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AN EDUCOLOGICAL MECHANISM FOR MANAGING THE EDUCATIONAL PROCESS IN HIGHER EDUCATION: PRINCIPLES, COMPONENTS AND FEEDBACK LOOPS

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ABSTRACT The effective management of the educational process in higher education requires a systematic approach that integrates pedagogical principles, organizational structures, learning technologies, assessment procedures, and continuous feedback mechanisms. This article examines the concept of an educological mechanism as an integrated framework for planning, implementing, monitoring, and improving educational activities in higher education institutions. Particular attention is given to the theoretical principles underlying the mechanism, its structural components, and the role of feedback loops in ensuring continuous improvement in teaching and learning. The study conceptualizes the educological mechanism as a dynamic system in which educational goals, curriculum design, teaching methods, student engagement, assessment practices, and institutional management interact with one another. It also explores how feedback from students, academic staff, assessment results, and quality assurance procedures can be used to identify educational challenges and support evidence-informed decision-making. The article emphasizes the importance of learner-centeredness, systematicity, transparency, adaptability, and the alignment of educational objectives with learning outcomes. Furthermore, it highlights the potential of digital learning environments and data-informed monitoring tools to strengthen communication, facilitate timely interventions, and improve the responsiveness of educational management. The proposed conceptual framework demonstrates that feedback should not be treated as a final stage of the educational process but as a continuous mechanism connecting planning, implementation, evaluation, and improvement. The article concludes that an integrated educological mechanism can provide a theoretical and practical foundation for enhancing educational quality, institutional effectiveness, and student learning outcomes in higher education. Its successful implementation depends on clearly defined responsibilities, reliable information, constructive stakeholder engagement, and a sustained institutional commitment to continuous improvement.

Keywords: educological mechanism, higher education, educational process management, educational quality, feedback loops, continuous improvement, student-centered learning, learning outcomes, quality assurance, evidence-informed decision-making, digital learning environment.

INTRODUCTION In the context of ongoing transformations in higher education, the effective management of the educational process has become a significant priority for universities worldwide. The expansion of digital learning environments, the diversification of student needs, the development of competency-based education, and the growing emphasis on measurable learning outcomes require higher education institutions to reconsider traditional approaches to educational planning and management. Universities are increasingly expected not only to provide high-quality instruction but also to establish transparent, flexible, and evidence-informed systems that support continuous improvement. Under these conditions, educational management should be understood as a comprehensive process that integrates academic planning, curriculum development, teaching and learning activities, assessment, institutional coordination, and quality

assurance. An important theoretical perspective in this regard is the concept of an educological mechanism, understood in this article as an integrated system of principles, organizational procedures, pedagogical tools, monitoring practices, and feedback processes that regulate and improve the educational process. Rather than treating teaching, assessment, and management as separate activities, this approach emphasizes their interdependence and coordinated functioning. Educational objectives determine curriculum content and instructional strategies, while assessment results and stakeholder feedback provide information about the effectiveness of their implementation. Consequently, the quality of educational management depends on the extent to which these components operate as parts of a coherent system. The educological mechanism therefore provides a conceptual basis for examining how educational goals are translated into practical activities, how progress is monitored, and how identified problems lead to appropriate corrective measures. A further essential element of educational process management is the establishment of effective feedback loops. Feedback enables students and academic staff to identify strengths, recognize learning difficulties, and make informed decisions about subsequent educational activities. Research on formative assessment and feedback in higher education emphasizes that feedback becomes meaningful when learners understand it and use it to improve their subsequent performance (Morris et al., 2021). Wiley Online Library +1 Similarly, feedback at the institutional level can help university leaders evaluate the effectiveness of educational policies, teaching practices, and quality assurance procedures. However, collecting feedback alone does not guarantee improvement. Its value depends on whether the information is analyzed, communicated to relevant stakeholders, translated into practical action, and subsequently evaluated. Recent research on institutional quality assurance also demonstrates the difficulties universities may face in ensuring that student feedback leads to visible and sustainable changes.

Despite the increasing attention given to educational quality and evidence-informed management, an important challenge remains the integration of individual educational components into a coherent and continuously functioning mechanism. In some institutional settings, assessment, student surveys, academic monitoring, and quality assurance may operate as separate procedures rather than as interconnected stages of a common improvement process. This fragmentation can limit the practical value of collected information and delay responses to emerging educational needs. Consequently, there is a need for a conceptual approach that explains how educational principles, management structures, learning activities, assessment practices, and feedback loops can function together within a unified system. The purpose of this article is to develop a conceptual understanding of an educological mechanism for managing the educational process in higher education, with particular attention to its guiding principles, structural components, and feedback loops. The article seeks to identify the relationships between educational planning, implementation, monitoring, evaluation, and improvement, while explaining how feedback from students, academic staff, assessment results, and institutional quality assurance can inform managerial decisions. The proposed approach is intended to contribute to the theoretical discussion of educational management and provide a practical foundation for improving coordination, responsiveness, transparency, and continuous quality development in higher education institutions. The article adopts a conceptual perspective; therefore, the proposed mechanism should be understood as a framework for theoretical analysis and practical application rather than as an empirically validated model.

