to ensure that research projects achieve the expected outcomes. Provide support for the publication and transfer of research findings by assisting lecturers with manuscript preparation, translation, and submission to reputable scientific journals. Establish mechanisms for technology transfer, encourage the practical application of research findings, and develop strong partnerships with businesses.

Fourth, improve the quality and quantity of scientific publications. Develop a system of indicators for evaluating research outcomes based on both quantity and quality rather than merely counting the number of publications. Encourage lecturers to publish research that meets international standards, thereby contributing to enhancing the institution's reputation. Promote the integration of research findings into teaching and technology transfer. Incorporate research findings into curricula, provide students with up-to-date knowledge, and support the development of academic programs. Collaborate with businesses to commercialize research products, generate revenue, and promote innovation.

The application of the CIPO model not only enables higher education institutions to manage scientific research activities comprehensively but also contributes to establishing an integrated support system encompassing research policies, resources, processes, and outcomes. The measures outlined above are intended to improve the quality and practical value of research, thereby contributing to the sustainable development of higher education.

Conclusion

The application of the CIPO model enables the systematic management of scientific research by providing an integrated analysis of four components: Context, Input, Process, and Output. This approach allows managers to gain a comprehensive understanding of the factors influencing research activities and, accordingly, to formulate appropriate management strategies. The model emphasizes the close interrelationships among these management components. A supportive context, adequate resources, and effectively organized research processes contribute to the production of high-quality research outcomes. Conversely, a lack of alignment or imbalances among these components may reduce the effectiveness of scientific research activities.

The novelty of this study lies in clarifying and systematizing the theoretical foundations of the CIPO model in managing university lecturers' scientific research activities through a comprehensive approach encompassing Context, Input, Process, and Output. On this basis, the study analyzes the applicability of the CIPO model to research management in the context of digital transformation, thereby contributing to addressing the lack of systematic and in-depth research in this area. In addition, the study proposes a framework for research management and corresponding management measures based on the CIPO approach, with the aim of improving the quality of scientific publications, strengthening lecturers' research capacity, and enhancing the linkage between research, teaching, and higher education practice.

The successful application of the CIPO model not only contributes to improving the quality of scientific research but also promotes innovation and enhances the reputation of higher education institutions. This requires long-term commitment from institutional leaders, together with flexible mechanisms for evaluation and adjustment to respond promptly to changes in the research environment. From a theoretical perspective, therefore, the application of the CIPO model provides a comprehensive and systematic framework for guiding, organizing, and evaluating university lecturers' scientific research activities. However, successful implementation requires higher education institutions to align their policies, invest adequately in resources, and improve management processes in order to create a dynamic and innovative research environment that meets the current requirements of international integration and sustainable development.

References

- Abbas, J. (2020). HEISQUAL: A modern approach to measure service quality in higher education institutions. *Studies in Educational Evaluation*, 67, 100933. <https://doi.org/10.1016/j.stueduc.2020.100933>
- Bamberger, M., Rugh, J., & Mabry, L. (2021). *RealWorld evaluation: Working under budget, time, data, and political constraints*. Thousand Oaks, CA: SAGE Publications.
- Chang, D. F., & Lin, N. J. (2018). Applying CIPO indicators to examine internationalization in higher education institutions in Taiwan. *International Journal of Educational Development*, 63, 20-28. <https://doi.org/10.1016/j.ijedudev.2017.12.007>
- Fitzpatrick, J. L., Sanders, J. R., & Worthen, B. R. (2022). *The CIPO program evaluation: Alternative approaches and practical guidelines* (4th ed.). Boston, MA: Pearson.
- Kember, D. (1997). A reconceptualisation of the research into university academics' conceptions of teaching. *Learning and instruction*, 7(3), 255-275. [https://doi.org/10.1016/S0959-4752\(96\)00028-X](https://doi.org/10.1016/S0959-4752(96)00028-X)
- Mertens, D. M. (2023). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed CIPO methods*. Thousand Oaks, CA: SAGE Publications.
- Patton, M. Q., & Campbell-Patton, C. E. (2022). *Utilization-focused evaluation* (5th ed.). SAGE Publications.
- Rossi, P. H., Lipsey, M. W., & Freeman, H. E. (2004). *Evaluation: A systematic approach* (7th ed.). SAGE Publications.
- Scheerens, J. (1990). School effectiveness research and the development of process indicators of school functioning. *School Effectiveness and School Improvement*, 1(1), 61–80. <https://doi.org/10.1080/0924345900010106>
- Scheerens, J. (2000). *Improving school effectiveness* (Fundamentals of Educational Planning No. 68). UNESCO International Institute for Educational Planning.
- Scriven, M. (2021). *Evaluation thesaurus* (4th ed.). Newbury Park, CA: Sage Publications.
- Stufflebeam, D. L. (1971). The relevance of the CIPP evaluation model for educational accountability. *Journal of Research and Development in Education*, 5(1), 19–25.
- Stufflebeam, D. L. (1971). The use of experimental design in educational evaluation. *Journal of Educational Measurement*, 8(4), 267–274. <https://doi.org/10.1111/j.1745-3984.1971.tb00936.x>
- Stufflebeam, D. L. (2003). The CIPP model for evaluation. In T. Kellaghan & D. L. Stufflebeam (Eds.), *International handbook of educational evaluation* (pp. 31–62). Kluwer Academic Publishers.
- Stufflebeam, D. L. (2023). The CIPO Model for Evaluation. *New Directions for Evaluation*, 99, 35-46.
- Stufflebeam, D. L., & Shinkfield, A. J. (1985). *Systematic evaluation: A self-instructional guide to theory and practice*. Kluwer-Nijhoff Publishing.
- Stufflebeam, D. L., & Shinkfield, A. J. (2021). *Evaluation theory, models, and applications CIPO*. San Francisco, CA: Jossey-Bass.
- Stufflebeam, D. L., & Zhang, G. (2017). *The CIPP evaluation model: How to evaluate for improvement and accountability*. Guilford Press.
- Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications.
- Yin, R. K. (2024). *Case study research: Design, methods and application of CIPO*. Thousand Oaks, CA: SAGE Publications.