MAIN PART

Theoretical Foundations and Principles of the Educological Mechanism The management of the educational process in higher education requires a comprehensive understanding of the relationships between educational objectives, teaching practices, student learning, assessment, and institutional development. Within this perspective, an educological mechanism can be conceptualized as an integrated system that coordinates the theoretical, methodological,

organizational, and evaluative dimensions of education. Its primary function is to ensure that educational activities are purposeful, consistent with established learning outcomes, responsive to students' needs, and subject to continuous improvement. Unlike approaches that focus exclusively on administrative control or the delivery of instructional content, this mechanism emphasizes the interaction between educational processes and the conditions under which learning takes place. The theoretical foundation of the proposed mechanism is closely connected with systems thinking, the principles of student-centered learning, formative assessment, and continuous quality improvement. Systems thinking views an educational institution as an interconnected structure in which changes in one component may influence the functioning of other components. For example, modifications to curriculum content may require adjustments in teaching methods, assessment criteria, learning resources, and professional development for academic staff. Consequently, effective educational management requires coordination rather than isolated interventions. Biggs and Tang (2011) emphasize the importance of constructive alignment between intended learning outcomes, teaching and learning activities, and assessment tasks. This principle is particularly relevant to the educological mechanism because it provides a basis for ensuring consistency between what students are expected to learn, how learning is organized, and how achievement is evaluated. Another fundamental principle is learner-centeredness, which recognizes students as active participants in the educational process rather than passive recipients of information. Student-centered management requires consideration of students' prior knowledge, individual learning needs, motivation, and opportunities for participation. This approach does not eliminate the responsibilities of academic staff or institutional leaders; instead, it promotes shared responsibility for educational quality. Feedback from students can reveal difficulties that may not be immediately apparent through formal assessment results alone. However, student perspectives should be considered alongside professional academic judgment, curriculum requirements, and reliable evidence of learning outcomes.

The principle of systematicity ensures that educational planning, implementation, monitoring, and evaluation operate as interconnected stages. Transparency requires that educational objectives, assessment criteria, institutional responsibilities, and procedures for addressing identified problems be clearly communicated. Adaptability enables institutions to respond to changing educational requirements, technological developments, and emerging student needs. Finally, the principle of evidence-informed decision-making requires managerial choices to be based on relevant information rather than assumptions alone. These principles provide the normative foundation of the educological mechanism and determine how its components should interact to support educational effectiveness.

Structural Components of the Educological Mechanism The proposed educological mechanism consists of several interrelated components: goal-setting and planning, curriculum and instructional design, implementation of teaching and learning, assessment and monitoring, feedback analysis, managerial decision-making, and continuous improvement. These components should not be regarded as independent administrative units. Their effectiveness depends on the quality of communication and coordination between them. The first component, goal-setting and planning, establishes the direction of the educational process. At this stage, institutions define educational priorities, expected learning outcomes, performance indicators, available resources, and the responsibilities of relevant stakeholders. Clear objectives make it possible to evaluate whether educational activities are achieving their intended purposes. At the program level, learning outcomes should correspond to the requirements of the relevant qualification framework, professional expectations, and the developmental needs of students. Planning also involves identifying potential challenges, allocating teaching resources, and establishing procedures for monitoring progress. The second component concerns curriculum development and instructional design. Curriculum content, teaching methods, learning materials, and assessment tasks should be

aligned with the intended learning outcomes. For instance, if a university program aims to develop critical thinking, communication, and problem-solving skills, teaching should incorporate analytical tasks, collaborative projects, case studies, and opportunities for independent inquiry. Assessment should then measure these competencies rather than rely exclusively on the reproduction of theoretical information. Such alignment strengthens the coherence of the educational process and helps academic staff identify whether instructional strategies adequately support the expected learning outcomes. The third component is the implementation of teaching and learning activities. This stage involves the practical organization of lectures, seminars, workshops, independent study, research projects, and digital learning activities. The effectiveness of implementation depends on the competence of academic staff, the availability of educational resources, the suitability of instructional methods, and the level of student engagement. Educational management should therefore provide appropriate organizational support, professional development opportunities, and accessible learning environments. Digital platforms may facilitate communication, distribute learning materials, record assessment results, and provide opportunities for timely academic support. Nevertheless, technology should serve clearly defined educational purposes rather than become an independent measure of educational quality. The fourth component involves assessment and monitoring. Assessment provides information about students' progress and the extent to which intended learning outcomes have been achieved. Formative assessment supports learning during the educational process, while summative assessment evaluates achievement at designated stages. Monitoring may also include attendance patterns, participation, completion of assignments, student satisfaction, and academic progression. These indicators should be interpreted carefully because no single measure can provide a complete picture of educational quality. For example, high student satisfaction does not necessarily demonstrate strong learning outcomes, just as a low assessment result does not automatically identify the precise cause of a learning difficulty. Effective monitoring therefore combines quantitative indicators with qualitative evidence, including student reflections, academic staff observations, and analysis of assessment tasks. The fifth component is feedback analysis and interpretation. Information collected through assessments, surveys, consultations, academic reviews, and institutional monitoring must be examined to identify recurring patterns, strengths, weaknesses, and possible causes of educational difficulties. Feedback becomes useful when it is specific, understandable, timely, and connected to an identifiable learning or management objective.

Hattie and Timperley (2007) explain that the effectiveness of feedback depends partly on the questions it addresses: where the learner is going, how the learner is progressing, and what should happen next. Although their framework primarily addresses learning and performance, its underlying logic can also inform institutional processes by helping academic staff and administrators identify objectives, evaluate current performance, and determine appropriate next steps. The sixth component is managerial decision-making and corrective action. Following the analysis of evidence, relevant stakeholders should determine what changes are necessary, who is responsible for implementing them, and how their effectiveness will be evaluated. Corrective measures may include revising teaching materials, providing additional academic consultations, modifying assessment instructions, improving digital resources, or organizing professional development for academic staff. The final component, continuous improvement, evaluates whether these interventions have produced the intended results. The findings then inform subsequent planning, ensuring that the mechanism remains dynamic rather than operating as a one-time evaluation procedure.

Feedback Loops as a Core Element of Educational Process Management Feedback loops constitute one of the most important elements of the proposed educological mechanism because they connect educational objectives with actual performance and subsequent improvement. A

feedback loop can be defined as a continuous process in which information about the results of an activity is collected, interpreted, and used to adjust future actions. In higher education, feedback operates at several interconnected levels: student learning, teaching practice, academic program management, and institutional quality assurance. The effectiveness of the overall mechanism depends on whether information can move between these levels and contribute to appropriate decisions. At the student level, feedback helps learners understand their progress, identify mistakes, and improve their academic performance. Written comments on assignments, individual consultations, peer assessment, and formative quizzes can provide information about both achievement and areas requiring further development. Nicol and Macfarlane-Dick (2006) emphasize the relationship between formative assessment, feedback, and the development of students' capacity for self-regulated learning. From the perspective of the educological mechanism, this means that feedback should encourage learners to reflect on their performance and take an active role in improving it. Simply assigning a grade is often insufficient if students do not understand why they received that result or how they can improve.

At the teaching level, feedback provides academic staff with information about the effectiveness of instructional methods, the clarity of learning materials, and the extent to which students understand course content. For example, if assessment results repeatedly indicate difficulties with a particular concept, the instructor may reconsider the explanation, introduce additional examples, or provide supplementary learning activities. Student surveys and classroom discussions can also help identify problems related to workload, accessibility of materials, or assessment instructions. However, such information should be interpreted in context and compared with other evidence before changes are introduced. This reduces the likelihood of making decisions based on isolated opinions or temporary difficulties. At the institutional level, feedback loops support academic program review and strategic management. Universities can analyze information from course evaluations, graduate surveys, employer consultations, accreditation procedures, and student progression records to identify broader patterns. If several courses within a program reveal similar learning difficulties, the issue may relate not to an individual instructor but to curriculum sequencing, the distribution of workload, or insufficient learning resources. Institutional feedback therefore enables administrators to move beyond individual problems and examine the structural conditions that influence educational outcomes.

A complete feedback loop requires several stages: defining the expected outcome, collecting relevant information, analyzing the difference between expected and actual performance, implementing corrective measures, and evaluating the results of those measures. The loop is completed only when the effects of the intervention are examined and the findings are used to inform subsequent decisions. If a university collects student feedback but does not communicate the results or explain what actions have been taken, the process remains incomplete. Such situations may reduce stakeholder trust and discourage future participation. Consequently, feedback management should include clear responsibilities, reasonable response periods, documented actions, and communication about the outcomes of improvement initiatives. The proposed mechanism can therefore be understood as a continuous cycle rather than a linear administrative procedure. Feedback is generated during the implementation of educational activities, influences immediate instructional decisions, and contributes to longer-term institutional planning. This cyclical structure allows higher education institutions to identify emerging challenges earlier, adjust educational practices more effectively, and maintain a closer relationship between institutional objectives and students' learning experiences.

RESEARCH METHODOLOGY The study employs a conceptual and theoretical research approach to examine the educological mechanism for managing the educational process in higher education. The methodological framework is based on the analysis, comparison, synthesis, and systematization of scholarly literature related to educational management, student-centered

learning, formative assessment, feedback processes, and quality assurance in higher education. These methods make it possible to identify the principal theoretical foundations of the proposed mechanism and establish relationships between its structural components. The method of theoretical analysis is used to examine established approaches to educational process management and identify principles relevant to the coordination of teaching, learning, assessment, and institutional decision-making. Comparative analysis is applied to distinguish the functions of individual components and determine how they contribute to the overall effectiveness of educational management. Systems analysis provides the basis for interpreting the educational process as an interconnected structure in which planning, implementation, monitoring, evaluation, and improvement influence one another. Conceptual modeling is employed to develop an integrated framework that illustrates the interaction between educational objectives, instructional activities, assessment procedures, feedback analysis, and corrective actions. Particular attention is given to feedback loops as mechanisms that connect the evaluation of educational outcomes with subsequent managerial decisions. The framework also considers the potential contribution of digital learning platforms and data-informed monitoring to the collection and interpretation of educational information. The study is conceptual in nature and does not claim to present empirical findings obtained through surveys, experiments, or institutional case studies. Accordingly, the proposed framework is intended to provide a theoretical foundation for further empirical investigation and practical application in higher education institutions.

RESULTS AND DISCUSSION The theoretical analysis resulted in the development of a conceptual framework for understanding the educological mechanism as an integrated system of educational planning, implementation, monitoring, feedback, and continuous improvement. The principal result is the identification of the relationships between the mechanism's structural components and the role of feedback loops in maintaining coordination among them. The analysis indicates that the effectiveness of educational process management depends on the alignment of educational objectives, curriculum content, teaching methods, and assessment procedures. When these elements are coordinated, academic staff can evaluate student achievement more consistently and identify whether instructional activities support the intended learning outcomes. This finding is consistent with the constructive alignment approach developed by Biggs and Tang (2011), which emphasizes the relationship between learning outcomes, teaching activities, and assessment.

CONCLUSION The study has examined the ecological mechanism for managing the educational process in higher education, focusing on its theoretical principles, structural components, and feedback loops. The conceptual analysis demonstrates that effective educational management requires an integrated approach in which educational planning, curriculum design, teaching activities, assessment, monitoring, and quality improvement function as interconnected elements. The proposed framework emphasizes that the quality of higher education depends not only on the effectiveness of individual teaching practices but also on the coordination of educational activities and institutional management procedures. The findings of the theoretical analysis highlight several fundamental principles of the ecological mechanism, including systematicity, learner-centeredness, transparency, adaptability, and evidence-informed decision-making. These principles provide a foundation for aligning educational objectives with teaching strategies, assessment procedures, and expected learning outcomes. The analysis also indicates that clearly defined responsibilities among university administrators, academic staff, students, and quality assurance units are essential for maintaining consistency and accountability throughout the educational process. Particular attention has been given to feedback loops as a central element of continuous educational improvement. Feedback becomes effective when information about student learning and institutional performance is systematically collected, analyzed, and translated into appropriate corrective actions. The subsequent evaluation of these actions enables institutions to determine whether the introduced changes have achieved their intended objectives. Therefore,

feedback should be regarded as an ongoing process that connects planning, implementation, evaluation, and further development rather than as an isolated assessment activity. The study also highlights the potential of digital technologies to strengthen educational management through improved communication, timely monitoring, and evidence-informed decision-making. However, the successful application of digital tools requires responsible data management, appropriate professional competencies, and careful consideration of students' educational needs. Technology should support pedagogical objectives and institutional development rather than replace professional judgment and meaningful interaction between educational stakeholders.

In conclusion, the proposed ecological mechanism offers a conceptual foundation for improving the coordination, responsiveness, and continuous development of the educational process in higher education institutions. Its practical value lies in integrating educational objectives, instructional practices, assessment, stakeholder participation, and feedback into a coherent management framework. Nevertheless, since the study is theoretical in nature, further empirical research is required to evaluate the framework's effectiveness in different institutional contexts. Future studies may focus on testing the proposed model through university case studies, comparative analysis, and the evaluation of measurable educational outcomes. Such research would contribute to refining the mechanism and identifying effective strategies for sustainable improvement in higher education quality.

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